The Sierra Leone Free Health Care Initiative (FHCI): process and effectiveness review

Technical Report · May 2016

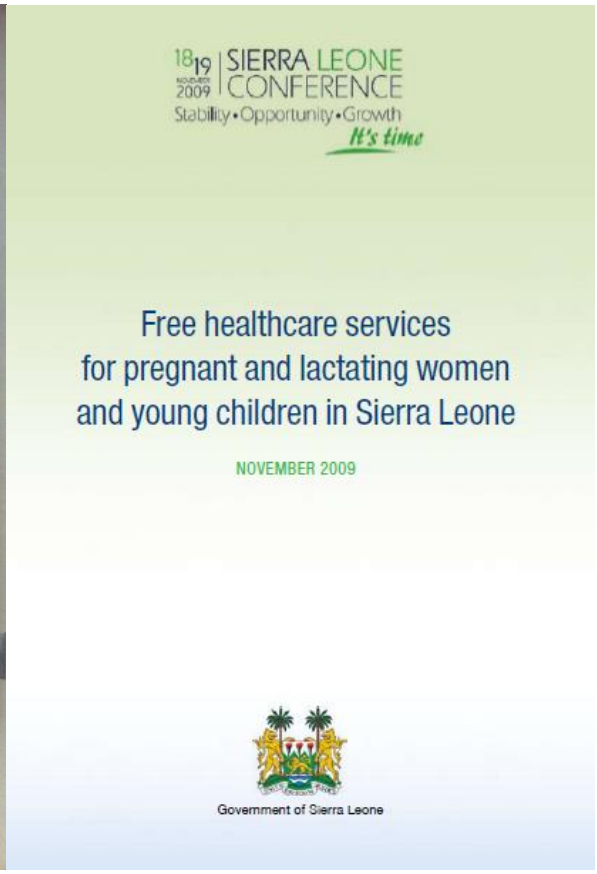
DOI: 10.13140/RG.2.1.2673.4960

11 authors, including:

Sophie Witter
Queen Margaret University
127 PUBLICATIONS **1,880** CITATIONS
SEE PROFILE

Alex Jones
The University of the West Indies, Trinidad a…
3 PUBLICATIONS **3** CITATIONS
SEE PROFILE

The Sierra Leone Free Health Care Initiative (FHCI): process and effectiveness review



Sophie Witter, Nouria Brikci, Tim Harris, Richard Williams, Sarah Keen, Ana Mujica, Alex Jones, Alex Murray-Zmijewski, Barbara Bale, Bailah Leigh and Ade Renner

27 April 2016

Preface

The HEART team is extremely grateful to the Minister of Health and the Chief Medical Officer in particular for their support throughout this review. We are also particularly grateful to Dr S.A.S. Kargbo, who has consistently made his teams and data available to us, and to all other Ministry of Health and Sanitation (MoHS) staff for their time and insights. The perspective of health workers, district health teams, local councils and civil society groups was invaluable, while thanks are also due to the communities who received us warmly and answered all our questions. We are also grateful to all other key informants across ministries, donors, health implementation partners, international non-governmental organisations (INGOs) and consultants who have shared information with us. Finally, we would like to thank the Department for International Development (DFID) team of health advisers whose inputs have further enriched this review

Executive summary

Background

Introduced by the President of Sierra Leone in 2010, the FHCI abolished health user fees for pregnant women, lactating mothers and children under five years of age. This action was taken in response to very high mortality and morbidity levels among mothers and children in Sierra Leone – some of the worst in the world – and reports that financial costs were a major barrier to health service uptake and use by these groups.

This report presents an independent review of the FHCI. The main users of the review findings will be the MoHS, the Government of Sierra Leone (GoSL), and their development partners. DFID funded the study, which has been coordinated with the MoHS and key stakeholders. The findings of the review remain relevant not just in terms of assessing this important policy initiative retrospectively but also to inform the rollout of the current post-Ebola investments in Sierra Leone.

Methods

This review covers the period 2010 to 2015, although to establish trends earlier data points are included where relevant. It assesses the extent to which the FHCI has contributed to saving lives through improved health outcomes for the target groups, as well as the extent to which the initiative represents value for money (VfM). It also responds to questions on how effectively the FHCI was implemented, whether it addressed the right interventions, other barriers still remaining, equity effects, unintended consequences and how to sustain the FHCI in the future.

There are a number of important features of the intervention that influenced the design of the review:

- **The FHCI was a complex intervention**, involving not only changes to charging of the target groups but also actions to strengthen all health system pillars. The review is therefore of this whole package of health system reforms.
- **The FHCI was implemented in a dynamic way,** triggering and responding to changes over time. This review is therefore not based on a snapshot in time but is of an evolving story.
- **The FHCI was a 'whole system' change,** introduced in all regions simultaneously. This means there is thus no 'control group' to provide a counterfactual. No baseline was done and many data sources were only introduced after the FHCI, which are major constraints to before/after assessments.

The study used a theory-based evaluation approach. A theory of change (ToC) was developed in 2014 by the evaluation team to map out how the FHCI might produce impact and what would need to be examined to understand whether it had done so and, if so, how and why. An evaluation framework mapped possible information sources against each domain. We then drew on mixed methods to populate the framework, triangulating between sources where possible to come to judgements about the plausible contribution of the FHCI.

Analytical approaches included interrupted time series analysis of national survey data to examine mortality and morbidity trends and draw inferences about the contribution of the FHCI to observed trends, as well as modelling of impact using the Lives Saved Tool (LiST) and modelling of future revenues and expenditures for the fiscal space analysis. Other data sources include key informant interviews (KIIs) at national and district level, focus group discussions (FGDs) in four districts, extensive document review across all health system pillars, and analysis of routine information

systems (for financial, staffing, logistics and health output data). The review also incorporated key findings from other relevant research projects, such as ReBUILD (for analysis of human resources (HR) and some health financing indicators). Beyond constraints derived from the nature of the intervention, the main study limitations derived from data sources that were in some cases absent, partial or weak. Information from these sources is presented with suitable caveats.

Structure of this report

In order to assess the changes introduced by the FHCI, an understanding of the health system prior to its launch is needed. The report starts by describing health indicators and the health system in Sierra Leone before 2010. It then gives a narrative for the launch of the FHCI, including the preparatory activities in the run-up to April 2010. A chronology of changes under the different health systems pillars is provided, examining for each the key changes, their implementation and effectiveness, and what challenges remain. The analysis then returns to the ToC framework to document changes to coverage of key maternal and child health (MCH) services, quality of care, barriers to service uptake, outcomes (maternal and child mortality and morbidity) and wider impacts, including possible unintended consequences. The health outcome changes are assessed in the context of wider changes in Sierra Leone. A summative VfM assessment is given, looking at economy, efficiency, cost-effectiveness, equity and sustainability. The sustainability aspect incorporates a more forward-looking fiscal space analysis to assist government with financial planning for the FHCI. The report ends by briefly comparing Sierra Leone's experience with other countries in the region and drawing out recommendations for strengthening the FHCI and the wider health sector.

Findings

We present a summary of the findings here in relation to the seven original evaluation questions posed in the terms of reference (Annex A).

1. **Are the seven priority interventions the right ones to ensure continued and increased utilisation of services by the target beneficiaries?**

This question focuses on the relevance and comprehensiveness of the seven pillars - health financing, governance, human resources, drugs and medical supplies, infrastructure, monitoring and evaluation and communication - that formed the focus of the FHCI. The evaluation team concludes that each of the pillars was relevant and appropriate – even essential – to making the FHCI potentially effective, and that the FHCI itself responded to a clear population need. It was in fact one of the distinguishing features of the FHCI, compared to previous user fee removal policies in the region, that a systematic approach was adopted, proactively identifying the health system pillars needing strengthening.

We have also considered whether any important elements were missed, during the inception phase, which should have been included. As the health pillars adopted were very comprehensive, this is not a major concern. Within pillars, some elements should have received more focus and across the board there have been issues of how reforms were effected. The cross-cutting area that was relatively neglected from the start was quality of care, incorporating crucial elements that have not received sufficient attention, such as improving staff performance and responsiveness, clinical supervision in support of evidence-based practice and monitoring of core quality of care indicators. Community engagement was also limited to monitoring by civil society groups.

2. **How and to what extent were the priority interventions that were put in place effective in enabling the FHCI to be operationalised?**

The breadth of ambition of the FHCI was a risk, especially given the weak starting position of the health system in Sierra Leone. We find (see section 4) that there was differential effectiveness of implementation across not only the pillars but also over time. Some real gains were achieved initially, notably in terms of revitalising structures for sector governance, increased staffing, better systems for staff management and pay, and for getting funds to the facilities. New monitoring and evaluation (M&E) systems were introduced, facility audits conducted, infrastructure improved from very weak starting points, and a communication campaign initiated. Underlying these measures was an increase in health financing resources, including a prioritisation of MCH programmes and a switch from household to donor spending to some degree. However, some important areas such as improvements to pharmaceutical procurement and distribution were not effective, and in other areas, such as human resources, reforming momentum was lost over time. With the benefit of our long lens (six years on from the start of the FHCI), we see problems that were tackled just prior to the FHCI, like cleaning the payroll, re-emerging as problems now.

Some see the weak response to Ebola in 2014/15 as an indictment of the health system and of prior attempts to improve it, such as the FHCI. We do not endorse that view. Most low-income health systems would have struggled with the Ebola epidemic, and the slow response of international organisations was a major contributory factor. However, the sad story of the Ebola epidemic does highlight ongoing institutional weaknesses, which need to be addressed in the next phase.

3. What are the socio-cultural issues that affect the uptake of free health care among the target beneficiaries?

Studies undertaken since 2013 highlight that health care-seeking in Sierra Leone is a socially negotiated process where factors such as cultural norms, beliefs about disease aetiology, acceptability of interventions, perceptions on quality of care, household power relations and social networks are all very influential. Distance from clinics is one factor influencing uptake of care, with more distant households more likely to follow alternative and traditional routes. Gender roles are also important, with fathers typically deciding on most health care decisions that involve taking a child outside the home and which involve payments. Knowledge of danger signs (when to take mothers and children in to facilities) is another factor that influences uptake of care and health outcomes.

We have examined five barriers to health care utilisation and health gain (the 5 ‘A’s): affordability, access, awareness (of the policy and danger signs for mothers and children), attitudes (toward health seeking) and accountability (see sections 5 and 9.4). All show improvements over the period, though some are modest and the data that are available make it hard to link changes to the FHCI (for example, for the reductions in out-of-pocket (OOP) spending overall and for the FHCI groups). Awareness of the policy is high among all population groups and there is evidence that the FHCI contributed to increased awareness of danger signs by the community, greater willingness to seek health care for children and, to a small extent, greater accountability on the part of services. All of these barriers need continued focus and improvement as the health system moves ahead.

4. What contributions to health outcomes, among the target groups, did the FHCI make and how were these achieved?

The picture on changes in mortality following the introduction of the FHCI is mixed (see section 6). This is partly due to the difficulty in measuring maternal mortality in the absence of a robust vital registration system. No efforts were made prospectively to establish impact evaluation measures.

The latest UN estimates of maternal mortality put the levels in Sierra Leone at the highest in the world. Their central estimates do show declining levels but these are accompanied by wide uncertainly intervals that make it difficult to draw firm conclusions on the trend. It is not possible to measure directly if maternal mortality has changed as a result of the FHCI.

The situation for child mortality is more positive. The UN-modelled estimates show a declining trend. The UN has also produced annual estimates of under-five mortality using the 2013 Demographic and Health Survey (DHS). These show a sharp reduction in rates immediately after the start of FHCI. The levels fell from 187 deaths per 1,000 live births in 2009 to 147 in 2010. The level continued to fall in the following years, reaching 126 per 1,000 live births in 2012. The bulk of this fall relates to children aged between one month and five years. The fall in neonatal mortality (deaths under the age of one month) has been slower.

Information is available in the DHS for prevalence rates of acute respiratory infection (ARI), fever and diarrhoea for children under the age of five years. Overall, there was little change in the prevalence of these symptoms in under-fives comparing before and after the FHCI, despite an increase in interventions that should have improved these, such as reported bednet use. In contrast, the nutrition indicators for these children did show large improvements, with the proportion of underweight children falling sharply.

There have been clear improvements in the coverage and uptake of services in recent years (see section 5.1) and we would expect these to have a positive impact on the outcomes described above. Some of these appear to have started before the launch of the FHCI, but there have also been positive changes after the start of the initiative. In many cases the gap in coverage between geographical areas and wealth groups has closed significantly. These reflect a combination of contributions (see section 8).

Basic antenatal care (ANC) is now near universal in Sierra Leone, reaching 98% in 2010/11, up from 88% in 2004-9; however, the improvement in overall coverage appears to have been predominantly before the FHCI.

Protection from malaria during pregnancy has increased greatly from before the FHCI. The proportions of pregnant women using insecticide treated bed-nets (ITNs) and taking protective treatments (intermittent preventative treatment: IPTp) for malaria both more than doubled, going from 21% in 2009 to 53% in 2013.

Births in a health facility remain low by international standards but there have been improvements. These started before the FHCI but there has also been growth in the numbers since 2010, from 36% in 2004-9 to 57% of all births in the period 2010 to 2013. The picture is similar for births that are attended by a skilled health worker, with improvements both before and after FHCI.

Coverage of postnatal care (PNC) has improved since the start of the FHCI, with the HMIS data in particular showing strong growth: numbers of first PNC appointments rose by 50% between 2010 and 2014. The survey showed coverage up from 60% in 2009 to 73% in 2013.This suggests that the quantity of PNC has increased as a result of the FHCI.

The FHCI brought a surge in the number of consultations for under-fives at health facilities. The numbers more than tripled immediately after the launch to over 300,000 consultations in one month in May 2010. Numbers then declined rapidly, probably as the facilities struggled to cope with the increased demand. By 2014, the number of under-five consultations was once again approaching the 300,000 per month mark.

The picture for child immunisation rates shows improvements, although the size of these is less clear. The survey data show strong growth in fully vaccinated children under one following the FHCI, from 41% in 2009 to 68% in 2013.

The use of ITNs by children under five years old more than doubled between 2009 and 2013 from a quarter of children in 2009 to half in 2013.

Treatment rates for children under five for pneumonia, malaria and diarrhoea all appear to have improved in the years following the FHCI. In particular, the proportion of children under five with symptoms of ARI (a proxy for pneumonia) that were treated with antibiotics doubled to 45% in 2013 compared to 2009.

The gains are clear but the attribution is less so as: (1) the 2008 DHS was the first of its kind, and so it is hard to assess whether the improvements in coverage accelerated after 2010 compared with earlier growth; and (2) other developments also contributed. Ebola has clearly had a major impact on health outcomes, although this is masked in our evaluation by the fact that the main data sources analysed for health outcomes predate Ebola, unlike the qualitative tools that capture part of the Ebola and post-Ebola story. Social determinants of health are an important part of the picture too, although in general they have improved slowly over the period and so are not likely to be major explanatory factors behind any health improvements seen. External investments have played a part, especially support to infrastructure and the major disease programmes such as malaria and vaccination. There have been some improvements in poverty rates and the overall economy, albeit subject to recent shocks. In addition to these areas there are no doubt other important influences, such as national road-building programmes that may have increased access to health care, for example. All these are part of the contribution story (see section 8).

The overall conclusion that we can draw from our review is that the FHCI is likely to have contributed to the gains in under-five mortality reduction, increased coverage of MCH services and equity of MCH service coverage, which were significant in absolute terms.

Clearly, the changes to inputs and processes described in the analysis of health systems pillars tell part of the story of *how* the FHCI may have affected coverage of key services for mothers and children. The improvements in the health system will only be effective, however, if they result in reduced barriers for users, particularly increased affordability of services and increased acceptability and quality of care. We examine the evidence gathered to date on these aspects. In relation to *affordability*, there is evidence (see section 4.1) at the macro level of a shift in funding from households to donors. Household funding as a proportion of total health expenditure has gone from a high of 83% in 2007 to 62% in 2013, with donor funding ranging from a low of 12% in 2007 to a high of 32% in 2013. However, the absolute expenditure remains low per capita and households are still the predominant source of health care finance. The best available data show a modest reduction in real OOP expenditure from 2003/04 to 2011 (see section 5.3.1). Data from various sources suggest that chance of payment and amount of payment has reduced for FHCI groups, although evidence also consistently shows that a minority of those in FHCI groups (estimates vary but a recent study found 12%) are still paying for health care. The attribution of any of these changes to the FHCI is, however, constrained by data limitations.

From these various studies and estimates, we can draw a conclusion that financial barriers have reduced but not to the extent targeted by the policy, while enforcement of FHCI eligibility and realisation of rights remains to be improved.

Quality of care (both technical, in terms of effective delivery of evidence-based practice, but also as perceived by patients) is not only affected by the FHCI and its implementation but is also a

determinant of its success. In Sierra Leone the challenges to quality of care in the delivery of MCH services continue to be wide-ranging, with both supply- and demand-side factors as well as underlying social determinants exerting influence. Some progress from a weak base had been made prior to the Ebola outbreak, largely catalysed by the FHCI but also by other programmes focusing on reproductive, maternal, neonatal and child health (RMNCH), according to documentary evidence and KIIs, but the health services remain weak (see section 5.2). In addition, the evidence base to track changes to care-giving in facilities is exceptionally weak. Information on inputs and outputs has been collected but to examine the effectiveness of services, more information is needed on indicators such as case fatality rates (CFRs), re-admissions, sepsis and fresh still births, as well as on some of the influencers such as adherence to protocols and staff competences and responsiveness.

Information from before the FHCI on user satisfaction is not available. However, a survey in 2013 found that the average satisfaction score at primary care level was 7.3 out of 10. Patient satisfaction was generally higher for care received at lower-level facilities (MCH posts, compared to health centres). Our FGDs highlight concerns about the state of the health care infrastructure, staffing levels, skills and attitudes, and the non-availability of drugs in particular.

5. Did the FHCI have a differential impact on different socioeconomic groups or marginalised groups?

The evidence for changes to the gaps in coverage between socioeconomic groups from DHS data is encouraging for the period 2008 to 2013 (section 5.1). For almost all indicators inequalities reduced, and for some coverage is now either equal or even positively pro-poor (such as use of treated bed-nets for pregnant women, and childhood immunisation). The gap between geographical areas and wealth groups has narrowed for PNC. The growth in use of ITNs for under-fives was particularly noticeable among those in rural areas and the bottom four wealth quintiles (this was not a direct component of the FHCI but may have been assisted by higher facility contact rates). The lowest wealth quintile group for child immunisation has seen the most improvements: before the FHCI rates were fairly even across groups but the latest figures show the bottom wealth quintile now has higher rates than others. Skilled attendance at delivery and facility deliveries remain a challenging area, as is the case in many low-resource settings globally. It is plausible that the FHCI has been a significant contributory factor to increasing facility deliveries at a faster rate for the lower wealth quintiles, although significant differences in coverage still remain in absolute terms.

There have also been some improvements in equity across regions in terms of coverage of services. Eastern Region in particular showed great improvements moving from the worst region to the best during this period for treatment with antibiotics of children with ARI symptoms. This pattern for Eastern Region was also seen in improvements in malaria treatment for children.

Combining analysis from the Poverty Profile with reported utilisation rates by district from the District Health Information System (DHIS) suggests interesting dynamics. In 2011, Moyamba was the second poorest district and had one of the highest proportions of rural households. However, it is generally reporting the largest use of Peripheral Health Unit (PHU) services. This would need further investigation before it is concluded that the FHCI is well targeted. However, the analysis of the Sierra Leone Integrated Household Survey (SLIHS) 2011 also suggest more significant improvements in MCH care utilisation in rural areas compared to urban ones (Edoka et al., 2015). Western Area Urban shows the lowest level of poverty but, when combined with Western Area Rural, also some of the lowest levels of PHU service use. This may reflect higher use of the private sector and hospitals, and matches with evidence from our FGDs.

Analysis of per capita funding of health through local councils suggests relatively equal distribution (section 9.4). The same is true of performance-based financing (PBF) funds. However, other general health system resources such as staff are very unequally distributed, which is a long-standing pattern.

It is also possible to use HMIS data to look at the equality of utilisation by gender of children under five, although only from 2011 onwards (section 9.4). Overall, the ratio of girls to boys visiting a PHU for outpatient care has changed in the favour of girls since 2011: in that year slightly fewer girls visited a PHU than boys, whereas by 2013 it was slightly more. In 2011, girls in Bonthe visited facilities far less than boys (0.9:1) and in 2012 the same was true in Koinadugu (0.85:1). However, by 2013 more visits were by girls than boys in all districts other than Bombali.

Other access barriers include physical ones, such as distance to facilities and the transport required to reach them. As indicated in the health system pillar analysis, there have been investments in improving infrastructure and referral systems, such as ambulances, and transport under the FHCI but distance and transport cost remain significant barriers, especially for remote communities.

One study provides insights into access by disabled mothers, who might be expected to have greater difficulty reaching and using services. However, access to maternal care for disabled mothers was slightly higher than for non-disabled mothers. Access to ANC, a skilled birth attendant (SBA), a facility for delivery, use of condoms and emergency obstetric care were all roughly equally accessible. This does not indicate any change relating to the FHCI as we lack baseline data, but is an encouraging finding in relation to barriers for the disabled.

In regard to disaggregated analysis of utilisation changes and OOP levels, initial results from ReBUILD suggest a mixed picture. Overall, they find no discernible impact of the FHCI on utilisation of health facilities and OOP expenditure for children under five, and this result holds when the sample is disaggregated for household location and median household expenditure. However, they do find a positive effect for utilisation of maternal services, particularly for women in rural areas. We should, though, note that this analysis relates to 2011 when the HMIS data show that the number of under-five consultations dropped dramatically after the initial surge. It is quite possible that if we had data for other years it would show a more optimistic picture.

6. Were there any unintended consequences of the FHCI?

We examined 10 possible unintended consequences of FHCI on the health system and society but only found evidence to support one of them, which was a squeeze on non-salary expenditure within the MoHS budget (section 7).

One concern expressed by informants was that the policy would contribute to a *rise in teenage pregnancies*, presumably because of falling costs of maternal health care. However, the DHS data do not back this up. Fertility rates for 15 to 19 year olds fell from 146 per 1,000 women in 2008 to 125 in 2013. All other age groups showed much smaller reductions in fertility.

A second concern, and one which was expressed in some early reports on the FHCI, was that it had contributed to a *drop in preventive services* (through diversion of resources to curative care). However, analysis of the DHS data suggests that this has not been sustained beyond, for example, a known fall in community immunisation rates for children in the early months of the FHCI.

It is also reasonable to monitor trends in *utilisation of public services by non-targeted groups* such as general adult outpatient visits and those for older children. However, while there might be some

risk of providers focussing on target groups, it seems more likely that general utilisation is driven by demand-side factors, and here the FHCI might have positive effects too, if funds are liberated to pay for non-target group members (as the household data hints). The lack of HMIS data before April 2011 has made it difficult to assess this issue completely and we do not know how relative utilisation rates changed in the year after the start of the initiative. However the trends from 2011 to 2013 appear to show that the number of outpatient consultations has been rising for both FHCI and non-FHCI groups.

On the positive side, it is possible that the FHCI could have had an impact in terms of *women's empowerment*. Women in Sierra Leone face discrimination in virtually every aspect of their lives, with unequal access to education, economic opportunities and health care. Given their low status and lack of economic independence, women were rarely able to decide for themselves to go to a health care facility, whether for family planning, ANC, deliveries or emergency services, as such a decision was normally in the hands of the husband and often dependent on his assessment of whether they had or could raise sufficient money. However, we found no evidence that a strong shift in gender roles has occurred.

Other *changes to the health care market* might be expected to result from the FHCI. For example, private and faith-based facilities will have had to respond to changing prices in the public sector, though this is mediated by perceptions of quality and convenience. There is qualitative evidence that the private sector continues to be important for health seeking, especially in the Western Area. In the DHS, there is virtually no change between 2008 and 2013 in terms of private sector use for delivery care: just over 2% of births take place in a non-government health facility in both years.

In the informal sector, traditional birth attendants (TBAs) can no longer make the living they used to, although there is clear evidence from a number of sources that TBAs have been given the new role of linking communities and facilities, in part funded through the PBF funds at facility level. This is potentially a positive consequence, as it follows a wider global pattern of changes to the role of TBAs. Participants in our FGDs expressed confidence in the skills of TBAs and also reported using alternative services like 'traditional healers' because, according to them, they are cheap and the medication they provide works effectively. It seems overall, therefore, that other sectors remain resilient.

A number of potential unintended financial consequences were also explored. One was that there might be a *crowding out of other budget lines* in the MoHS budget by the increase in salaries awarded in 2010, which was linked to the FHCI. Looking at a breakdown of MoHS expenditure, there were significant absolute and relative decreases in HR management, secondary, and tertiary expenditure in 2011, the first budget that included FHCI expenditure. This may reflect a declining non-payroll recurrent budget (with significant increases in the payroll budget). This is a risk that requires careful management, as expectations of continuing salary increases are easily established.

Another concern was whether *other programmatic areas were squeezed* by the allocation of funding to the FHCI. There were large increases in funding to MCH in the 2011 budget. Although there was the potential for displacement of funding to vertical programmes through funding the FHCI, this does not seem to have materialised and in any case may have been minimised by some of this funding being off-budget and subject to existing donor programmes. MCH expenditure increased from 8% of non-salary recurrent MoHS expenditure in 2008 to 28% in 2014. Government prioritisation for drugs and medical supplies also increased greatly, doubling from 2010 to 2014.

Analysing National Health Accounts (NHA) data by type of expenditure shows that there were significant expenditure increases in public health programmes in 2010 (even in real terms). This

was most notably with respect to MCH, consistent with the FHCI, but also occurred in relation to malaria prevention. This latter finding is perhaps important giving the potential displacement effect of the FHCI on other health programmes. Inpatient expenditures also reduced, potentially suggesting better first-line treatment.

A third financial concern related to the increasing salaries of health workers was that other public servants would demand similar increases (*wage increase contagion to other sectors*). While it is extremely hard to link the causes of salary decisions, aggregate data suggest there may be some cause for concern here. Wages have increased significantly in Sierra Leone since 2010, making up a growing share of the economy, from around 5% of gross domestic product (GDP) in 2009 to a projected 7% of GDP in 2015. However, the increases do appear to be driven by other factors, such as the minimum wage, which was brought in in 2014.

A final possible unintended consequence that was posited in advance as a potential risk was *opportunistic responses by facility managers* to the FHCI, which would include changing the prices for other services to cope with lower or more irregular funds for FHCI target groups. This was examined in the district KIIs, and no evidence found to support it. The PBF funds have acted to buffer the losses from FHCI. If they diminish or become more irregular, this risk would be likely to become more real again.

7. Does the FHCI represent VfM generally?

Cost of the FHCI

The direct cost of the FHCI for large known items, as an increase on previous funding to similar groups, is around US$ 25 (2010) to US$ 40 million (2013). These are not far off the estimates provided by the MoHS in 2012. These are much higher at US$ 40–90 million if all additional expenditures on these groups are included (section 4.1).

Direct financing of the FHCI (e.g. payroll, drugs, PBF) equated to an increase of an additional US$4 (2010) to US$ 6.2 (2013) per capita in government and donor funding. Broader indirect reproductive and child health (RCH) expenditure adds US$ 2.5 (2010) to US$ 8 (2013) per capita spend per year.

Economy

HR and drugs were the two largest expenditure items, accounting for about 50% and 30% of direct FHCI costs, and 25% and 15% of the broader increases in expenditure on RCH as a whole.

For staffing, we cannot comment on changes but can say that doctors are very well paid now. Primary care doctors/DMOs and specialist doctors (public health) received closer to SLL 15million, or 52 times the average, and generalist/medical officers and public health sisters received close to SLL 5 million, which is 18 times the average (section 9.1). However, 78% of health workers providing reproductive or contraceptive services were either state enrolled community health nurses or MCH aides. They received between SLL 700,000 and 800,000 per month, between 2.4 and 2.8 times the average income. The relative wages in comparison to average national income were more spread out in Sierra Leone, with doctors receiving much more and nurses receiving much less in Sierra Leone than Ghana. In 2013, 60% of general government expenditure on health (GGEH) was spent on health worker remuneration – up from 35% in 2008.

Unit costs for drugs are not available for the pre-FHCI period. However, it appears that up to 76% of the drugs procured for the FHCI were available at a lower price elsewhere, indicating that greater economy could be achieved through stronger purchasing.

Efficiency

If outputs rise, as has been the case in Sierra Leone, then efficiency can be maintained or increased even as core input costs increase (section 9.2). In total, it is estimated that the cost of the FHCI rose from SLL 357 billion in 2010 to SLL 635 billion in 2013. Total expenditure on the FHCI per visit of all kinds fell from SLL 151,164 to SLL 106,606. This was equivalent to a fall from £22 to £16 per visit. However, the changing case mix (a shift toward less intensive activities such as ANC and relatively smaller increases in deliveries) may mean an increase in expenditure per hour of staff time.

In relation to drugs, there are certainly improvements in efficiency that could be made to the public drug supply system. An independent assessment of the FHCI stock control in 2016 expressed grave concerns regarding the efficiency and effectiveness of logistical arrangements. It revealed poor storage and stock management, 6% missing stock and 31% of drugs expired or within six months of expiry.

Cost-effectiveness

Using the LiST tool, we estimate a likely marginal effect of between approximately 1,500 and 1,600 maternal deaths averted over 2010 to 2013 due to coverage of key maternal health interventions being higher than it would have been if it had remained at 2009 values or if the pre-2009 trend line had continued (section 9.3). Assuming no change from 2008 DHS coverage values is more generous and results in an estimate of 1,900 maternal deaths averted.

We estimate a likely marginal effect of between 6,300 and 7,600 newborn deaths averted over this four-year period. Assuming no change from 2008 DHS coverage values is much more generous and results in an estimate of 10,400 newborn deaths averted.

We estimate a likely marginal effect of between 13,600 and 13,800 child deaths averted over this four-year period if only child interventions directly linked to the FHCI are included (i.e. curative interventions for which user fees were previously charged). The estimate is even higher at between 18,200 and 18,400 child deaths averted if ITN ownership and vaccinations are included (i.e. interventions that more under-fives receive because of increased health facility utilisation but that were actually already free).

The cost per life year saved of the FHCI is between US$ 420 and US$ 444. This estimate uses the marginal cost, including the increase in all donor financing to RCH, and the more conservative assumptions for the maternal and newborn intervention coverage counterfactuals.

In 2013, the GDP per capita in Sierra Leone was US$ 680 according to the World Bank's World Development Indicators. On these thresholds, our estimates of cost per life year saved indicate that the FHCI was a very cost-effective intervention. These findings, though modelled, are consistent with the estimates generated by our outcome analysis.

Sustainability

Sustainability was examined in a number of domains, including financial, political and institutional (sections 4.1, 5 and 10). Donors have provided between 60% and 80% of the new funding to the FHCI, outside of household financing. The main funder for the FHCI's direct costs is DFID, making up between 40% and 55% of new direct FHCI funding. Other important funding streams, such as PBF, are donor-dependent. These will only be sustainable with a mix of continued donor funding, large reprioritisation of government spending for health, additional resource mobilisation strategies and improved efficiency (including strengthening of public financial management (PFM) and

bringing more donor funding on-budget). Apart from some DFID and Global Fund support to salaries through budget support, much of the external financing in the sector is off-budget and outside public control.

The changing composition of expenditure raises some concerns for sustainability, particularly in relation to expenditure on salaries, which has increased from 26% of the health budget in 2009 to 49% in 2010 and 60% in 2013. While this remains within the international range for expenditure on salaries, it is on the high side and the trend cannot continue. Over the period, there has been a proportional reduction in expenditure on goods and service, and capital expenditure remains a small part of the budget (2% in 2013, though this was higher at 10% in 2010 and 16% in 2011, correlating with FHCI facility investments). In the last three years, foreign financing capital expenditure has made up over 95% of total budgeted capital expenditure.

Other areas of concern in relation to sustainability include the dependence on short-term external technical assistance for some of the reforms described under the pillars. While this was effective in bringing in changes quickly, the concern is that momentum has slowed as these 'enablers' pull out, with the MoHS pursuing multiple priorities with limited staff.

Political commitment to the FHCI remains strong – the policy is still a presidential flagship programme and there is strong public demand and expectation, such that reversing the policy would be extremely problematic. However, new areas of emphasis in the post-Ebola period raise the risk that improving and deepening the FHCI could be neglected. In addition, longer-term institutional challenges remain, such as establishing an effective new National Pharmaceutical Procurement Agency (NPPU), as well as strengthening the MoHS capacity overall.

Conclusion

Despite the difficulties with data and counterfactuals, we can say with confidence that the FHCI responded to a clear need in Sierra Leone, was well designed to bring about needed changes in the health system to deliver services to the target beneficiaries (under-fives, pregnant women and lactating mothers), and did indeed bring funds and momentum to produce some important systemic reforms. Underlying this achievement was strong political will, which has been sustained, enhanced donor cooperation, the deployment of supportive technical assistance, and consensus among stakeholders that the FHCI was significant and worth supporting. However, weaknesses in implementation have been evident in a number of core areas, such as drugs supply.

We conclude with reasonable confidence that the FHCI was one important factor contributing to improvements in coverage and equity of coverage of essential services for mothers and children. Other important contributors have probably been the other RMNCH investments that would have continued in the absence of the FHCI and broader economic changes. Clearly Ebola in 2014/15 also plays a major role in eroding previous gains.

Whether the FHCI contribution fed through into improved health is less clear from the data, although there was a very sharp drop in under-five mortality associated with the start of the initiative. Modelled cost-effectiveness is high. However, it is important that efforts are made to monitor and very likely improve the quality of care provided in public facilities. In addition, there needs to be continued efforts to overcome residual barriers, including lack of transport and socio-cultural barriers, to ensure gains are fairly distributed. On the supply side, efforts to improve the economy and efficiency of key resources – especially staffing and drugs – will be critical, as will addressing some of the harder-to-reach underlying systemic challenges, such as strengthening the MoHS and the devolved health functions at district level and improving PFM. The sustainability of the FHCI is not assured without such a focus and increased public investment in health care in

general. This requires the efforts of all stakeholders, including the development partners, to enhance performance and accountability in the sector.

It is instructive to compare the FHCI with similar policies adopted in post-conflict countries in Africa, such as Burundi, and with neighbours such as Ghana. Both have prioritised free care for mothers and under-fives over the past decade. In the case of Burundi, like Sierra Leone, it used PBF funding to replace resources lost at facility level, with some success (at least until recent unrest), although the policy has not been systematically evaluated. In the case of Ghana, the use of a VAT levy to support the National Health Insurance Scheme enabled free care to be extended to all pregnant women in 2008. This provides some insights for Sierra Leone as it considers future financing options, though Ghana as a middle-income country is in a somewhat different position to Sierra Leone.

What Sierra Leone attempted was more ambitious than both of those countries, in that it did not approach fee exemption as a 'vertical programme' focused solely on finance but understood that, for fee exemption to work, the whole health system had to be upgraded. This ambition, the relatively short preparation period (four months from announcement to implementation) and the weak starting point are part of the context in which our evaluation findings have to be situated, along with the subsequent shock of the Ebola epidemic. Our findings have relevance also for neighbours – for example, Burkina Faso, which in March 2016 has announced free care for pregnant women and children under five[1].

Recommendations

The FHCI was a concerted effort to strengthen the overall health system, focusing on particular vulnerable target groups but potentially benefiting all. In this respect, there is **one central recommendation, which is to renew and deepen that commitment by continuing the reforms that were started in 2010**. The investment that is coming in to Sierra Leone – not just in financial terms but also wider political and technical support – can be harnessed to take this forward from both government and development partner sides.

More specifically, we make the following recommendations, based on the evaluation findings. A number of these dovetail with recent plans, such as the Health Sector Recovery Plan 2015–2020 (MoHS, 2015).

1.1 Cross-cutting recommendations

Bring a relentless focus to bear on quality of care. Quality of care drives perceptions of services as well as their effectiveness, and this review has highlighted the failure to focus on quality of care in the original FHCI, as well as before and since.

- All recommendations here link to quality of care, which should be specifically built into each pillar.
- Clear clinical standards and protocols for the basic package should be developed and incorporated into training to support the implementation of the basic package of essential health services; a critical component to roll out in support of this is supportive supervision.
- Indicators to monitor technical quality of care are lacking and should be built into routine systems.
- Indicators of responsiveness and respectful treatment should also be incorporated into surveys.

[1] http://lefaso.net/spip.php?article69912

- It would also be useful to repeat the EmONC needs assessment carried out in 2008 (UNFPA, 2008) in order to assess progress in key domains.

Address wider barriers to access. While there has been some reduction in household costs and some improvements in the supply of care, this review highlights the need to address other barriers too, such as engaging communities in supporting transport to facilities, spreading information about entitlements and the benefits of health services, and raising awareness of danger signs for women and children. A stronger inter-sectoral collaboration with other ministries such as the Ministry of Education and the Ministry of Social Welfare, Gender and Children's Affairs would be fruitful here.

Deepen decentralisation. This includes long-term work around some of the structural PFM issues for funding of districts, including timeliness and capacity to report on funds. Strengthening the decentralised components could include both work to consolidate and improve PBF (with an examination of the governance roles at different levels), as well as strengthening capacity of DHMTs to plan, supervise and monitor donor and public programmes and close the policy-to-practice gap.

Strengthen community engagement. Community engagement is an important part of this process and has hitherto been weak. Our research indicated that there is a demand for this and a limited sense of engagement by communities at present in terms of the running of public health services. To ensure that future spending is well used, the mechanisms of local accountability should be reviewed and reinforced. The use of civil monitors was a useful innovation in the early days of the FHCI but appears, like many of the reforms, to have lost momentum since. There is a chance now for the lessons learned from communities' engagement in the Ebola response to be applied to more mainstream health interventions, including to the FHCI.

1.2 Governance

Invest in institutional and leadership development of the MoHS to steward the policy and health system. Short-term measures, crises and Ebola have reduced the ability of the MoHS to be able to provide long-term leadership. While delivering on priority outputs for the population, all stakeholders should ensure they support institutional development in the MoHS and not undermine it through parallel programmes and systems. This balance is of course difficult, perhaps most apparent in the supply chain, where the necessity to get life-saving drugs to those in need confronts the more messy requirement of trying to work through GoSL procurement systems and the challenges these provide. However, while donors should continue to balance these concerns, there are easier actions that could also be achieved, for example through boosting planning capacity and the staffing, capacity and role of the health financing unit and the key directorates.

The development of a health financing strategy is desirable to provide coherence between the FHCI and other policy strands. This should look at risk pooling, revenue raising and strategic purchasing, as well as how to improve the volatility of funding and institute mechanisms for funding facilities. Moreover, clear guidelines on residual charging policies at facility level, among other key areas, also need to be provided.

Specifically on the FHCI, there needs to be better communication and planning between the Cabinet, MoFED and the MoHS, including clear leadership on the policy, estimates of its resource needs and financing, and a plan for taking the policy forward. Conversations have been held but not in a joined-up way with all of the key stakeholders in government. Whether the FHCI will be extended, whether it will be rolled out to other groups, whether other sectors (such as NGO

providers) will be included in the future – all of these matters require a clear forward plan, based on projected needs and resources, for which our fiscal space analysis can serve as a starting point.

Introduce greater accountability. The focus for all parties should be on implementation and delivering agreed outputs. This applies to donors that have not delivered on their promised investments as much as NGOs, districts and government. Parties should agree plans and commitments, with incentives and sanctions incorporated. Information on funding and performance should be made open and transparent in order to encourage good performance.

1.3 Health financing

Provide additional funds to the health sector to reduce OOP spending. Sierra Leone is a low-income post-conflict fragile state. Health is essential for strong economic growth and social development. The scale of household OOP expenditures is too high and the risk of catastrophic health expenditure must be brought down. Addressing the systemic problems with HR and provision of drugs and supplies are among the important ways to reduce the need for household OOP spending.

Tax revenue collection is a priority and will continue to require reform over the next 10 years. However, there is not expected to be a short-term fix for the lack of general domestic tax revenues for budgetary allocation to health and the FHCI.

There is some evidence that earmarked taxes could be supported by the Sierra Leone public to fund health initiatives. Levies in support of the FHCI could be implemented as near-term solutions to the funding gap (there is certainly fiscal space for this, with a current tax-to-GDP ratio of 9%, compared to the low-income average of 17% or even the fragile state average of 14%). Five types have been analysed and three have potential in Sierra Leone: sin taxes (earmarked taxes on tobacco and/or alcohol), withholding taxes (in this case taxes on contracts) and an airline levy. More focused research would need to be carried out to provide country-specific industry risks and sensitivity analysis on the levels of tax deemed appropriate before one was chosen to be implemented. As it stands, however, the withholding tax being considered for implementation will not cover FHCI costs. The issue of how it is to be managed and used also requires more discussion and agreement between stakeholders.

There are not enough domestic resources to pay for the requirements of the FHCI, or UHC, in the next 10 years so continued and increased donor support is needed. Over the next decade Sierra Leone is projected to remain a low-income country. Trends suggest that Sierra Leone's proportion of donor monies to GDP is less than the average low-income country receives. As serious health plans have been established, the implementation of these will require external funding over the foreseeable future. Without external support the FHCI is unlikely to continue effectively.

However, there is also a strong argument for improving PFM to encourage on-budget external funding. Notwithstanding fiduciary concerns regarding MoHS systems, given the extent of external funding over the foreseeable future efforts must be made to build local financial management systems where possible. If this does not mean actually putting funds through the GoSL budget, other hybrid solutions such as using common and mutually agreed indicators for release of funding and using GoSL supply and procurement systems for donor-financed goods should proactively be explored.

Provide more flexible financing to the local level. Issues with central MoFED/MoHS allocations and weaknesses in drug supply have meant that local facilities struggle to access enough flexible

resources to be able to ensure continuous service delivery. PBF is a good start in terms of enhancing this flexibility and autonomy at local level, and despite difficulties should be strengthened, sustained and eventually expanded. However, plans to expand the number of indicators significantly seems risky, and represent an added burden on weak monitoring systems.

There is a need for investment in improving data on health financing so these recommendations for sustainable financing can be fine-tuned to the Sierra Leone health and fiscal environment. In particular, two areas stand out:

- Improved M&E for capturing the true costs of the FHCI; and
- Improved methods for measuring OOP payments.

1.4 Planning, monitoring and evaluation

The FHCI belongs in the MoHS and while its scope does warrant a whole health system – and hence MoHS – approach, **this policy should continue to be led at the RCH Directorate level** or be clearly housed in a MoHS directorate that takes ownership of it. This ownership is essential considering the complexity of the policy and the difficulties in its implementation. The renewed coordination with health implementation partners and donors brought about by the Ebola outbreak could support the MoHS in its effort to lead the continued and renewed support for the FHCI.

The main challenge in terms of M&E is to develop and implement a robust and comprehensive M&E strategy for health. This should include the monitoring of the whole results chain (inputs, outputs, outcomes) and also specifically those strategic areas where data have been weak until now, i.e. quality of care, staffing, drugs and financing. This will be important to assist in evaluating future health system reforms. The M&E strategy should cover the following key areas:

- Consultation with key data users on what to collect and how frequently;
- Improving the quality and coherence of the various data sources;
- Publishing and distributing health data analysis in user-friendly formats such as dashboards of indicators, regular health bulletins and more extensive research and analysis; and
- Increasing the demand for and use of health information, particularly through health sector reviews and accountability processes.

1.5 HR

Improve the management of the payroll, bringing people who are recruited into the system in a more timely way and ensuring that the payroll remains up to date without the need for periodic externally led cleaning exercises, such as have happened repeatedly over the last decade. External consultants have been tasked with making the payroll more locally manageable – this needs to be a priority.

Decentralisation of HR functions to the district level is needed to ensure greater responsiveness to district needs and a greater ability to performance manage staff effectively.

At the same time, HR management capacity at central level should urgently be strengthened to allow the MoHS to lead the process of reforms that are planned (including new HR strategies, modelling of HR needs, development of a scheme of service, an HR information system, improved communication with staff, and review of training needs and standards). The HRH Directorate has very few staff and remains dependent on external support.

Given the inequalities in distribution of staff and staff shortfalls in some key cadres, **the MoHS should develop integrated and sustainable packages to retain qualified staff in remote areas and in shortage cadres** (or those with high attrition levels, such as midwives), including accommodation, remote allowances and access to training opportunities.

There also needs to be a clearer definition of the role and funding of the different types of staff and close-to-community providers such as TBAs and CHWs, whose role and remuneration is being managed in an *ad hoc* way at facility level. As a part of this, there needs to be clarity on how they function in relation to existing cadres such as MCH aides.

Revising training policies for existing and new staff, including revising curricula and strengthening training institutions (including to improve staff ability to control infectious diseases, as illustrated in the Ebola epidemic) is another challenge facing the MoHS. This was put on the back-burner during the launch of the FHCI and work during Ebola around IPC should continue to be prioritised. Linked to this could be **an assessment of staff competences and support for continuous professional development**, which are lacking to date. This would help to rebuild confidence in the health staff and system among communities.

Supportive supervision should be promoted and resourced, not only to motivate and support staff but also to ensure they are responsive and respectful to their clients, and to reduce incidences of informal charging. This would address a complaint that was frequently made in our community research, especially in relation to nurses. Streamlining supervision and reporting will also be important, given the limited staffing at facilities and the time that such reporting takes.

1.6 Infrastructure, drugs and supplies

Urgent investment is needed to bring key health infrastructure up to acceptable standards and maintain it – not just in terms of capital spend, which has been highlighted as low in recent years, but also to enable flexible funding at facility level to cover routine maintenance costs. This should include continuing to increase the number of EmONC facilities and upgrading PHUs, as well as addressing all seven 'enablers' – especially water and electricity.

Connect rural health posts with district hospitals and improve the referral system by **reconditioning dozens of Ebola ambulances** donated by aid agencies, and continuing to explore the feasibility of a national ambulance service.

Implement a 'pull' system across all hospitals and PHUs to reduce the likelihood of stock-outs of drugs and medical supplies. This should be complemented by a timely delivery of commodities from the port to CMS and from CMS to DMS. Even with a 'pull' system in place, stock-outs will still occur if commodities are not available at key distribution points and transport systems do not work.

Support the simplification of forms to be filled in by hospitals and PHUs. CHAI has designed forms for each type of facility (MCHP, CHP, CHC and hospitals), so that they reflect the drugs and medical supplies for the type of services they provide. A new LMIS system ('M Supply') is also being piloted, which seems to be addressing some of the issues identified in CHANNEL. **Investment in developing an effective monitoring system is essential for an adequate management of the supply chain at all levels.**

Build adequate storage facilities and ensure the SOP Manual is implemented. The manual developed by UNICEF is comprehensive and although it would need to be updated to reflect changes in the LMIS system it follows WHO standards for drugs storage and for stock and quality monitoring. A first step could be enforcing the FEFO policy so as to minimise wastage.

Allocate a fixed budget for the supply chain. Lack of or sporadic funding leads to variability in the timeliness of procurement and, ultimately, to stock-outs. Both GoSL and donors (until GoSL has sufficient capacity) need to make fixed financial commitments to fund the supply chain and ensure a continuous supply of commodities to hospitals and PHUs. Budget allocations from government will eventually allow for the new NPPU to fully take over. The new NPPU will require transparent governance and sufficient human and financial capacity to function effectively.

1.7 Communications

Since a lack of communication can have a negative impact on the success of any policy, it is recommended that a **communications budget is allocated at the very start of any future reform**. While an original budget of US$ 3 million was promised, it was not forthcoming and this hampered the breadth of communication activities. Since then, the energy to support communication has dwindled.

Communications need to be integrated across all initiatives and a longer-term approach to information, education and communication developed. The understanding of communication activities as linked to a specific activity that has been seen so far in relation to the FHCI neglects the need for broader communication capacity at national and DHMT levels to address disease outbreaks and chronic health challenges, such as non-communicable diseases.

Engaging the implementers and addressing their concerns should always precede communication to the public. The FHCI was communicated to the population before it was communicated to health workers. This was a grave mistake because, as a result of this misstep and due to a lack of understanding of the reform, health workers went on strike – such a situation would not be repeated were communications initiatives given due importance.

Table of contents

List of tables, figures and boxes

List of abbreviations

ACT	Artemisinin-based Combination Therapy
AfDB	African Development Bank
ANC	Antenatal Care
ARI	Acute Respiratory Infection
BEmONC	Basic Emergency Obstetric and Neonatal Care
BPEHS	Basic Provision of Essential Health Services
CEA	Cost-Effectiveness Analysis
CEmONC	Comprehensive Emergency Obstetric and Neonatal Care
CFR	Case Fatality Rate
CHAI	Clinton Health Access Initiative
CHC	Community Health Centre
CHP	Community Health Post
CHW	Community Health Worker
CMO	Chief Medical Officer
CMS	Central Medical Stores
CPR	Contraceptive Prevalence Rate
CSO	Civil Society Organisation
DALY	Disability-Adjusted Life Year
DFID	UK Department for International Development
DHIS	District Health Information System
DHMT	District Health Management Team
DHS	Demographic and Health Survey
DHMT	District Health Management Team
DHSBS	District Health Services Baseline Survey
DLO	District Logistics Officer
DMO	District Medical Officer
DMS	District Medical Store
DPPI	Directorate of Policy, Planning and Information

DSDP	Decentralized Service Delivery Program
EmONC	Emergency Obstetric and Neonatal Care
EPI	Expanded Programme on Immunisation
FEFO	First-to-Expire, First-Out
FGD	Focus Group Discussion
FHCI	Free Health Care Initiative
FIT	Facility Improvement Team
GCE	General Government Expenditure
GDP	Gross Domestic Product
GGEH	General Government Expenditure on Health
GNI	Gross National Income
GoSL	Government of Sierra Leone
HEART	Health and Education Advice and Resource Team
HFAC	Health For All Coalition
HMIS	Health Management Information System
HR	Human Resources
HRR	Human Resources for Health
HSS	Health system strengthening
ICC	Inventory Control Cards
IHME	Institute for Health Metrics and Evaluation
IMCI	Integrated Management of Childhood Illnesses
IMF	International Monetary Fund
IMNCI	Integrated Management of Neonatal and Childhood Illnesses
INGO	International Non-Governmental Organisation
IPC	Infection Prevention and Control
ISS	Immunisation Services Support
ITN	Insecticide-Treated Bednet
JPWF	Joint Programme of Work and Funding
KII	Key Informant Interview

LMIS	Logistics Management Information System
MCH	Maternal and Child Health
MCHP	Maternal and Child Health Post
MDA	Ministries, Departments and Agencies
MGDs	Millennium Development Goals
MHI	Mandatory Health Insurance
MICS	Multiple Indicator Cluster Survey
MMR	Maternal Mortality Ratio
MNCH	Maternal, Newborn and Child Health
MoFED	Ministry of Finance and Economic Development
MoHS	Ministry of Health and Sanitation
MSH	Management Sciences for Health
NHSSP	National Health Sector Strategic Plan
NMP	National Medicines Policy
NPPU	National Pharmaceutical Procurement Agency
NPSS	National Public Services Survey
OOP	Out-of-Pocket
OPM	Oxford Policy Management
ORS	Oral Rehydration Salts
ORT	Oral Rehydration Therapy
PBF	Performance-Based Financing
PFM	Public Financial Management
PHU	Peripheral Health Unit
PNC	Postnatal Care
PPH	Post-Partum Haemorrhage
PSMWG	Procurement and Supply Chain Management Working Group
RCH	Reproductive and Child Health
RCHP	Reproductive and Child Health Program
RLO	Regional Logistics Officer

RMCH	Reproductive, Maternal and Child Health
RMNCH	Reproductive, Maternal, Neonatal and Child Health
RR&IV	Report, Request and Issue Voucher
SARA	Service Availability and Readiness Assessment
SBA	Skilled Birth Attendant
SLeSHI	Sierra Leone Health Insurance
SLIHS	Sierra Leone Integrated Health Survey
SLL	Sierra Leonean Leone
SOP	Standard Operating Procedures
SP	Sulfadoxine-Pyrimethamine
SSL	Statistics Sierra Leone
TBA	Traditional Birth Attendant
TFR	Total Fertility Rate
THE	Total Health Expenditure
UHC	Universal Health Care
UNFPA	United Nations Population Fund
UNICEF	United Nations Children' Fund
VfM	Value for Money
WHO	World Health Organization
YLD	Years of Life Lived with Disability
YLL	Years of Life Lost

2 Introduction

2.1 Objectives

The removal of user fees in Sierra Leone in April 2010 for pregnant women, lactating mothers and children under five, referred to as the FHCI, has attracted enormous political attention at the national and international level. The UK government provided financial, technical and political support to the FHCI throughout the preparation and implementation stages of the reform. Evaluating the impact of this support as well as the reform itself is therefore crucial.

The HEART/OPM team has been working on this review since April 2014. This final report presents all analysis undertaken, final conclusions and recommendations.

2.2 Background

The President of Sierra Leone introduced the FHCI for pregnant women, lactating mothers and children under five in April 2010. This targeted removal of user fees was supported by earlier evidence (MoHS, 2008) that showed health-related financial costs were a major deterrent to mothers and children using health services in Sierra Leone, a fact consistent with evidence at the international level.

Higher levels of utilisation of health service by mothers and children have been reported (MoHS, 2011; Maxmen, 2013) since the introduction of the FHCI. To date, the relationship between changes in the uptake of services and the FHCI has not yet been fully researched or evidenced. Moreover, whether the FHCI (and a series of supporting health systems strengthening reforms) is translating into saved lives and improved health outcomes among mothers, newborns and children has yet to be assessed. This review is meant to fill this knowledge gap.

2.2.1 What is free health care in Sierra Leone?

As was noted above, the FHCI was launched in April 2010 by the President of Sierra Leone in response to high maternal and child mortality rates, which were among the worst in the world. The programme aimed to make health services free at the point of delivery for the target populations of expectant and lactating mothers and children under five years of age. It aimed to treat up to 230,000 pregnant women, 230,000 lactating women and 1 million children under five every year, saving lives and improving health outcomes (GoSL, 2009a) .

The programme was complemented by seven ‘supply-side’ interventions intended to strengthen health services in order to meet the additional demand created (see Box 1).

Box 1: The FHCI and its seven supporting health system interventions

- **Drugs and medical supplies:** The continuous availability of equipment, drugs, and other essential commodities;
- **Health workforce:** Adequate number of qualified health workers;
- **Governance:** Strengthened and effective oversight and management arrangements;
- **Infrastructure:** Adequate infrastructure to deliver services;
- **Communication with the general public:** More and better information, education and communication to stimulate demand for free high-quality health services;
- **M&E:** A comprehensive M&E system;
- **Financing:** Sufficient funds to finance the FHCI.

In sum, the FHCI constitutes a package of interventions, namely user fee removal (the core intervention) augmented by seven[2] supporting intervention areas that seek to strengthen vital areas of the health system's function and delivery.

Two features of the FHCI in Sierra Leone are particularly important to note:

First, from the outset a more comprehensive approach was taken to realising it, i.e. not just focusing on announcing the end of charging at the point of use (as had happened in some countries of the region) but also working from an early stage on some of the health system support measures that would be required to respond to greater patient demand, and thereby deliver results. The fact that the FHCI was a more comprehensive approach implies a degree of foresight and innovation that may influence results. Health system strengthening efforts illustrated via activities undertaken in the 'seven pillar' areas will be examined to assess how the various components work together, and whether this systemic approach is effective and illustrates important explanatory variables that influence the attainment of results. Moreover, findings and lessons from the FHCI will be compared and contrasted to user fee removal experiences in other countries, including where hand-in-hand efforts to strengthen health service supply have been less forthcoming.

Second, unlike the cases of some other free health care reforms in the region and, indeed, previous reform attempts in Sierra Leone,[3] the FHCI was able to capitalise on donor support and assistance, reinforcing political will. The combination of these two factors has led to the FHCI catalysing a rolling programme of reform. This has substantial implications for the evaluation: in this case, what is being evaluated is *not* a one-off change but rather a rolling series of health system reforms. These can then be linked to changes in outputs and outcomes – as a package – rather than as individual actions. Using a contribution analysis approach, factors driving the process and barriers/facilitators have been identified from the chronology and tracked (2010–2015), with findings corroborated or triangulated against other available relevant data sources.

2.3 The evaluation questions

Assessing the impact of the FHCI has been defined as answering, to the extent possible, the following evaluation questions:

- What contributions to health outcomes, among the target groups, did the FHCI make and how were these achieved?

[2] Although the original MoHS policy reform papers talk about 'six pillars', there were in effect seven working groups created, including financing.
[3] There was an attempt to eliminate user fees in Sierra Leone in 2005, which failed because the government could not enforce the law and informal fees replaced formal ones (Scharff, 2012).

- Does the FHCI represent VfM generally, and specifically in terms of disability-adjusted life years (DALYs), lives saved/deaths averted, and illnesses treated?
- How and to what extent were the six priority interventions that were put in place effective in enabling the FHCI to be operationalised?
- Are the six priority interventions the right ones to ensure continued and increased utilisation of services by the target beneficiaries?
- What are the socio-cultural issues that affect the uptake of free health care among the target beneficiaries?
- Did the FHCI have a differential impact on different socioeconomic groups or marginalised groups?
- Were there any unintended consequences of the FHCI?

To do this, research methods and study designs were developed in 2013/14 and further refined based on observed data quality and availability.

2.4 Research methods

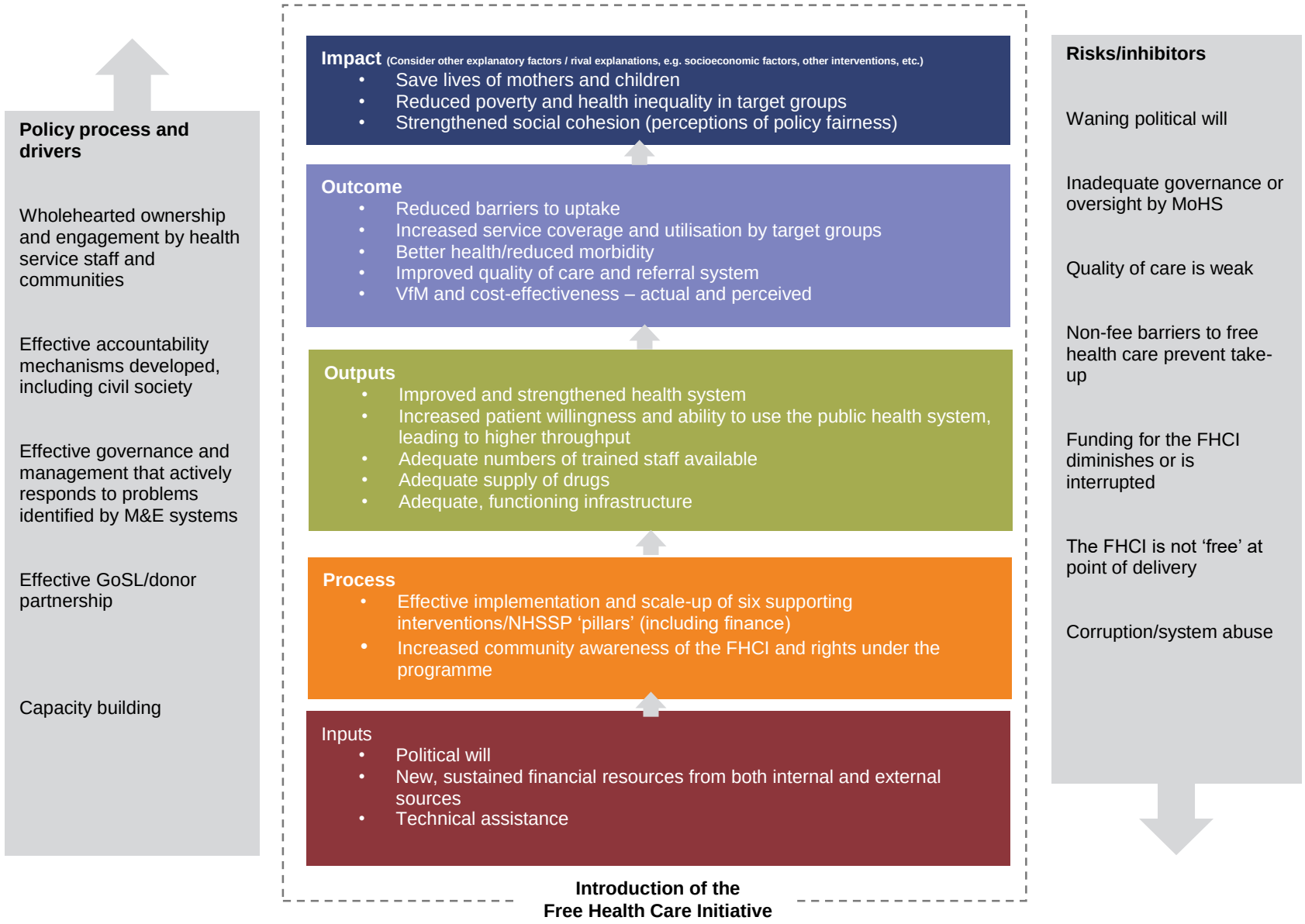
The research methods have been described at length in the inception report. However, some amendments to the original methodology proposed have become necessary, for example as a result of lack of data or poor quality data.

2.4.1 The ToC for the FHCI

The intention of the FHCI is clear. Health-related financial costs have been identified by target groups as a major reason for suboptimal use of health services; therefore, providing free health care to these target groups should increase their access to health care, which in turn is expected to reduce morbidity and mortality. This logic underpins the ToC driving this evaluation.

Figure 1 illustrates the ToC that has been used to review the FHCI as a whole. The FHCI results pathway (i.e. the middle column) illustrates relationships and progression in a linear manner. Of course, the health system is not a simple linear process and often different aspects of 'outputs' and 'outcome' can be circular over time, which is recognised implicitly by the framework. The FHCI is identified through the funding at input level and the increased patient throughput at output level. The package of seven complementary interventions is identified in terms of their implementation at process level and results at output level. The health system pillars are unpacked in more detail in the evaluation matrix (see Annex B). The overall impact is taken to be the saving of lives of mothers and children, across all income groups but especially the poor, together with both the reality and perception that the policy is appropriate and fair to all. Factors identified as part of the 'policy process and drivers' in Figure 1 are considered ingredients that vitally support and drive results attainment. To the contrary, other factors identified as 'risks' will inhibit or block results attainment. The action of these 'push/pull' factors will be closely examined over the duration of the evaluation because they are key explanatory variables that define the operating context within which the FHCI is being implemented, and the extent to which results are achieved. It is also important to consider other explanations (beyond the FHCI) that may also account for observed 'impacts'.

Figure 1: Evaluation ToC



In order to achieve the goals of the FHCI, the basic prerequisites are as follows:

1. **The FHCI is being implemented:** This means that health services are free at the point of use to eligible target groups. Corruption or rent-seeking behaviour can damage the reputation of the system and weaken support among the general public and development partners.
2. **Availability of key inputs:** The right staff, in the right numbers, in the right places, with the right equipment and drugs, and a minimum level of funding to be able to operate, at the right time, with the right management and oversight, in order to meet the needs of those seeking health services. Put simply, quality health service provision is required in order to reduce mortality and morbidity.
3. **Addressing other barriers:** Other social, cultural, knowledge and physical barriers to treatment are overcome, including any additional and/or perceived costs.[4]
4. **Commitment and governance:** Political will, managerial skill and effective prioritisation of scarce resources is needed, not just at the start of a change process but continuously so as to secure improvements year on year, and at different levels of the system.
5. **Minimal unintended consequences:** For example, teenage pregnancies do not increase as a consequence of readily available free health care (i.e. given teenage pregnancies are a risk factor for complicated deliveries and maternal death).

The linkages, relations and assumptions along this pathway (including result 'drivers' and 'inhibitors') have been tested and analysed, not only by triangulating internal evidence and logic but also by corroboration with what is known and established from other evaluations and relevant research in the wider literature. Details of the progress in each of the areas will be highlighted in the 'unpacking effects' sections of the report (Sections 5 and 6).

This review is testing:

- Whether the expected results occurred;
- Whether we have evidence for the links in the ToC chain moving in the directions predicted; and
- Whether there is plausible connection from these links to actions triggered by the FHCI, taking into account other possible contributory factors.

While the different nodes are potentially important in terms of producing the outcomes and impacts, we should note that many have their own intrinsic value too and we should therefore not be reductionist in our assessment. A reduction in OOP payments, for example, or enhanced awareness of the need to seek medical health in specific circumstances, are valuable in their own right, even if barriers at other points in the chain prevent their full impact on mortality at this point in time.

2.5 Design

The design reflects the decision that the team would be reviewing the impact of the FHCI. Although initially established as an impact evaluation, it was agreed that an experimental or quasi-experimental design that compares the impact of the FHCI on maternal and child mortality and health outcomes could not be conducted. From a feasibility perspective, the intervention was introduced in 2010, and simultaneously at national scale, which means the opportunity for an 'intervention' and 'control' comparison was not possible.

[4] See 'Barriers to the Utilisation of Maternal and Child Health Services in Africa' (a paper produced as part of the inception phase activities by the FHCI evaluation team).

Nonetheless, it was deemed possible to conduct a review to examine how, and to what extent, the FHCI has contributed to saving lives and improving health among target groups. The design we are using is that of a mixed evaluation that triangulates evidence using a blend of quantitative and qualitative approaches. This means:

- **Using a pre-/post-evaluation design**: where we were able to obtain sufficient time series data before and after the introduction of the FHCI we used interrupted time series methods. This approach imputes the counterfactual from modelled data and draws causal inferences, to the extent possible, based on trend data. Where time series data are more sparse, we used simpler methods to analyse the trends before and after 2010 and assess the impact of the FHCI. Poor data availability and/or quality (especially related to the HMIS pre-2010) have constrained the extent to which we were able to conduct this type of analysis as much as we originally planned. In these instances, we rely on simple before/after analysis or analysis of post-FHCI trends. These methods require much stronger assumptions to claim a causal impact of the FHCI; we will therefore have to rely more strongly on qualitative methods for assessing contribution.
- **Theory-based evaluation:** The theory-based evaluation relies on contribution analysis to test the evidence, logic and assumptions around the ToC. In this way, if/how the FHCI has made a notable contribution to observed mortality and morbidity levels among target users is examined. The proposed evaluation matrix (see Annex B) sets out the areas within the intervention logic model that will be examined, how they will be measured, and via what methods. The links and interactions between these multiple 'building blocks' have been explored (Marchal et al., 2013).

This hybrid evaluation design has generated different strands of evidence that can be triangulated to draw inferences about the contribution of the FHCI to saving women's and children's lives and strengthening the health system in Sierra Leone.

2.5.1 Overview of research tools and sources

A summary of data sources is given in Box 2 below. These are mapped to the different evaluation domains in more detail in the evaluation matrix in Annex B, which also links to different sections of our report for the findings. The only element not described in the inception report is the fiscal space analysis, which was added to assist with forward planning later in the evaluation process.

Box 2: Main data sources

For service coverage, morbidity and mortality, we have used a mixture of household survey data and administrative data. The main survey used is the DHS, two rounds of which were conducted in 2008 and 2013. A similar survey was also conducted in 2009: the District Health Services Baseline Survey (DHSBS).

The administrative data comes from the HMIS. This uses the DHIS2 to collate and store the information. The data are collected from monthly forms that each health facility completes.

Financial data comes from the MoHS, Ministry of Finance and Economic Development (MoFED) and Ministry of Local Government sources, as well as the NHA and interviews. A fiscal space analysis was undertaken – for details of the methodology, see (OPM 2016b). The core of the fiscal space analysis takes the form of a 'funding gap analysis', under scenarios of 'business as usual' and 'maximised fiscal space'. The analysis is underpinned by a macroeconomic framework to project forward key economic, fiscal and health funding variables (health here refers to both the FHCI and universal health care (UHC)). We embed the results of the quantitative projections of fiscal space for health within a discussion of health and macroeconomic policy in Sierra Leone.

The business as usual scenario projects health financing from the current policies and plans. The maximised fiscal space scenario assumes that the GoSL adopts policies to prioritise health to meet resource needs over the next 10 years. Four policy options are discussed: increased government allocations to health (including mandatory health insurance), implementation of an earmarked levy for health, efficiency savings, and borrowing.

Cost-effectiveness is modelled using the LiST tool. Annex F contains an explanation of the methodology.

We also undertook 137 KIIs (see Annex C), as well as reviewed all available documentation pertaining to each of the health systems pillars under analysis. A rapid literature review of regional experiences was also undertaken to set the Sierra Leonean experience in context.

A series of FGDs was undertaken in four districts to collect the community perspective on the FHCI (see Table 1 below), as well as interviews of health workers and managers in those same four districts at facility level (see Table 2 below for further details).

We also report on regression analysis conducted by the ReBUILD group, whose methods are reported in draft papers (Edoka et al. 2015).

Table 1: Distribution of FGDs by participant category, district and region

Region	District	Young people (18–24yrs)	Adult females (25+yrs)	Adult male (25+yrs)	Community leaders	Total
West	Western Area	3	3	3	3	12
East	Kono	3	3	3	3	12
North	Koinadugu	3	3	3	3	12
South	Bo	3	3	3	3	12
Total FGDs		12	12	12	12	48
Total participants		90	85	87	89	351

Source: Review of the FHCI in Sierra Leone – Focus Group Discussion report (OPM and Focus 1000, 2016)

Table 2: Type and distribution of district interviews

	Bo	Koinadugu	Kono	Western Area
Local council	1	1	1	1
District Health Management Team (DHMT)	1	1	2	1
Hospital	2	1	1	2
Community Health Post (CHP)	1	2	1	2
Community Health Centre (CHC)	4	3	2	2
MCH Post		2	2	1
Civil society	1	1	1	
Drug store			1	
	10	11	11	9

2.6 Note on data limitations and how they were addressed

In addition to the caveats on design noted in the inception report (Witter et al., 2014), a number of additional limitations emerged in the course of the review. These included the following.

Our examination of the quantitative data sources, particularly the HMIS and DHS, showed more data-quality problems than we were expecting (see Annex E for details). This has restricted the range of analyses that we could do and the conclusions that we could draw.

1. The HMIS had the following issues:

- The micro data from before April 2011 have been lost.
- An independent review by Options Consultancy (2015) showed that, in many cases, there were significant inconsistencies between the data recorded in the database and the actual situation recorded in health facility registers.
- Although overall response rates for HMIS are high, with over 90% of facilities reporting each month, the level of non-response for individual variables is much higher. The sample of facilities and variables we checked showed missing values for between 20% and 40% of cases.

These weaknesses mean we can only look at pre-2011 HMIS trends using the few tables that have already been published. In addition, results from the HMIS analysis need to be triangulated with other sources before we can draw conclusions.

2. The DHS had particular quality concerns in the 2008 survey. These are evident from the distributions of ages of the participants in the survey, which do not match the known population profiles from the census. The problems arose from poor supervision of the fieldwork, and it is likely that this is the reason for the apparent inconsistent results between the 2008 and 2013 rounds in, for example, the area of child mortality.

As a result of the weaknesses in the 2008 DHS, we have focused on the 2013 DHS as our main source. We have only used the 2008 survey where necessary, for example to look at changes in

relation to equity issues using the disaggregations by wealth quintile and where the 2008 survey is judged the best available baseline.

3. Concerns about the accuracy of NHA data, especially for household expenditure, which could suggest biases in opposing directions (see Box 3).

Box 3: Limitations of sector trend analysis using NHA data

The expenditure data for the sector analysis in the report have certain limitations, and caution should be exercised in their interpretation. Issues affecting the NHA trend analysis include:

1) The three sets of NHA data (2004–2006, 2007–2010 and 2011–2013) use different methodologies and vary in their scope and quality.
2) NHA data for 2011 and 2012 are not yet available and thus estimated annualised growth rates were used for these years, potentially missing any yearly variation.
3) Household expenditure changes are largely a reflection of price movements, with figures in the NHA for 2005 to 2010 taken from the 2004 Living Standards Survey and adjusted for inflation (the 2013 NHA uses the 2011 Living Standards Survey). Therefore, any change in donor or GoSL financing that is different to inflation will automatically change the composition of health expenditure in the sector.
4) Expenditure figures for GoSL in 2004 to 2006 are three times higher than government accounts report for those years, which are more in line with 2007–2013 NHA data. If these NHA figures are not correct, and the NHA reports do not comment on this anomaly, it artificially suggests a slowdown in health expenditure pre-FHCI for the period 2004–2009. This would therefore overestimate the change that FHCI created when comparing 2004–2009 trends with post-2010 trends.
5) Anecdotal evidence suggests the quality of the NHA in the period 2007–2010 is limited, with some suggestions that double counting occurred. *This would suggest that the increase in expenditure post-2010 is underestimated.*

There is also missing data for donor expenditure in 2008; for example, two large donors – the World Health Organization (WHO) and the Global Fund – are missing entries for NHA expenditure. This therefore artificially suggests a large rise in expenditure between 2008 and 2009 pre-FHCI, *thus limiting comparisons with post-FHCI trends.*

We have retained and used these data sources but with appropriate triangulation of results, where possible, and cautious interpretation.

In addition, there were data sources that we hoped to use but which were simply not available for a variety of reasons. Issues surround this included the following:

- Some of the quality of care indicators, which were not available in the HMIS or other sources, had to be replaced by more qualitative assessments of changes to quality of care.
- The same is true of staff competence – there are no national sources for this indicator, which cannot therefore be integrated into our analysis and constitutes an important gap.
- We planned to integrate findings from a PhD thesis on informal payments but due to Ebola that PhD was transferred to another setting.
- We had also hoped to use the data collected by the Health For All Coalition (HFAC). The data provided by HFAC were very incomplete both in terms of the months and modules covered. The figures also did not match published tables and included very erratic and unlikely trends that could not be explained.

A third type of limitation to note is the assumptions that are built into particular models. In particular, for the LIST tool, inbuilt assumptions of the effectiveness of core maternal, newborn and child health (MNCH) interventions are used to convert coverage to outcome changes. These are based on international literature. In the absence of Sierra Leonean evidence, we have used these. However, they may overstate gains if the quality of care provided is below expected levels to

ensure effectiveness (as suggested by the evidence of this evaluation). The infeasibility of disaggregating DHS coverage data for under-five interventions into individual years also meant that we could not do incremental trend analysis here (despite this being important for the LiST model counterfactual). Box 4 sets out further details on the limitations relating to the cost-effectiveness estimates.

Box 4: Limitations of the cost-effectiveness analysis (CEA)

There are two key limitations to the CEA. First, drawing boundaries around what interventions—and their associated costs and outcomes—are, or are not, linked to the FHCI is challenging. Our approach is to try to ensure that what is included on the cost side is matched on the effect side; however, this is inevitably determined to some extent by the available cost and outcome data.

Second, limitations to data sources on both the costs and outcomes of the FHCI means that the true incremental costs and effects of the FHCI are difficult to isolate. The lack of 2011 and 2012 NHA data is the key limitations on the cost side. On the effect side, coverage data is used to model the effect on maternal, newborn and child mortality using the LiST. It is important to acknowledge that LiST is a tool that allows for the *modelling* of impact, not the actual estimation of impact using data on the impact variables and an appropriate impact evaluation technique. The conclusions that can be drawn from such an exercise are different from those that could be drawn from an actual impact evaluation. It is also worth highlighting a few key limitations of LiST:

- LiST uses inbuilt assumptions about the effectiveness of MNCH interventions to convert increased coverage estimates to mortality reductions. These are based on international literature. In the absence of evidence from Sierra Leone, we have used these. However, they may overstate gains if the quality of care provided is below expected levels to ensure effectiveness.
- Family planning is a difficult intervention to model in terms of maternal lives saved. This is essentially because of lack of data on abortion practices. We take the approach of modelling maternal deaths averted in the context of the increased contraceptive prevalence rate (CPR) of Sierra Leone from 2008 to 2013. To the extent that the FHCI contributed to the increase in family planning over the period (family planning was free before 2010 but increased utilisation of health facilities by women of reproductive age likely increased its use), we are therefore underestimating the demographic impact of the FHCI on maternal deaths.

Finally on the effect side, there are important limitations to the DHS data used to estimate increases in coverage due to the FHCI. Incremental trend analysis cannot be undertaken for the child interventions and for a number of the maternal and newborn interventions. This is because the recall variable for the indicator is too short to allow for annual disaggregation of the data. When incremental trend analysis is possible, the gradient of the projected counterfactual line is very sensitive to the jump in coverage estimates between 2008 and 2009. This is the point between the two rounds of the DHS and is more likely a product of data quality problems in one or both surveys and not a real increase at this point.

There is therefore inevitably some uncertainty around our estimates. A sensitivity analysis is performed to understand how the estimate changes when some key assumptions are varied. Comparison with other reductions in mortality estimates are also made to understand whether the modelled estimates are credible in terms of their level. However, it should be acknowledged that not all our assumptions can be tested, and the point estimates for the cost-effectiveness ratio should therefore be interpreted within this understanding.

The fiscal space analysis is presented in more detail in terms of its methods and assumptions in a separate report (OPM, 2016b). In particular, it lays out assumptions relating to future revenue flows and to the expected costs of the FHCI.

2.7 Approach of this report

In order to understand the changes introduced by the FHCI, an understanding of the health system prior to its launch is needed. The report starts by describing health indicators and the health system in Sierra Leone before 2010. It then gives a narrative for the launch of the FHCI, including the preparatory activities in the run-up to April 2010. A chronology of changes under the different

health systems pillars is provided, examining for each the key changes, their implementation and effectiveness, and what challenges remain. This is summarised across the pillars. The analysis then returns to the ToC framework to discuss drivers and inhibitors and contributory factors. The report addresses changing outputs, outcomes, impacts and VfM. In the conclusions we highlight the summary judgements generated by our data in relation to evaluation questions. This section is followed by the recommendations that arise for the FHCI and the broader strengthening of Sierra Leone's health system in the current post-Ebola phase.

This report integrated findings from all study components. However, more detailed sub-reports are available and can be consulted. These include:

- Evaluation of the FHCI – Inception Report (OPM, 2014)
- Witter, S., Wurie, H. and Bertone, M. (2014) The Free Health Care Initiative: how has it affected health workers in Sierra Leone? Report for ReBUILD https://rebuildconsortium.com/media/1014/the-free-health-care-initiative-how-has-it-affected-health-workers-in-sierra-leone.pdf
- Review of the FHCI in Sierra Leone – Focus Group Discussion report (OPM and Focus 1000, 2016)
- Review of the FHCI in Sierra Leone – Facility-based interviews at district level (OPM, 2016a)
- Review of the FHCI in Sierra Leone – Fiscal space analysis report (OPM, 2016b)

3 The starting point: Challenges for the health system in Sierra Leone prior to the FHCI

Assessing the impact of the FHCI requires a detailed understanding of what the health situation in the country was prior to the implementation of the reform. Having identified the key areas upon which the government focused its intervention (health financing, HRH, drugs and medical supplies, governance, infrastructure, communication and M&E), we have also analysed the state of each of these pillars prior to the implementation of the FHCI.

3.1 Overall timeline prior to the FHCI announcement

The decade prior to the FHCI's announcement

2001	Ten-year civil war ends
2002	The government adopted a presidential decree that exempts pregnant and lactating women (and certain other groups) from having to pay for health care. However, these exemptions were not implemented in practice and costs continued to be a major barrier to accessing health care
2004	The process of decentralisation of functions from the MoHS to district-level bodies begins
2008	February 2008: the President endorsed a RCH Strategic Plan to reduce maternal, under-five and infant mortality rates by 30% between 2005 and 2015. The main elements were as follows: • significantly increasing the number of trained health staff; • ensuring that facilities have essential equipment and are functioning; • increasing the utilisation of RCH services; • ensuring that appropriate laws, regulations and guidelines are developed and enforced; • contributing to effective M&E; • ensuring effective government and management across the health care system; and • ensuring adequate coordination of work at all levels of the health system
2009	The Agenda for Change: Sierra Leone's second poverty reduction strategy paper launched Making it Happen programme starts, with three main components: • competency-based training packages in emergency obstetric care and newborn care; • strengthening of data collection and use in the facilities and for research; and • introduction of a quality improvement methodology 30 November: National Health Sector Strategic Plan (NHSP) 2010–2015 launched
2010	27 April: the FHCI launched

3.2 Health indicators

Prior to the introduction of the FHCI in 2010, health indicators in Sierra Leone painted a stark picture as a result of the previous decades of conflict, mismanagement and scarce resources with extremely low usage. MCH outcomes were close to being the worst in the world, although the situation was slowly improving both in terms of maternal and under-five mortality rates (see Table 3).

Table 3: Key health indicators in Sierra Leone prior to the FHCI

	1990	1995	2000	2005	2010
Population (millions)	4.0	3.9	4.1	5.1	5.8
Life expectancy at birth[1] (years)	37.4	35.8	38.1	42.1	44.8
HIV prevalence (% population aged 15–49)	0.1	0.3	0.8	1.5	1.6
Fertility rate[1] (births per woman)	6.5	6.2	5.9	5.5	4.9
Use of contraception (% women aged 15–49)	-	-	4	5	11
ANC[2] (% women aged 15–49[3])	-	-	68	91	93
Births attended by a skilled health worker[4] (%)	-	-	42	43	63
Exclusive breastfeeding (% children under 6 months)	-	-	4	7	32
Maternal Mortality Ratio (MMR[5]) (per 100,000 live births)	2,300	2,400	2,200	1,600	1,200
DPT immunisations (% children 12–23 months)	-	-	44	65	86
Measles immunisations (% children 12–23 months)	-	-	37	71	81
Use of ITNs (% children under 5)	-	-	2	5	30
Underweight children (% children under 5)	25	-	25	28	21
Under-five mortality[5] (per 1,000 live births)	268	251	232	202	175
Access to improved drinking water[1] (% population)	37	42	47	53	58
Access to improved sanitation[1] (% population)	11	11	12	12	13

Notes: 1. Latest figure relates to 2012.

2. The World Development Indicators database does not include this variable. Data source for 2000, 2005 and 2010 is the Multiple Indicator Cluster Survey (MICS).

3. Receiving at least one ANC appointment from a doctor, nurse, midwife or MCH aide.

4. Doctor, nurse, midwife or MCH aide (Note: MCH aide is not an SBA by international definitions.)

5. Modelled estimates from the UN.

Source: World Development Indicators database, World Bank

3.3 Barriers to access

A key source on information on the barriers to health care before the implementation of the FHCI is the 2008 DHS (Statistics Sierra Leone (SSL), 2008). 80% of women reported that getting money for treatment was a major problem, 50% reported that distance to a facility, the need to take transport and the possibility that no drugs would be available were major problems, and 37% of women reported that whether or not there would be a health worker available was a major problem. 8% reported that getting permission from their husband was a serious problem. In total, 89% of women reported that at least one of these concerns was a serious problem in regard to their accessing health care.

Younger women, women who were not employed, women who had no children and women who had never married were less likely to report problems. Women in the Western Area and in urban areas were less likely than those in rural areas and women with lower education or wealth were more likely to report serious problems. Problems accessing the necessary funds for health care were more of a barrier in the Northern and Eastern regions, and drug availability considered more of a problem in the Southern and Eastern regions.

The National Public Services Survey (NPSS) also asked people about barriers to access before the rollout of the FHCI. The 2005 survey estimated that, of those that used a government clinic in the past year, 88% of them walked to it (IRCBP, 2007). By 2008, 62% of respondents had access to a government clinic within one hour's travel. This was up from 48% in 2005 and 53% in 2007 (see Table 4). Over this period the largest increases were in Moyamba (40–53%) and Port Loko (64–77%) (IRCBP, 2010). Questions about access to care were also asked in a community module of this survey. Of the communities surveyed, 22% had a clinic or hospital in the village.

Table 4: Access to health care providers, 2005–2008

Time to government clinic/hospital	Percentage of respondents		
	2005	2007	2008
Less than 15 minutes	18	18	22
15–30 minutes	12	16	17
31–60 minutes	19	19	23
1–2 hours	18	24	22
Over 2 hours	33	21	14
None nearby	1	2	2

Source: IRCBP (2010)

These barriers were part of the context and rationale for the FHCI and the way in which it was rolled out.

3.4 Health financing

Pre-FHCI, there were a number of structural weaknesses in Sierra Leone's PFM that impacted on all public service delivery (GoSL, 2010; International Monetary Fund (IMF), 2009): revenue was often overestimated, leading to underspends against budgets; high levels of discretionary expenditure weakened budget execution; long-term budget planning was absent;[5] sector strategies were not costed; there was limited alignment between recurrent and development budgets; and there were significant weaknesses in the Treasury's cash management systems, affecting the predictability of resources available to Ministries, Departments and Agencies (MDAs).[6] In terms of external financing, significant donor support was provided off-budget, reducing the ability to coordinate and strengthen government systems. Moreover, where budget support was provided, it was often unpredictable. Notwithstanding significant PFM progress in the years before the FHCI, these weaknesses limited the ability for MDAs, such as the MoHS, to plan and implement their budgets effectively.

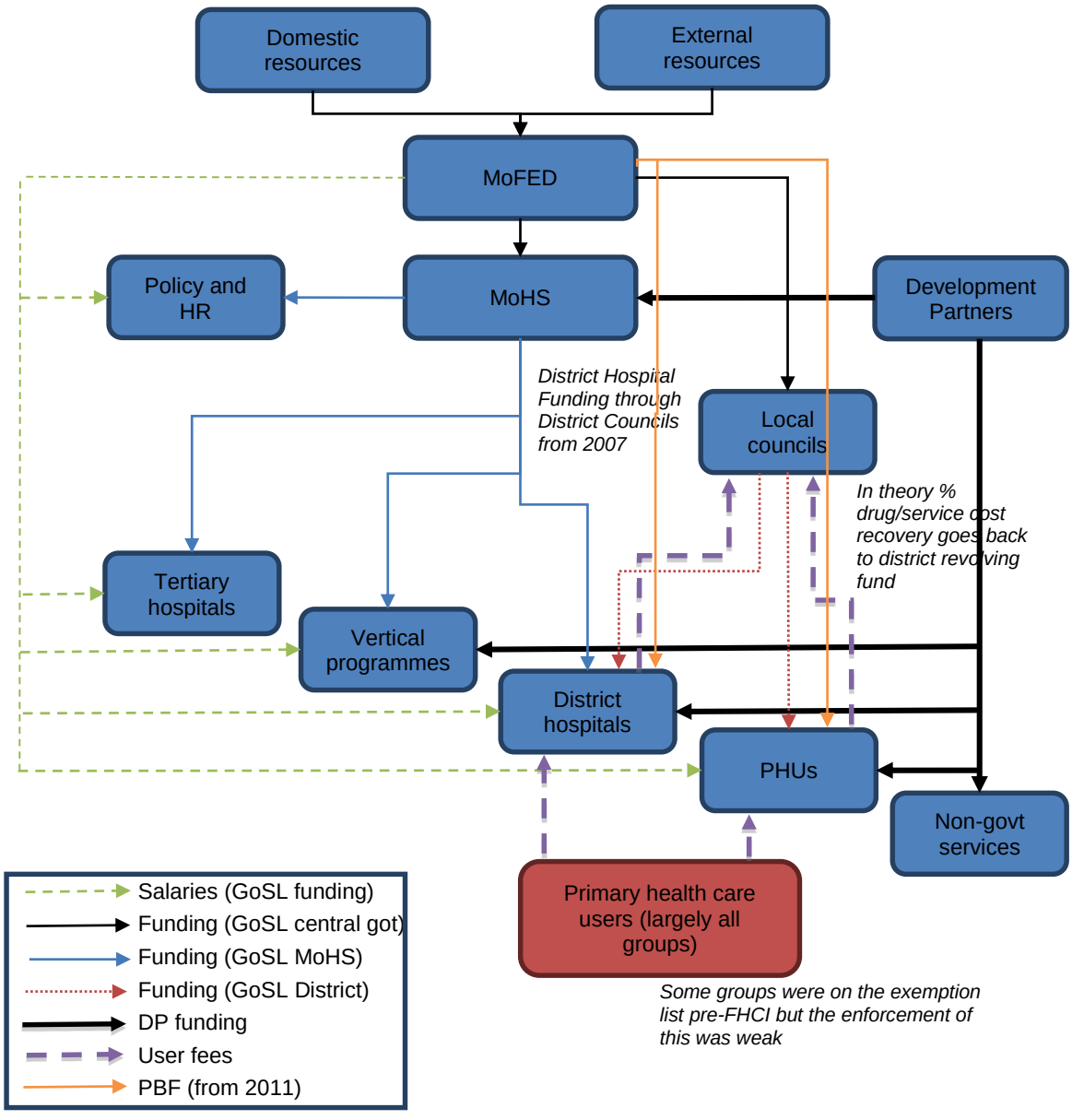
[5] Although it should be noted that a Medium-Term Expenditure Framework does exist.

[6] At this point quarterly allotments were made to all MDAs based on expenditure plans but there are often reallocations of line items during the year, and allocations were provided late.

3.4.1 National health financing issues

Figure 2 and Box 5 set out some of the main characteristics of health financing in Sierra Leone. The main aspects to note are the centralisation of payroll within MoFED and, following changes in 2007, the funding of local councils (non-payroll) and through them district hospitals and PHUs. The MoHS also funded various vertical programmes, although often with support from development partners, as well as tertiary hospitals and administrative functions.

Figure 2: Heath sector financing flows in Sierra Leone



Source: Adapted from Ensor et al. (2008)

Box 5: Budget process pre-FHCI

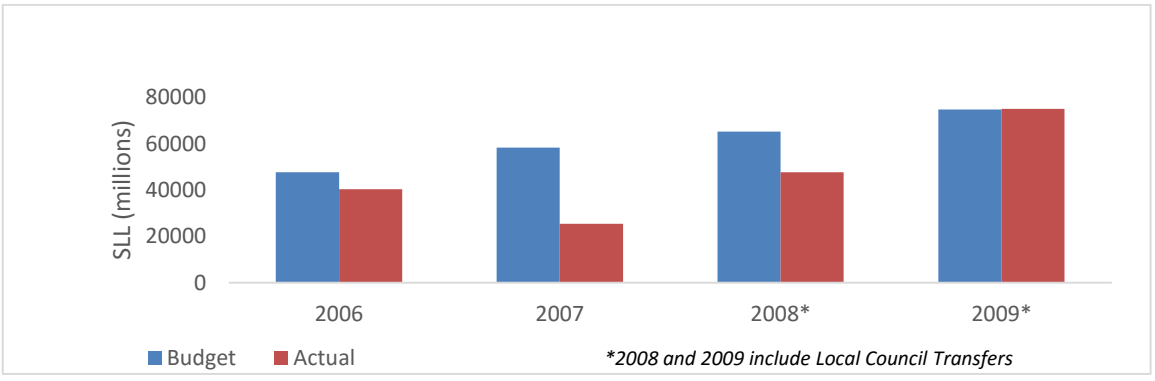
- MoHS receives a budget allocation from MoFED for administrative funding, tertiary hospitals and vertical programmes. Salaries at all levels in the health sector are funded centrally, through MoFED.
- There is vertical allocation from central government (MoFED) to the districts through the Local Government Department of MoFED.
- Each district is then provided with a budget ceiling. This is decided based on a national formula accounting for population, number of PHUs, etc. The split between primary and secondary allocation is also decided nationally.* This is approved by MoFED. Primary care devolved in 2006 and secondary in 2008.
- The Chief Superintendent (in relation to hospitals, curative care) and the district medical officer (DMO) (in relation to districts, preventive care) are then asked to prepare a workplan that fits within this budget ceiling. The workplan is developed in close collaboration with the District Council Health Committee.
- District health interventions are in theory guided by the 'one district health plan', which coordinates the activities of all of the different actors – government, donors and NGOs. In reality a number of activities are funded outside of these plans. Donors provide project support both through MoHS vertical programmes and direct to facilities. They also provided some general budget support linked to supporting health outcomes (through the budget support performance framework).

**There was a 2010 change to this formula as the formula previously worked on existing infrastructure, and therefore increased inequalities by channelling money to better off facilities*

The structure of health financing in Sierra Leone was poor pre-2010: McPake and Shumba (2012) note that during the decade preceding the FHCI, Sierra Leone had a very high proportion of OOP expenditure on health (around 10% of GDP, and over 80% of total expenditure), far worse than most, if not all, low-income countries.[7] Sierra Leone was also outperformed by 95% of low-income countries in terms of government expenditure on health. The high level of OOP payments means that access was either not possible or required catastrophic health expenditure,[8] i.e. a reduction in other basic necessities and/or risky coping strategies by households (Xu et al., 2005).

The health sector also had a number of other financing weaknesses, with failures by MoHS to execute their budget (see Figure 3) and reports of significant delays in receiving funds from MoFED (Amnesty International, 2009).

Figure 3: MoHS budget execution, 2006–2009



Source: MoHS expenditure accounts

The volatility of funding (from MoFED and development partners) was also a challenge, reducing the ability and incentives for health agencies to plan. For example, on average, from 2004 to 2007, less than 25% of the overall (non-wage) allocation was received in the first two quarters of the year

[7] It was so high that it was outside the range of the analysis. See Xu et al. (2010) for a full analysis of global figures.
[8] Three factors for catastrophic payments to arise (Xu et al., 2005) were all present in Sierra Leone: the availability of health services requiring OOP payments; low household capacity to pay; and lack of prepayment mechanisms for risk pooling.

(Ensor et al., 2008). Funding delays resulted from both limited capacity for making timely allocation requests within MoHS and the slow release of cash from MoFED, reflecting limitations in cash management and fiscal pressure.

3.4.2 Financing local facilities

Despite limitations in the available data, resources from cost-recovery fees on drugs and services were estimated to be a significant component of financing at local level, made even more important by the difficulties in receiving central funds. KIIs with officials in PHUs confirmed that they relied on such financing before the FHCI. Indeed, such flows were relatively timely and predictable when compared to financing from other sources, which is consistent with evidence globally (McPake and Shumba, 2012). Furthermore, national and district KIIs suggested there can also be difficulties in allocating resources, within the district level, even when grants are provided to the districts from central funds.[9]

There are few studies that have robustly estimated the volume of user fees at facility level pre-FHCI, although a study in 2008 estimated that they constituted between 4% and 8% of total government funding for district hospitals, and between 44% and 95% of the government budget for PHUs at district level.[10] This is consistent with international literature (e.g. Witter, 2009) that highlights the dependence of lower-level facilities on user fees (a reflection of the limited support they receive from government, among other factors).

The cost-recovery policy implemented in 2002 allowed for 60% (albeit later revised downwards to 40%) cost-recovery on certain drugs (there was a list of exemption groups): local facilities were permitted to retain 60% of the revenue raised and remit the remainder to the district,[11] although in reality little revenue was actually remitted back to the district (OPM, 2008).

There was also considerable discretion exercised by health workers over which groups received exemptions and therefore how much strain was placed on local financing. While in some cases it was calculated that exemptions accounted for up to 70% of utilisation in PHUs (Ensor et al., 2008), most evidence suggests that the exemptions were not enforced. For example, a survey in 2007 found between 60% and 70% of pregnant women, lactating women and children under five being charged for services, although all these were exempt categories of users (IRCPB, 2007). Service charges remained important to facility financing,[12] as is commonly found in wider regional literature (McPake et al., 2011). Again, the requirement to return 10% of user charge revenue to the consolidated fund appears to have been only very partially observed (Ensor et al., 2008).

In summary, although the previous cost-recovery policy exempted the groups that tended to use the most services, it seems that in practice the need to raise local revenue tended to override the requirement to exempt groups. This means that expanding and enforcing the exemption list

[9] Although two prominent World Bank programmes (the Decentralized Service Delivery Program (DSDP) (working in a number of sectors in districts) and Reproductive and Child Health Program (RCHP)) worked at this level, starting in 2009 and 2007 respectively, and stakeholders felt that both their financial resources (which tended to be disbursed more predictably) and technical assistance were effective

[10] At PHU level, users report charges ranging from on average SLL 2,800 for a child contact to SLL 3,400 for a family planning contact and SLL 12,500 for a delivery (2008 MoHS Health Facility Survey). An MSF study puts the average cost at government health centres that charge for services at around SLL 8,700 (Latreille et al., 2006). An average fee of somewhere between SLL 4,000 and SLL 8,700 would provide total revenue of between SLL 5.2 and SLL 11.3 billion for PHUs based on the 1.3 million PHU contacts recorded by the HMIS in 2006 (Ensor et al., 2008).

[11] In terms of the mark-up that could be charged on drugs, the National Cost-Recovery Strategy specifies 30% from Central Medical Stores (CMS) to District Medical Stores (DMS) or hospitals, 15% from DMS to PHUs, and 15% from PHUs to patients or 30% from hospitals to patients. Mark-ups on the value of drug supplies of a total of 60% are meant to be applied to the original CMS procurement value.

[12] At PHUs these usually amount to fixed charges for adult and child consultations set by local communities or clinic staff. Charges varied considerably across the country, with some districts choosing to levy no charges, at least at PHUs (Ensor et al., 2008).

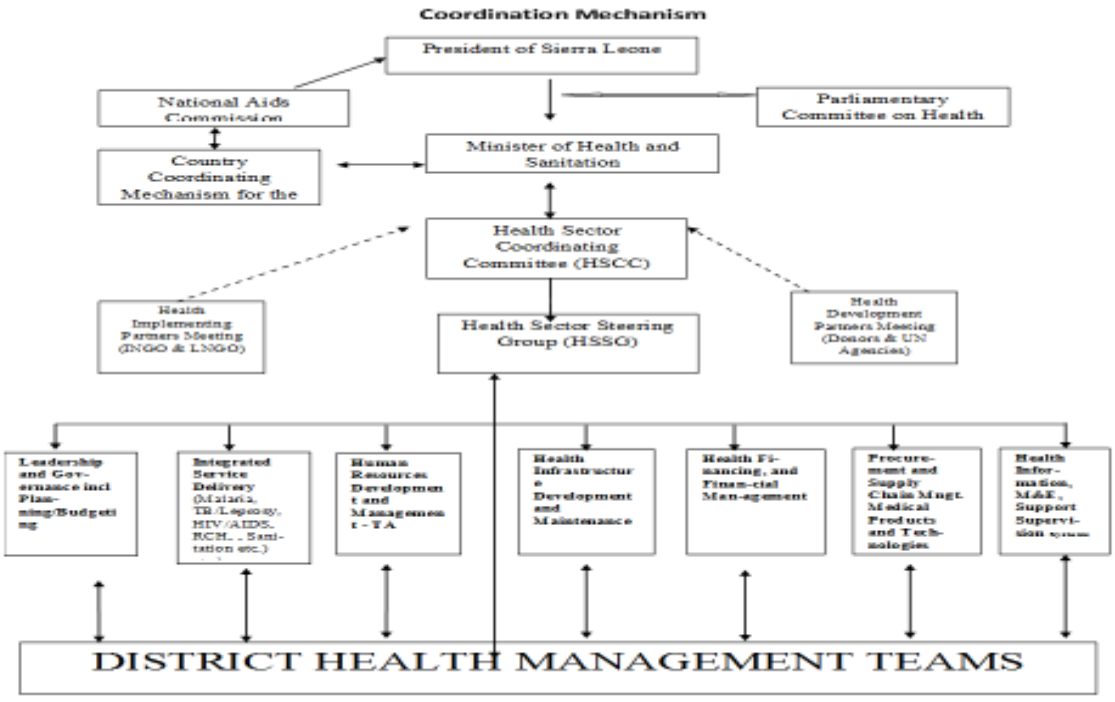
through the FHCI was likely to have important implications for facility financing. Without new forms of financing at the facility level the hypothesis would be that the FHCI would not greatly reduce the use of unofficial fee systems and might lead to a fall in the quality of services (given increased utilisation).

3.5 Governance

In 2008, the Agenda for Change set out the priority areas of the newly elected President Koroma: transformation of the economy through investments in supportive infrastructure, improved delivery of social services and private sector development (GoSL, 2008a). In 2009, a National Health Sector Strategic Plan 2010–2015 was also developed that set out the vision for the health sector.

Since the end of the country's 10-year civil war, the GoSL had also pursued a decentralisation strategy that sought to invest greater authority and responsibility for governance and service provision in district structures, steered by a central-level coordination mechanism (see Figure 4 below).

Figure 4: Structure of the health system in 2010



Source: shared by Yayah Conteh, MoHS

However, within the health care system, this process had been incomplete and generated confusion over which structures were responsible for a range of management functions (MoHS, Health Sector Performance Report, 2012. The central government, for example, failed to provide sufficient and regular financial support to the DHMTs and district councils (ibid).

Coordination between the MoHS and development partners was also poor, according to national-level KIIs, as was their mutual level of trust (the Minister of Health for example was accused of corruption and dismissed in 2009).

The MoHS was generally seen as a struggling ministry given little political attention:

'Prior to the FHCI announcement, the MoHS was a rather lethargic place where not very much happened. Development meetings were lacklustre and there was little energy' (MoHS official present prior to FHCI implementation).

According to district-level KIIs, information transmission within the sector was always top-down, and did not involve input from the districts.

3.6 HRH

The post-war context presented many challenges, particularly the absence of staff, who had fled, and the proliferation of NGO-supported services, with limited control by the MoHS overall. Gradually, during 2002 to 2009, the MoHS re-established some leadership and a series of HR policy documents and plans were produced, which presented clearly the challenges but without having much traction in terms of funding and momentum toward implementing the measures they identified as needed. There were substantial gaps in posts filled and poor working conditions for staff, including low pay and difficulties getting on to payroll (Witter et al., 2014). Many workers were considered 'ghosts', claiming salaries for work that was not undertaken[13] or working without a regular civil servant contract (and sometimes charging patients)[14] (Ensor et al., 2008; Amnesty International, 2009; IGC, 2011). Even for those getting paid, the overall conditions of service were poor, which provided incentives for additional informal charges. For example, estimates in 2009 were that midwives earned about US$ 60–80, compared to a 50-pound bag of rice costing close to US$ 40 (Amnesty International, 2009).[15] Pre-FHCI, there was low utilisation of facility deliveries, and heavy reliance on TBAs trained by NGOs.

Despite the decentralisation of primary and secondary health service provision to the district level, recruitment, termination, promotion and wage decisions were managed centrally (Simson, 2013). Incentives were therefore undermined, with those officials who had information of performance, such as managers at the facility level, lacking the authority to sanction absence or other poor performance (IGC, 2011). Districts had however reported that at least they now had greater control over resources for non-staff expenditure after the decentralisation process (2004 for district councils, and in 2008 for secondary care, both being managed by DHMTs) (Simson, 2013).[16]

More detailed analysis of the situation of HRH in Sierra Leone before, during and after the FHCI is provided in a report undertaken with ReBUILD (Witter et al., 2014).

3.7 Drugs and supplies

Prior to the implementation of the FHCI, there was no structured chain of procurement and distribution for drugs and medical supplies. Cost-recovery drugs[17] were predominant, which limited access to essential medicines, especially among those with a limited ability to pay. Their procurement was also carried out on an *ad hoc* basis, which reinforced availability issues. Around 70% of medicines and supplies were provided by the private sector, with limited participation of the

[13] A 2008 survey found 18% of surveyed clinics were closed on inspectors' arrival, and an average of only 71% of staff positions filled (IGC, 2011).

[14] This often resulted from delays between training and hiring, with sometimes as much as a three-year period for doctors (Amnesty International, 2009). It was estimated that 48% of the MCH aides and community health officers were not being paid in one district, as at the end of 2008 (interview with a DMO, cited in Amnesty International, 2009).

[15] A comparison between payments by some faith-based hospitals and the public sector carried out during this study found that while the difference among low-skilled occupations was relatively small, sometimes even negative, there is a four to seven-fold difference between the salaries of faith-based medical and senior medical officers and their public sector equivalent (Ensor et al., 2008).

[16] Tertiary care remains managed by the MoHS.

[17] Through cost-recovery, 40% of the resources were transferred to districts/central level, with 60% remaining at the facility to subsidise drugs for those who did not have the ability to pay.

public sector due to the limited financial resources and lack of a designated government body to lead the procurement of drugs and medical supplies at the central level (MoHS, 2009).

Indeed, the Anti-Corruption Commission Report (2008, cited in Amnesty International, 2009) found that there was an inadequate quantity of drugs and medical supplies; drugs were illegally sold and administered in hospitals and PHUs; and no information was available about goods procured and distributed by local councils or MoHS – record-keeping was deemed to be in a 'scandalous state' and most procurement committees lacked the technical expertise to determine the type of drugs and medical supplies to be procured. The Performance Audit Report on Anti-Malaria Interventions also noted that costs involved for anti-malaria treatment were very high, even though drugs should have been provided for free to under-fives and pregnant women and at a minimal fee to other patients (Audit Service Sierra Leone, 2012). Although the cost-recovery system allows health facilities to have a source of income for subsequent drug and medical supplies purchases, it also prevents access to those segments of the population who potentially need them the most. Thus, people relied on the illegal drugs market or 'pepper doctors', without any quality guarantees and increasing the likelihood of drugs misuse.

Limited access was not only determined by the cost of drugs and medical supplies but also by ineffective distribution chains. Distribution was hindered by the unavailability of vehicles to transport drugs from Freetown to districts, and from districts to hospitals and PHUs. Even if transport was available, the poor road network caused additional delays in the delivery system. Even key hospitals did not receive a regular stock of drugs and medical supplies. Data from 2008 suggest that only 39% of PHUs reported having an uninterrupted supply of essential medicines (EU, 2012).

The accessibility of drugs and medical supplies was further limited by the lack of accurate data about morbidity and mortality at all sub-national levels, as well as about stocks and inventories, which led to the misallocation of drugs and medical supplies. Gaps in national health information were partly due to poor monitoring and enforcement on the part of national and district-level authorities, but also to the lack of a unified information system – according to the National Data Management Procedure Manual, there were multiple donor-driven parallel information systems and poor recording of health data, among other issues. The Health Information System prior to the 2010–2015 National Health Sector Strategic Plan (NHSSP) relied solely on manual recording and consolidation, increasing the margin of error and untimeliness of the information collected.

Finally, in regard to infrastructure, there were no adequate storage facilities at any level. As documented in the 2010–2015 NHSSP, these were basically non-existent before the FHCI (MoHS, 2009; Steering Group Meeting Notes, 2010). This was compounded by the absence of or outdated comprehensive regulatory and policy frameworks – for instance, the last update of the National Medicines Policy (NMP) and associated documents was in 2004. Guidance on the use of various medicines for different illnesses (i.e. a National Formulary) was also non-existent.

3.8 Infrastructure

Prior to the FHCI, the country's overall and health-related infrastructure were devastated, particularly those relating to water supply, sanitation and roads.[18] The Emergency Obstetric and Newborn Care (EmONC) Assessment Report (2008) highlighted, for example, that six districts had no facilities that qualified for EmONC status. There were only 14 hospitals (of 38) providing

[18] Sierra Leone – AfDB World Bank Joint Assistance Strategy 2009–2012.

maternal health services that were able to offer EmONC and they were all Comprehensive Emergency Obstetric and Newborn Care (CEmONC) facilities.

Furthermore, the available EmONC services were inequitably distributed; for example, three hospitals provided emergency obstetric care in Bombali district, with a population of 400,000, compared to the entire Eastern or Southern regions each with 1.2 million people to only one EmONC facility (Amnesty International, 2009; UNFPA, 2008). Only 4% of hospitals or emergency rooms had adequate antimalarials, 2% adequate analgesics and 4% emergency medicine drugs. Only 45% had adequate IV fluids and 58% had adequate antibiotics. Sufficient night-time light was available in only 36% of hospitals and CHCs, with running water in 44%.

An assessment of the status of the Basic Emergency Obstetric and Newborn Care (BEmONC) and CEmONC facilities in February 2010 was undertaken by a team of public health experts who visited a number of facilities across the country. The assessment focused on what was referred to as the seven enablers: water, electricity, blood (only for CEmONC), referral systems, equipment for special procedures, staffing and drugs.

For each enabler a traffic light system was devised (Infrastructure working group presentation, February 2010): the ratings under each enabler are as follows: Green – the standards have been met; Yellow – the standards have been mostly met; Amber – the standards have been partially met; and Red – the standards have not been met. The table below shows that, across the seven enablers, the situation was unsatisfactory (see Table 5 below).

Table 5: Assessment of preparedness of hospitals for EmONC

Capacity of the facilities	Bo, Kenema, Kono, Kabala, PCMH, Lumley	Port Loko, Rokupa, Magburaka, Moyamba, Bonthe	Kailahun, Pujehun, Makeni, Kambia, Mattru
Condition of the facilities	Kono, Rokupa, Kabala, PCMH	Bo, Kenema, Port Loko, Pujehun, Moyamba, Makeni, Kambia, Lumley, Mattru	Kailahun, Magburaka
Staff	Kenema, Kailahun, Kono, Rokupa, Pujehun, PCMH, Makeni, Lumley	Bo, Port Loko, Kabala, Magburaka, Moyamba, Kambia, Mattru	
Water	Bo, Kono, Kabala, Pujehun, PCMH, Lumley	Kenema, Kailahun, Magburaka, Moyamba, Makeni	Port Loko, Rokupa, Kambia, Mattru,
Electricity	Bo, Kenema, Kono, Rokupa, Kabala, Pujehun, Magburaka, PCMH, Makeni, Kambia, Lumley	Port Loko, Moyamba	Kailahun, Mattru
Equipment for EmONC	Bo, Kenema, Kono, Rokupa, Kabala, Makeni, Kambia	Port Loko, Kailahun, Pujehun, Magburaka, PCMH, Moyamba, Lumley, Mattru	
Drugs for EmONC	Kenema, Port Loko, Rokupa, Pujehun, PCMH	Bo, Kono, Kabala, Magburaka, Moyamba, Makeni, Kambia, Lumley, Mattru	Kailahun
Environmental sanitation	Bo, Port Loko, Rokupa, Kabala, Pujehun, PCMH, Kambia	Kenema, Kailahun, Kono, Moyamba, Lumley, Mattru	Magburaka, Makeni
Transportation for referrals	Kenema, Port Loko, Kailahun, Kabala, Makeni	Kono, Rokupa, Pujehun, Magburaka, Moyamba, Kambia, Mattru, Bo	PCMH, Lumley
Communication with PHUs	Bo, Kenema, Port Loko, Kailahun, Kono, Kabala, Pujehun, Magburaka, Moyamba, Kambia	PCMH, Makeni	Rokupa, Lumley, Mattru

Laboratory	Pujehun, Makeni	Bo, Kenema, Kailahun, Kabala, Magburaka, PCMH, Kambia, Lumley	Port Loko, Kono, Rokupa, Moyamba, Mattru
Blood bank	Bo, Kenema, Kabala, Makeni, Kambia	Port Loko, Kono, Magburaka, PCMH	Kailahun, Rokupa, Pujehun, Moyamba, Lumley, Mattru

Source: Infrastructure working group presentation, February 2010, MoHS

Finally, various interviewees in the national-level KIIs reported that during the presidential visits to the districts in 2010, prior to the launch of the FHCI, the President was appalled by the lack of facilities, and particularly by the fact that many facilities that existed on paper and were supposed to have been finished and up and running were not ready.

3.9 M&E

Before the start of the FHCI in 2010, Sierra Leone's M&E system for health was weak. There was a limited amount of survey data, a basic collection of management data from health facilities and some printed reports. It appears there was little overall system or strategy as such and we have found little evidence that the M&E information was used to review, inform or develop policies and programmes.

In terms of survey data available in 2010, there were three rounds of the UN's MICS (MICS 1995, 2000 and 2005), the 2008 DHS and the 2009 DHSBS. The DHS in particular covered a range of variables on reproductive health, child health and maternal and child mortality. There were, however, some concerns about the quality of the 2008 DHS, in particular in the area of child mortality, where the estimates were out of line with the MICS series and the UN-modelled figures.

For the HMIS data from health facilities, the situation was basic. They were not computerised, many facilities did not provide data and the system was not well developed. Despite this, some analysis was done and a few health bulletins were produced. However, only a small number of these bulletins have been retained and there is only a limited amount of data available from these health facilities from 2010 and earlier.

There was a small group of staff in MoHS who were working on data and M&E issues, but there was little additional analysis of the surveys beyond the standard reports and there is no evidence that there was a systematic or deliberate attempt to link the results of the M&E work to policy and accountability processes. In short, there was little use of the M&E outputs and the system had little impact.

3.10 Quality of care

Although quality of care was not one of the health system interventions that were conceptualised as part of the FHCI, it is important to understand the situation prior to the FHCI in terms of quality of service provision, resulting from the constraints in the various health system pillars documented above. Data on care processes themselves were lacking.

In 2008 only about 10% of all expected births were seen in health facilities and only 2% of births were seen in an EmONC facility.[19] This suggests that up to 90% of pregnant women may have been delivering outside the health service – in their homes or at TBAs' facilities. Many of these women had complicated pregnancies and no doubt contributed to the high maternal and neonatal mortality at this time in Sierra Leone. The low level of utilisation observed by the EmONC Needs Assessment was *'partly explainable by the concerns raised about the cost of services, attitudes of staff and general client satisfaction.'* The poor uptake of institutional delivery services, the lack of BEmONC services, including the absence of skilled attendance at birth, coupled with the spatial inequities in the distribution of CEmONC facilities, all point to low met need for EmONC services. It is ideal that 100% of complicated pregnancies are managed in EmONC facilities, yet in 2008 only 7% of them were.

[19] Nationwide Needs Assessment for Emergency Obstetric and Newborn Care Services in Sierra Leone, MoHS (2008).

In 2008 the caesarean section rate according to the DHS was 1.5% and was 3.5-fold higher in urban areas than in rural areas. Between July 2007 and July 2008 (UNFPA, 2008), only 0.9% of births in Sierra Leone were by caesarean section, with the highest proportion in the Western Area at 1.4% and none in the southern district of Pujehun. These numbers imply that a very high percentage of women who needed life-saving surgery did not obtain it.

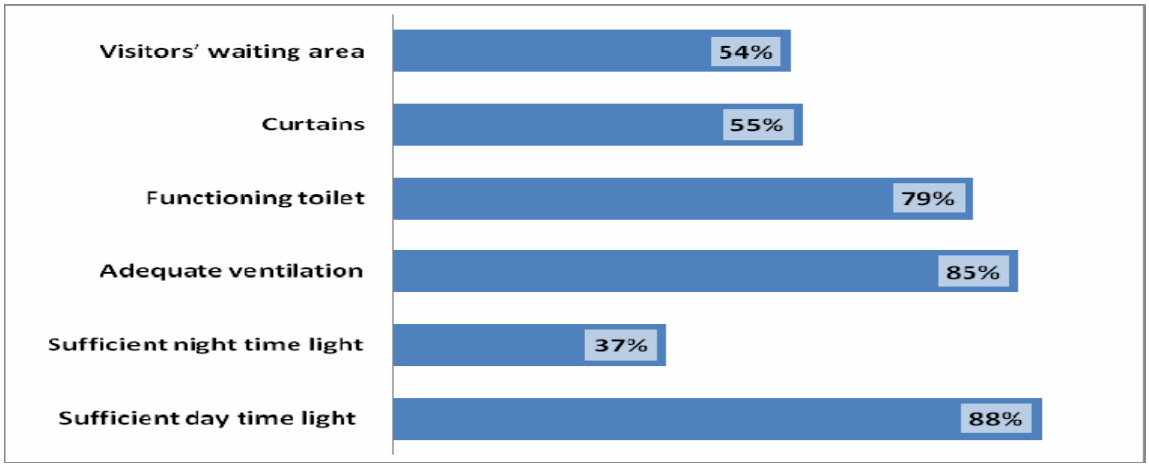
The EmONC needs assessment found that MCHPs and CHPs were under-resourced in terms of equipment, supplies and HR to contribute to EmONC provision. There was a chronic shortage of trained midwives in the country, with public and private health institutions depending largely on MCH aides to provide delivery services in health institutions. With their inadequate midwifery training it was felt that their services were bound to be of low quality.

The UNFPA Country Programme Action Plan (2008–2010) supported these findings. It described most health facilities as having inadequate supplies of reproductive health commodities and as lacking appropriate equipment and basic requirements for laboratory services, including safe blood transfusion services, electricity, drugs and water supply to provide obstetric care. It stated that '*the health system also suffers from inadequate capacity to undertake planning, implementation and coordination of family planning, emergency obstetric care and other maternal-child health services including [reproductive health] demand creation. The number of trained midwives and skilled medical personnel to provide obstetric care, especially at lower level health facilities, is highly inadequate*'.

Infection prevention and control measures were likely not adequate due to the widespread lack of a safe water supply. The EmONC needs assessment found that only 10% of hospitals had electricity and 60% some form of water supply. Out of the 56 hospitals and CHCs visited that had water, the source of water for 31 (55%) of them was outdoor plumbing, while 11 (20%) had indoor plumbing from a borehole or well and 14 (25%) had indoor plumbing from a municipal source.

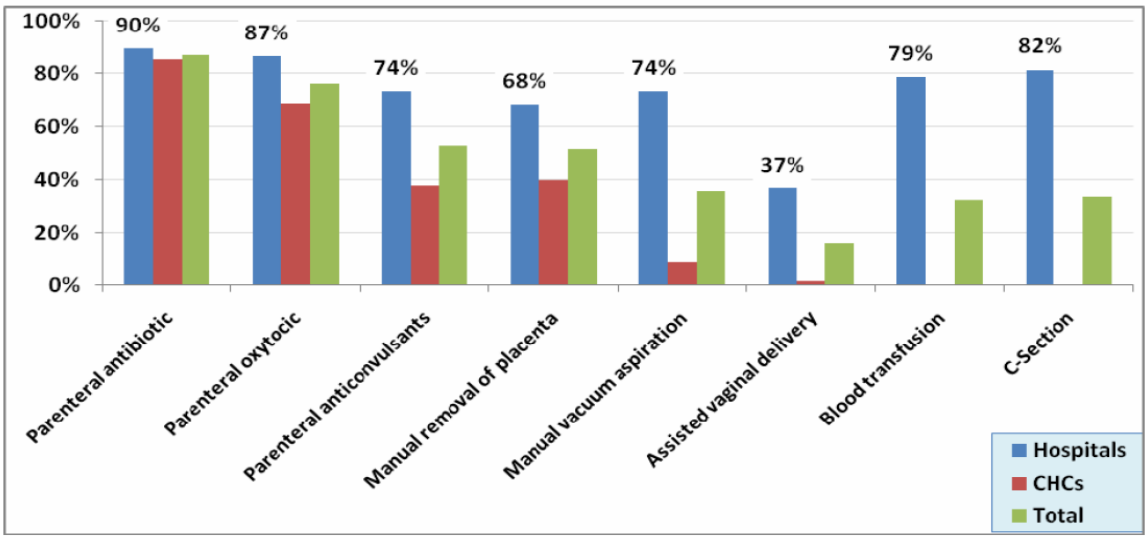
There is little information about how facilities were organised to deliver services to particular client groups. However, up to 37% of hospital and CHC maternity wards provided food, 82% had beds for the next patient and 76% of them had clean and laid-out beds.

Figure 5: CHC and hospital maternity wards with selected amenities



Source: UNFPA (2008)

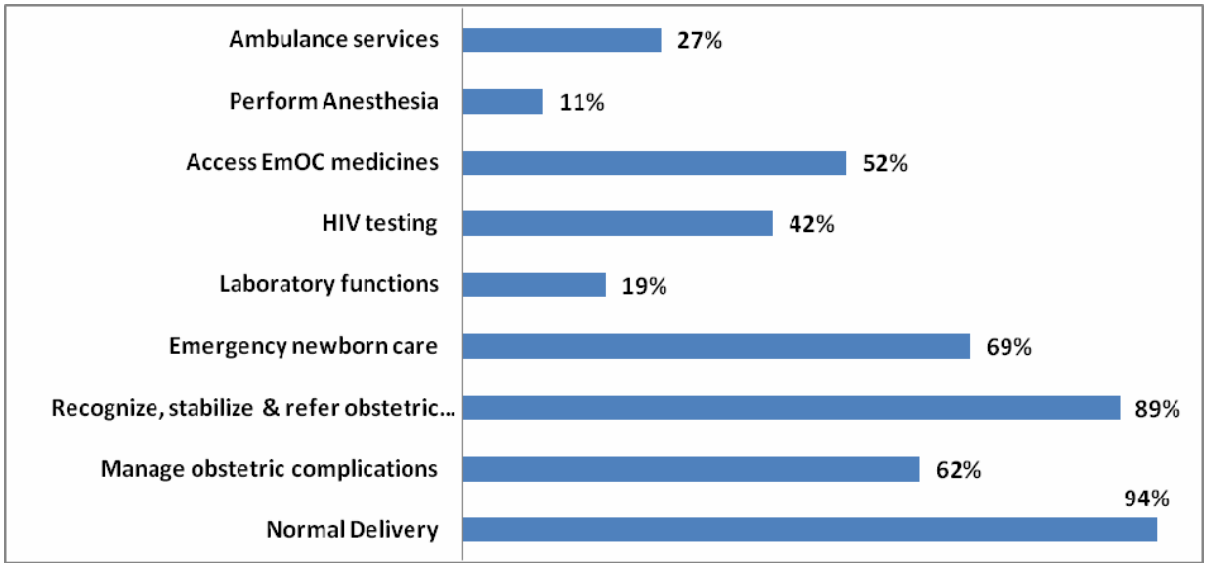
Figure 6: Proportion of hospitals and CHCs by signal functions performed



Source: UNFPA (2008)

The EmONC coverage for Sierra Leone was 1.2 per 500,000 in 2008 (compared to the UN norm of one CEmONC facility and four BEmONC facilities for every 500,000 people). The regions with the lowest coverage were Eastern and Southern regions while the highest was Northern Region. The BEmONC coverage was zero for every district, region or the country at large. In the absence of BEmONC facilities, CEmONC coverage was therefore the same as EmONC coverage. There were only 14 hospitals that qualified to be considered EmONC facilities and they were all CEmONC facilities. There were three facilities that would have qualified as BEmONC facilities except they did not perform assisted vaginal delivery. All MCHPs and CHPs were non-EmONC facilities (UNFPA, 2008).

Figure 7: The 24-hour availability of maternity services in CHCs and hospitals

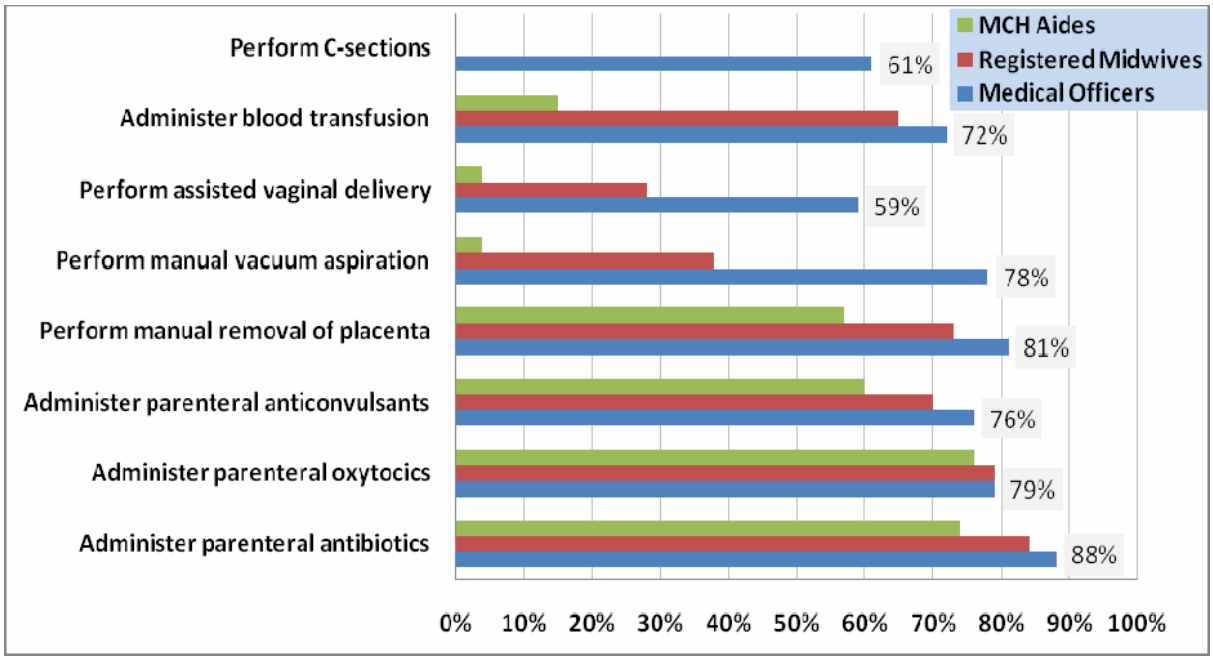


Source: UNFPA (2008)

Up to 67% of hospitals and CHCs did not have the services of a midwife and over 95% of facilities did not have the services of an anaesthetist or a paediatrician.

The EmONC needs assessment looked at the skills, training and experience of MCH cadres. In 66% of the sites visited active management of the third stage of labour was performed and 39% of them gave oxytocin immediately after the delivery of the placenta.

Figure 8: Selected health cadres trained to perform signal functions



Source: UNFPA (2008)

The health provider knowledge tool was administered to midwives and to any health cadre who was most likely to take charge of a delivery. Only 14% of respondents mentioned all the components that should confer quality on an antenatal service and about 76% of respondents mentioned the two signs that signify the onset of labour, but only 16% of respondents mentioned all the required parameters for monitoring labour, with 12% of respondents claiming they documented their observations only on a partograph. Almost 17% of respondents mentioned all the signs required for the prompt diagnosis of post-partum haemorrhage (PPH), with only about 20% of respondents mentioning all the vital interventions required when asked '*when a woman comes with or develops heavy bleeding after delivery what **action** do you take?*'

Out of the 87 partographs reviewed, only five (6%) showed that there was an intervention when the alert line was crossed. Over 54% of the respondents had been trained to use the partograph but only 22% had used it in the previous three months. Similarly, over 64% of respondents had been trained to use magnesium sulphate but only 30% had used it in the last three months. Only 7% and 4% had been trained to perform vacuum extractions and manual vacuum aspirations respectively.

For the performance of services such as breech delivery, early initiation of breastfeeding, provision of IPTp and resuscitation of the newborn, higher proportions of MCH aides than medical officers had received training. Higher proportions of medical officers had received training in the provision of anaesthesia and the care of the pre-term or low-birth-weight baby.

Significant numbers of facilities performed obsolete procedures such as routinely bathing the baby within 24 hours of birth or suctioning the baby at birth (up to 53%).

Even though magnesium sulphate is on the national essential drug list for use at all the tiers of the health service, only about 52% of labour and delivery rooms had it in stock. There was poor medical record-keeping, especially for complications of pregnancy and maternal death. Maternal

death audits were done in many of the health facilities visited but the records of such exercises were not obtainable.

The EmONC needs assessment looked at the modes of transport to the health facility for most of the maternal deaths where records were retrieved (100% =174). Only 13 (7%) were said to have walked from home to the facility while 'private vehicle' (42%) was most used, or some form of health facility ambulance (26%). Other modes of transportation mentioned were hammock and motorbike. Of the maternal deaths reviewed, 58% were referred from another facility and, aside from the complication, they were transferred 'for blood', 'for operation' or because there was 'no doctor'. Up to 24 (26%) of the 93 hospitals and CHCs visited said there was the presence of a community referral system and 11 (46%) reported the existence of a byelaw supporting the community referral system.

In 2008 the national maternal CFR was 7%.

Figure 9: Case fatality rate in EmONC facilities, 2008

Health Districts	Health Facility	No. of direct obstetric complications treated	No. of direct maternal deaths	Case Fatality Rate
Bo	Gondama Hospital	631	0	0%
Bombali	Magbenteh Hospital	90	18	17%
Bombali	Kamakwei Hospital	188	5	3%
Bombali	Makeni Hospital	239	9	4%
Kambia	Kambia Govt. Hospital	39	6	13%
Kenema	Panguma Hospital	22	9	29%
Koinadugu	Kabala Hospital	109	4	4%
Port Loko	Bai Bureh Hospital	1	0	0%
Port Loko	St. John Hospital	206	60	23%
Western Area	Marie Stopes Hospital	170	2	1%
Western Area	Rapha Hospital	6	0	0%
Western Area	Military Hospital	0	0	0%
Western Area	UMC Hospital, Freetown	0	2	100%
Western Area	PCMH, Freetown	1194	97	8%
TOTAL		**2895**	**212**	**7%**

Source: UNFPA (2008)

Poor record-keeping for obstetric complications and even poorer maternal death records make it very difficult to rely on the CFRs from this survey**.**

Only 11% of the health care providers asked were aware of all the signs that would enable prompt diagnosis of postpartum sepsis (Figure 10). Respondents were asked for the main interventions required for its management and only about 10% of respondents mentioned all that is required.

Up to 22% of the respondents were able to mention all the signs of newborn sepsis but only about 13% of respondents were aware of all the interventions needed for the prompt and successful management of neonatal sepsis.

Figure 10: Provider awareness of danger signs, EmOC assessment 2008

When a woman comes with general malaise 48 hours after delivery, what signs do you look for?	Frequency of answers
Correct Response	10.8%
High pulse rate	**39.2%**
High fever	**74.3%**
Septic shock (unrecordable BP)	**40.5%**
Sub involuted tender uterus	**40.5%**
Foul smelling lochia	**60.1%**
Tender abdomen	17.6%
Correct response requires that the options in bold are selected	

When a woman complains of malaise 48 hours after delivery, what do you do?	Frequency of answers
Correct Response	9.5%
Start IV fluids	**39.2%**
Give parenteral antibiotics before referral to Doctor or Hospital	**68.2%**
Administer analgesics/antipyretic	**60.8%**
Take blood for blood smear & give malaria prophylaxis	**29.7%**
Palpate abdomen	**22.3%**
Examine lochia, perineum and breasts	20.3%
Refer	23.0%
Correct response requires that the options in bold are selected	

What are the signs and symptoms of infection in the newborn (sepsis)?	Frequency of answers
Correct Response	22.3%
Poor or no breastfeeding	**61.5%**
Hypothermia or hyperthermia	**66.9%**
Restlessness or irritability	**62.8%**
Difficulty breathing	**44.6%**
Foci of infection may be found in throat, skin, eyes	35.8%
No apparent source of infection	4.7%
Correct response requires that the options in bold are selected	

Source: UNFPA (2008)

According to the EmONC needs assessment, 43% of CHPs and MCHPs had witnessed at least one stillbirth in 2007. The stillbirth rate was 30 per 1,000 total births in 2009 (WHO, 2013).

4 The preparation of the FHCI

The objectives of the FHCI were clear: to ensure that the barrier seen as most important to accessing health care – user fees – was removed for the most vulnerable groups (identified as pregnant women, lactating mothers and children under five) so as to ensure that these target groups would be able to access quality care free at the point of use. The ultimate objective was and still is improving maternal and under-five morbidity and mortality rates. How this decision was taken, and implementation of the reform prepared for, offers useful insights for any country wishing to go through a similar reform.

4.1 What triggered the decision to announce the FHCI?

As previously highlighted, prior to the FHCI of 2010 a presidential decree was issued in 2002 that exempted various vulnerable groups – including the three groups who would become the targets of the FHCI – from paying fees when seeking care.[20] However, this policy announcement had little impact at facility level.

The renewed drive in 2009 to remove fees for these target groups seems to have been the result of both national and international factors.

At the **national level**, we have identified the following factors:

1. Appalling health outcomes in general, and specifically for MCH, which were identified in the Agenda for Change as a priority for the health sector.
2. Sierra Leone had extremely low utilisation of health facilities (0.5 visits per person per year) (MoHS, 2008).
3. In the 2008 NPSS, and as previously mentioned, lack of finance was cited by 88% of respondents as the major reason as to why their household members could not access health facilities even though they needed to.
4. There was pressure on the GoSL from national NGOs to remove user fees.

The **international level** also played a role in facilitating the introduction of the FHCI:

1. There was strong support from some key international partners, including backing from the UK government and more specifically Gordon Brown, for example, who wrote letters to various African presidents, including President Koroma, promising financial support if user fees were removed. Gordon Brown also offered his political weight when Sierra Leone was faced with disapproval from the IMF as a result of the decision to remove fees (according to participants in the international KIIs).
2. Extensive lobbying from INGOs.
3. International pressure was focused on MCH as two of the Millennium Development Goals (MDGs) most lagging behind (i.e. MDGs 4 and 5).

There was therefore a strong incentive to focus on MNCH and provide a concrete policy reform that could improve MDGs 4 and 5. The process through which this was realised is also of interest.

4.2 Launch and preparation process

1. September 2009: At the United Nations General Assembly President Koroma announced that all health care services would be free for pregnant women, breastfeeding mothers and children under five years of age.

[20] See www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/8410.pdf

2. September/October 2009: Discussions were held between donors and the GoSL as to potential backing and practical impacts of the FHCI.
3. November 2009:
    - launch of a strategy document entitled 'Free Healthcare Services for Pregnant and Lactating Women and Young Children in Sierra Leone'.
    - the President announced the launch date of 27 April 2010, giving the MoHS five months to prepare for the forecasted increase in utilisation of health services by target groups.
    - setting up of working groups and a steering committee to drive preparation of the FHCI. The themes of the working groups set up were chosen by a group of key stakeholders who discussed the most pressing priorities that needed to be addressed on the supply side to ensure that the health system would cope with the increase in demand expected as a result of the removal of user fees. These themes, and working groups, were: 1) Financing; 2) Infrastructure; 3) Drugs and Logistics; 4) M&E; 5) HR; and 6) Communications. Governance, oversight and vision was not organised as a working group per se (further details are given in Section 2.5 on this).

In contrast to many other countries that have introduced free health care policies, often quite hastily and apparently driven by electoral cycles, there was a time-lag of five months between the official announcement of the policy reform and its launch. This allowed for intense preparations organised through the technical working groups. Again in contrast with other countries, such as Burundi (Nimpagaritse and Bertone, 2011), this ensured that key partners such as the MoHS, MoFED, donors, health implementation partners, civil society, etc. could prepare for the removal of fees. The question addressed in the next section is how this preparation was undertaken and with what results.

5 Consequences of the FHCI for the health system

As previously described, the GoSL and its health partners chose to focus their efforts on seven priority areas. In this chapter we will review each area in turn, asking what changes the FHCI introduced, how these were implemented, what the impact of these efforts was and what challenges remain in relation to each pillar. At the end, we summarise the overall health system effects, across the different priority areas.

5.1 Health financing

Health financing timeline

2009	September 2009: Announcement of the FHCI
	November 2009: Financing committee working group set up
	November 2009 (presented in FHCI Nov. 2009 Policy Document): Compiled the costing of all FHCI implementation activities and identify funding gaps: shortfall identified
	Mobilise GoSL and donor resources to fill the short-term funding gaps
	Salary discussions with DFID late 2009/early 2010
2010	Negotiations in early 2010, uplift of salaries in April 2010. Salary increase negotiations and change
	Global Fund discussions in mid-2009 to fund MoHS, with decision eventually made to fund salary shortfall in 2010
	April 2010: User fees removed for targeted groups (pregnant, women, lactating mothers and children under five).
	Set up bank accounts in PHUs (2010) for 'cash at facilities' grant
	Line item for FHCI included in budget documents 2011
	Development of Joint Programme Work Funding (published in 2011)
	'Cash at facilities' provided through MoFED local government financing (supported by the World Bank).
2011	PBF starts
2014	GoSL funds used to purchase FHCI drugs through newly formed NPPU
2014/15	Reprioritisation of expenditure to Ebola efforts

The most notable change to health financing of relevance to the FHCI was the removal of user fees (on drugs and consultations) for its target groups.[21] This has four direct implications for changes to the supply of health financing:

[21] As noted in Section 2.3, although some of these groups were already exempt this was often not enforced.

i) Loss of a revenue source for the health system – there was a reduction in those services and drugs that were provided on a cost-recovery basis;[22]

ii) The increased utilisation rates would increase pressure on existing budgets (most notably for salaries and drugs);

iii) The availability of cash at local facilities would be reduced; and

iv) A reduction in OOP payments should be experienced by households.

Effective implementation of the policy would therefore require alternative sources and increased magnitudes of financial resources, as well as new mechanisms to provide cash at the facility level for their operations. Increases in utilisation meant new expenditure on health worker salaries (both increasing the number of health workers and their earnings), capital expenditure to upgrade facilities, and new drug financing (to provide free drugs for FHCI target groups). Finally, reflecting the huge scale of the policy initiative and the subsequent governance mechanisms put in place, changes in institutional health financing processes may also be expected (e.g. budget planning and disbursement at central and district level, coordination between government and non-government financing, and the monitoring of expenditure).

We assess if these changes eventuated and their effectiveness below. Expenditure trends are largely based on government expenditure figures from the MoHS and MoFED and donor and household expenditure from the NHA.[23] Process-related changes are based on a review of government and development partner documents, as well as KIIs with some of the relevant stakeholders (at central and district level) involved in these changes.

Two types of expenditure analysis are undertaken:

i) Total health sector financing: reflecting both the comprehensive nature of the FHCI reforms, as a 'systems change' and the superior data at the sector level; and

ii) FHCI-specific financing: costs are disaggregated, where possible, to those changes specifically related to the FHCI.

The other fundamental change to health care financing is at the household level, with target groups exempt from charges. How household spending has changed following the FHCI is discussed in more detail later in the report when we examine changes to barriers facing households.

5.1.1 Short-term implementation issues

The FHCI required two immediate financing changes: first, ensuring that there was sufficient *quantity* of finance; and, second, that there was sufficient *liquidity* for it to go where required. More specifically, the removal of user fees (for the FHCI targeted groups) created cash management challenges at local facilities and deficits in the financing of salaries and drugs, given increased utilisation (Amara, 2010).

The FHCI finance subcommittee was set up to look at these issues. Its four main responsibilities were to: 1) compile the costing of all FHCI implementation activities and identify funding gaps; 2)

[22] The health care system is largely financed from three main sources: the consolidated fund, donor finance and direct funding by patients. Community financing is limited to loan schemes while employer-based social insurance is restricted to a small number of private companies.

[23] Government expenditure figures provide more up-to-date and disaggregated data than the government expenditure data reported in the NHA.

develop funding mechanisms for the implementation of the FHCI policy; 3) mobilise GoSL and donor resources to fill the short-term funding gaps; and 4) consider the long-term sustainability of financing for the policy.

5.1.1.1 Anticipated financing needs

The estimated cost (GoSL, 2009a) for the FHCI at the time was US$ 90 million for year 1[24] (2010), decreasing to US$ 50 million in year 2 (although a later estimate from the GoSL put this at US$ 35 million (MoHS, 2011).[25] As the stakeholders interviewed acknowledged, these estimates (see Table 6) were 'rough', with limited data to plan more accurately. However, they provide a useful description of where the government saw the main cost items resulting from the FHCI, namely salaries and drugs, as well as the magnitude of funds required. These estimates also provided the government with an indication of the expected financing gap – US$ 20 million – they would need to bridge in order to implement the FHCI (see Section 4.1.5 below for *ex-post* calculations of the cost of the FHCI). To put this US$ 20 million financing gap into context, this was double the total health expenditure (THE) by MoHS in the preceding year, 2009.[26]

Table 6: Estimated financing required for Year 1 of FHCI (2010)

Cost items	US$ (millions)	Committed funds by development partners to RCH	
Government structures put in place	2	GoSL	12.5
HR (salaries and performance-based scheme)	38	GAVI	5.6
Logistics (including drugs and medical consumables)	44	Global Fund	12
Communications	3	Multilateral (World Bank; African Development Bank (AfDB))	12.8
M&E	4	Bilateral	10
		UN	6
		NGOs	12
Total	91	Total	71
		Total funding gap (US$ millions)	20

Source: GoSL (2009a)

The late introduction of the FHCI in 2009 meant that its additional costs were not reflected in the 2010 Budget. For example, there was a significant gap in the funds available for paying for health worker salaries that was not resolved until after the FHCI's start (Witter et al. 2014, 2010; Amara, 2010). Donors were reluctant to provide further funding given the problems of ghost workers in the sector but, as Donnelly (2011) documents, the perseverance of the government (and their own increased financing), alongside the acceptance of donor-financed payroll assistance, had the effect of convincing donors to commit further funds.

Significant resources were subsequently mobilised, with donors providing funds for salaries (DFID and Global Fund) and drugs (DFID).[27] DFID provided £10.3 million in support of health worker

[24] An early estimate, which did not include the salary uplift or some drugs, put the figure at US$ 33 million (Amara, 2010).
[25] Second year costs included US$ 20.5 million for salaries and US$ 20.7 million for drugs and supplies.
[26] Although this figure does not include some of the donor financing off-budget, which the FHCI estimated costs did.
[27] Drug costs are financed by DFID through a grant to UNICEF, which handles the procurement, although 'Funding Agencies' reports from MoHS in 2012 also suggest that GAVI and Global Fund have contributed to drug procurement for the FHCI.

salaries over five years on a gradually diminishing basis, complemented by roughly £6 million from the Global Fund[28] from 2010 (Stevenson et al., 2012). This was paid out in two-monthly instalments after certification confirming that the government was remaining on track with its HR management performance targets (Simson, 2013). They did so on the condition that the payroll stayed clean and absenteeism was reduced.[29]

Donor drug financing was also increased although provided off-budget, with the majority being funded through a grant from DFID to UNICEF to procure and manage their distribution to district medical stores and facilities (see Section 4.4 for further details of this process).

5.1.1.2 Financing at the facility level

From a process perspective, it was relatively straightforward to replace cash for tertiary and most secondary hospitals as they had their own banking facilities and existing government systems for transferring resources. For PHUs, a SLL 1million transfer each quarter was provided in 2010 to replace the cost-recovery funding.[30] This arrangement was more complicated, with facilities needing to set up bank accounts to access this central funding (i.e. it was not intended to pass through district councils but go straight to PHUs, through bank accounts that were accessed in the district town). However, even a week after the FHCI's launch many of these had not been set up (MoHS, 2010c), and there were issues in accessing accounts given the limited outreach of banking facilities. There were plans to make future payments to facilities conditional on the proper implementation of the FHCI policy, i.e. PBF, but this did not materialise until 2011, in part reflecting disagreements between development partners on whether PBF was appropriate and how quickly it could be introduced.

The faith-based organisations that were providing health care services to target groups throughout the country were not part of the government system for the FHCI, as no financing had been identified for their sub-contracting.[31]

5.1.2 Medium-term effects on heath financing

The health financing system remained relatively unchanged post-FHCI, with the main change being fewer user fees being charged (and remitted back to districts, or held at facility level), and the introduction of PBF, which flowed straight from MoFED to facilities.[32] The PBF indicators were closely tied to FHCI target groups.[33]

What follows explores how the initiative has changed the overall resources devoted to health in the sector, as well as expenditure on particular areas. First, it looks at THE, reflecting the 'systemic' nature of the FHCI, and the more comprehensive data at this sectoral level, before focusing on specific FHCI expenditure. This analysis feeds into the VfM assessment set out in Section 9.

[28] Provided through the HIV Secretariat up until 2015.
[29] As described in Section 4.3, a revised Scheme of Service was introduced, involving a substantial increase in the pay of health workers, i.e. the 'salary uplift' scheme. The salary increase applies to all health technical and clinical staff. The pay increases were highly skewed toward staff on higher grades (Witter et al., 2014).
[30] There is some discrepancy in the documentation regarding what this involved and the mechanisms through which is worked.
[31] This was considered in early FHCI meetings (in early 2010) but no formal mechanism was agreed, with largely informal short-term contracts being used.
[32] Funded by the World Bank, this used MoFED budget systems to account for transfers from a World Bank fund to PHU accounts.
[33] It focuses on improving a number of indicators from the Basic Package of Essential Health Services (BPEHS), which are part of the FHCI: 1. Women of reproductive age using modern family planning (BPEHS 7.2); 2. Pregnant women receiving four antenatal consultations (ANC–IV) (BPEHS 7.1.1); 3. Deliveries conducted under safe conditions (BPEHS 7.1.2); 4. Women receiving three postnatal consultations (PNC–III) (BPEHS 7.1.4); 5. Children under one year of age receiving full and timely course of immunisations (BPEHS 7.6); 6. Outpatient visits with curative services for children under five years old according to Integrated Management of Newborn and Childhood Illness (IMNCI) Protocol (BPEHS 7.7).

5.1.2.1 Trends in heath expenditure

To assess the adequacy of expenditure on health, the most common international benchmark (as regularly cited in MoHS planning documents) is the Abuja Declaration level of 15% of total government (public) expenditure on health.[34] However, reflecting limitations in this target,[35] we also use alternative benchmarks (McIntyre and Meheus, 2014). These are:

- domestic government spending on health care of at least 5% of GDP;[36]
- at least US$ 86 per capita to provide a minimum level of key health services in low-income countries. This is especially important in low-income countries in which domestic government spending of 5% of GDP would be insufficient to provide such access;[37]
- a related focus on the level of OOP payments, given the finding that a 1 percentage point increase in the proportion of THE provided by OOP payments is associated with an average increase in the proportion of households facing catastrophic payments of 2.2 percentage points (McIntyre and Meheus, 2014).

NHA data are used to examine THE in the sector: these include government expenditure, development partner expenditure ('donor'), household expenditure (which is used for examining OOP payments), and private health insurance. Where possible we have tried to present figures in both nominal and real (i.e. factoring in inflation) terms in order to provide an overall picture of the total value of resources in the sector. However, as Box 6 explains, some caution should be taken when considering inflation, and thus real expenditure, in this context.

Box 6: Adjusting expenditure for inflation

As various figures in the report show, factoring inflation into expenditure trends greatly changes the picture of health financing in Sierra Leone, with nominal spending failing to keep up with the high inflation experienced at the time of the FHCI. Given this, this box outlines the rationale for using inflation-adjusted data, as well as some limitations in its use.

Overall, it is important to present expenditure figures in real terms, as this is a better reflection of the value of financing in the sector, i.e. how many goods and services those resources are purchasing. For example, if infrastructure spending has risen but the price of materials has increased even more then less infrastructure work may actually be completed. Alternatively, the presumed motivational increase for health workers caused by salary increases may be tempered in the context that those goods and services they buy have also increased in price.

Ideally we would adjust to real terms (deflate) using a price index that is specific to the expenditure in the health sector in Sierra Leone. However, this type of health price index is not routinely available or easily used. In cases such as this, the usual practice would be to deflate using a general index such as the Consumer Prices Index (CPI) or the GDP deflator. In this evaluation, we have used the CPI to adjust prices to real terms, with the difference between using this index and the general GDP deflator relatively minimal. The pragmatic assumption is that this is a reasonable proxy for changes in health sector prices, but this is not certain. Therefore, we have also compared the price increases in the health component of the CPI with the overall CPI change (see below). The health component of the CPI relates to household expenditure on health items, rather than the much wider expenditure of the health sector (which will

[34] As per Witter et al (2013), we examine this in the context of discretionary funds the government controls, thus including budget support in both the nominator and denominator sides of the ratio.
[35] It has been noted that finance ministries globally have been dismissive of the target and tend to ignore it in their decision-making. Another difficulty is that specifying a target for increasing the share of government expenditure on the health sector implies that spending on other sectors should decline, which could mean less expenditure on other social services, which could, in turn, adversely affect other social determinants of health.
[36] The range for developing countries is currently between 1.8% to an average of 8.2% of GDP (McIntyre and Meheus, 2014). This proposal is based on cross-sectional analysis of the relationship between government spending on health services and health status indicators. It is also supported by the World Health Report 2010 and is in line with the global average of government health care expenditure.
[37] Further, if public spending on health at a level of US$ 86 per capita were to be funded entirely from domestic government sources, it would account for an average of nearly 15% of GDP in low-income countries; this is clearly unrealistic.

include salaries, infrastructure, equipment, drugs, etc.). However, over the last five years the general pattern between the health CPI component and the overall CPI is broadly similar.

	Apr-10	Apr-11	Apr-12	Apr-13	Apr-14
CPI health component (rate of price increase)	27%	11%	7%	7%	6%
CPI	18%	16%	13%	10%	7%

Source: SSL

There are limitations in placing too much emphasis on real term financing in terms of the FHCI so some caution is advised.

- Price changes that relate to consultation charges or drugs costs would not be that relevant to FHCI target groups, as in principle they do not pay for these goods.
- Much of the donor funding is in foreign currency and then spent directly in foreign currency on, for example, drugs, or foreign salaries of INGOs. As a result, price changes related to these foreign currency transactions are likely to be less when compared to those for local expenditure (with the Leone exchange rate responding to high inflation).

Table 7 and figures 11, 12 and 13 provide an overview of expenditure trends (before and after the FHCI) in the sector, incorporating both domestic and external resources.[38] There is only available data from the 2013 NHA with data for 2011 and 2012 not yet collated, although estimated figures have been provided, based on annualised trends.

Table 7: THE (nominal), 2004–2013

SLL billions	2004	2005	2006	2007	2008	2009	2010	2013*
THE	815.9	966.8	968.4	923.4	1098.8	1443.9	1811	2517
THE per capita (US$)	60.70	65.67	62.67	57.83	67.13	75.26	78.71	96.47

Source: NHA 2004–2006, 2007–2010, 2013

Both nominal and real expenditure increased after 2010, but the growth rate of expenditure levelled off in nominal and real terms during 2011–2013 (Figure 11).[39] The growth rate in 2010 was actually slightly lower than that of 2009, a year before the FHCI, although as Box 3 notes this is as much likely to reflect missing expenditure data in 2008 as a significant financing change in 2009.

In per capita terms, THE per capita in US$ rose from US$ 60 in 2004 to US$ 96 in 2013 with the main increases occurring in 2008 (16%), 2009 (12.5%) and 2010 (5%). Indeed, the growth between 2009 (US$ 75) and 2013 (US$ 96) does suggest a significant jump in expenditure, in line with recommendations for a basic package of health. However, as shown below, the vast majority of the overall financing, and the jump from US$ 75 to US$ 96, was still provided by households, meaning that this basic level of care being provided is causing undue distress.[40]

Using the same data as above but annualising trend rates it is possible to analyse whether the FHCI provided a *step change* in expenditure in the sector.[41] For THE, the picture is somewhat ambiguous, depending on whether it is inflation adjusted, and the periods with which FHCI is being

[38] It should be noted that each year represents total expenditure for that year, and thus the first year of the FHCI is expenditure to the right of the 2009 data point.
[39] As data from 2011 and 2012 are missing we do not know for certain if expenditure can be attributed to the FHCI in 2010 or a later change, but as it was the major policy initiative during this period it is reasonable to assume this was the main policy factor.
[40] This 'high' level of per capita expenditure is driven by the extremely high level of household funding, which is above the level that would be expected given Sierra Leone's economic characteristics. See Box 3 on the limitations relating to the NHA data.
[41] These graphs take the annualised average growth rate pre-FHCI and compare to the average growth rate 2010–2013, i.e. they smooth the fluctuations in figures 11 and 12 for illustrative purposes.

compared.[42] Figure 12 below compares post-FHCI trends with 2004–2009, showing a significant step change in the growth rate of expenditure in the sector; however, once this is adjusted for inflation this change disappears, showing a moderate declining trend in health expenditure over time both pre- and post-FHCI (see Figure 13).[43] In the sections below we will explore further if this is also the case for those targeted expenditures to FHCI groups.

[42] Whereas trend rates in 2007–2009 compared with 2010–2013 show a decrease in real expenditure following 2010. This reflects both the low levels of expenditure in the sector 2004–2006, as well as the significant apparent expenditure in 2009, which was pre-FHCI.
[43] NHA data is patchy with some significant donors, such as Global Fund and WHO, showing zero funding in 2008, with 2009 figures therefore showing a rapid increase in funding. This therefore limits comparisons of growth rates before and after FHCI.

Figure 11: THE: 2004–2013

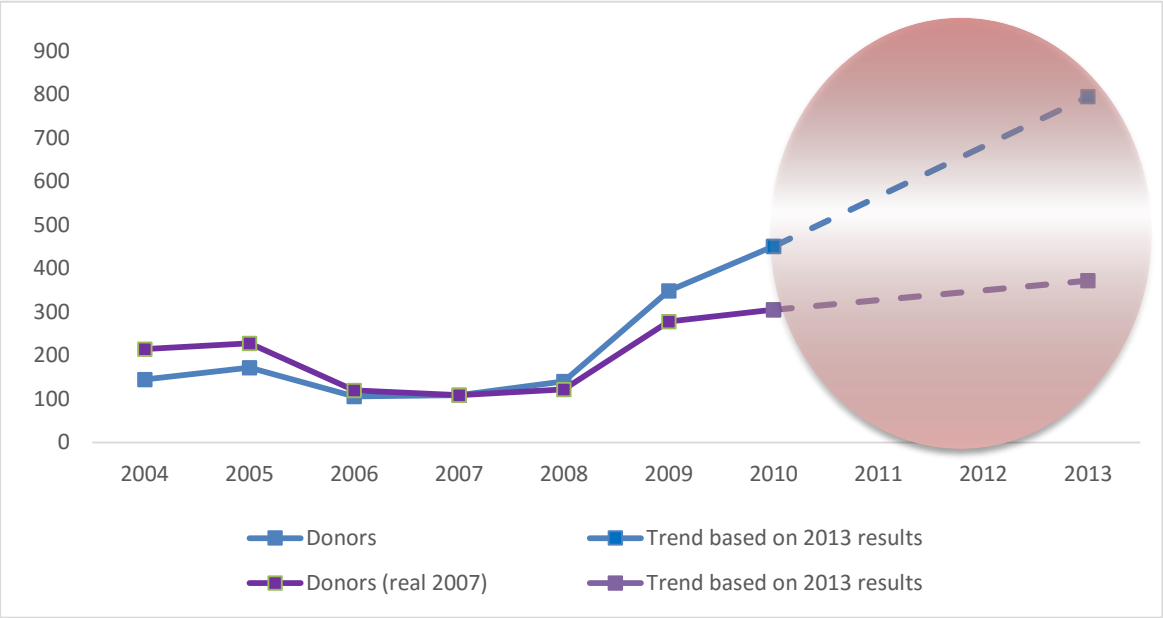


Figure 12: THE average trends pre/post-FHCI, 2004–2013, in nominal terms

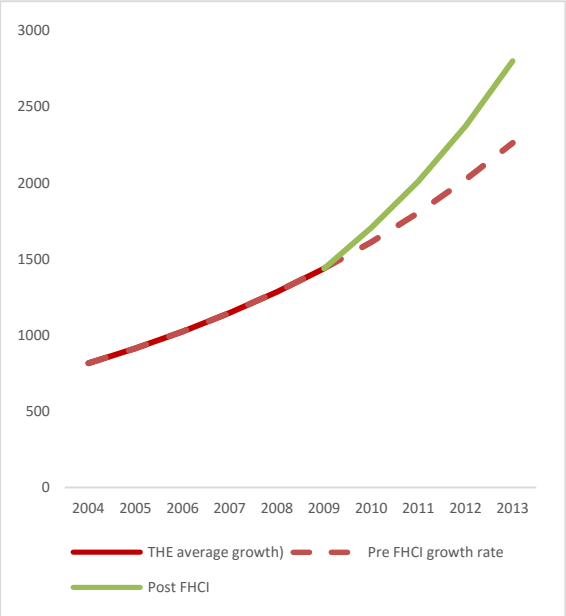
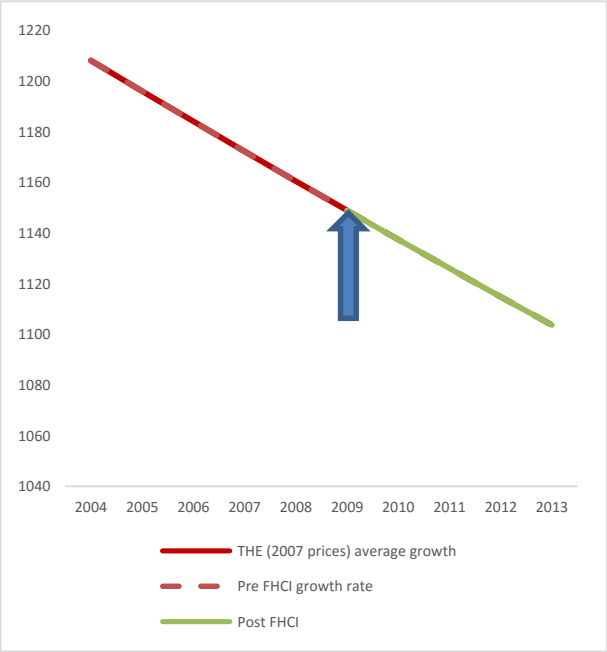


Figure 13: THE average trends pre/post-FHCI, 2004–2013 in 2007 prices



Source: NHA 2004–2007, 2007–2010 and 2013[44]

A more nuanced picture emerges when household expenditure is removed, allowing us to focus only on public (government and public insurance[45]) and donor financing – a better indication of whether the burden of health care is moving away from poorer households.[46] Figures 14 and 15

[45] Although once again note that the latter is very small.
[46] This is particularly important given some of the limitations in household expenditure figures as explained in Box3.

show that public financing experienced strong increases in 2010, the first year of the FHCI, but levelled off over time and reduced in real terms.[47] Donor financing continued to increase.[48] In terms of both composition of spend and per capita spend, donor financing has become particularly prevalent since the FHCI.

Figures 16 and 17 show similar conclusions when analysing if the FHCI led to a *step change* in financing in the sector, with the first year's impetus waning somewhat over time. Taken together (i.e. donor and government), it appears that non-household resources largely continued post-FHCI along a similar growth trajectory to that seen previously. This is a perhaps surprising conclusion, although partly explained by limitations in pre-FHCI expenditure data (see Box 3), and the fast expenditure growth as Sierra Leone recovered from war pre-FHCI. It is also worth noting that this *continued growth* was at a healthy 5% in real terms.

[47] Although it is important to note that with high inflation during this period it is perhaps slightly less surprising that government expenditure was unable to increase as quickly.
[48] This is still significant given the high growth rate of donor expenditure before the FHCI (given the low starting point) and high inflation after.

Figure 14: Nominal and real public financing of health, 2004–2013

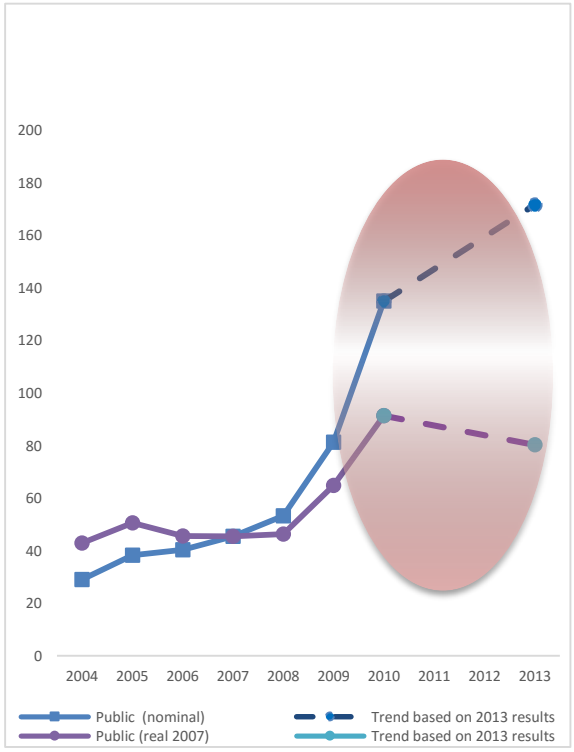


Figure 15: Public health financing pre/post-FHCI (2007 prices)

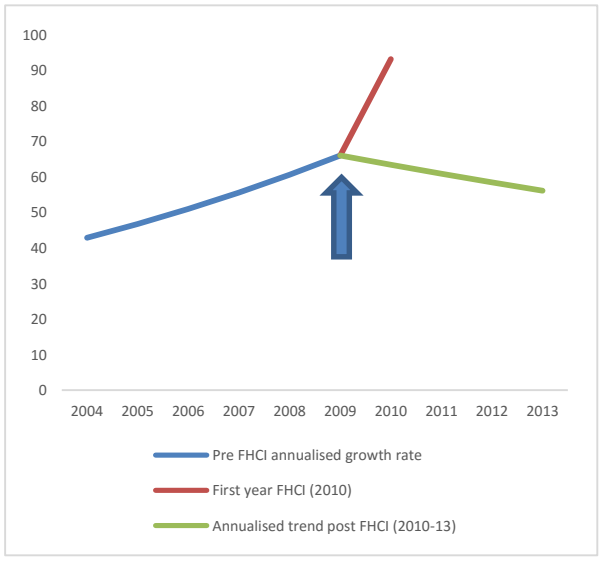


Figure 16: Nominal and real donor financing of health, 2004–2013

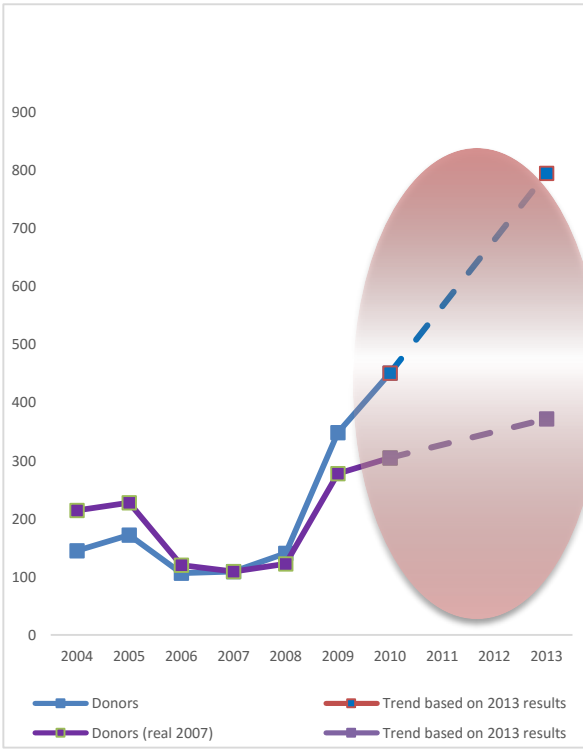


Figure 17: Donor health financing pre/post (2007 prices)

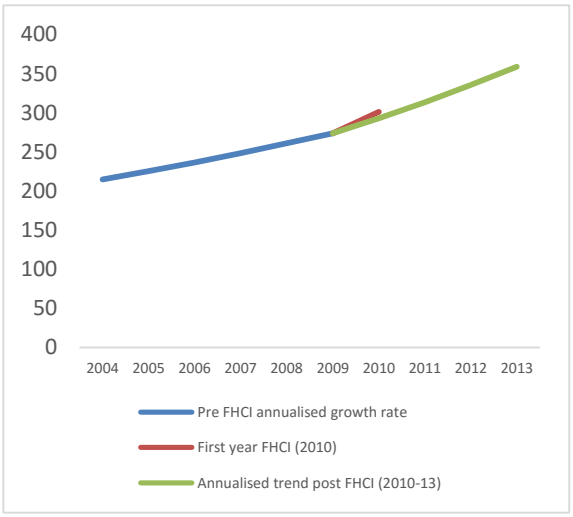
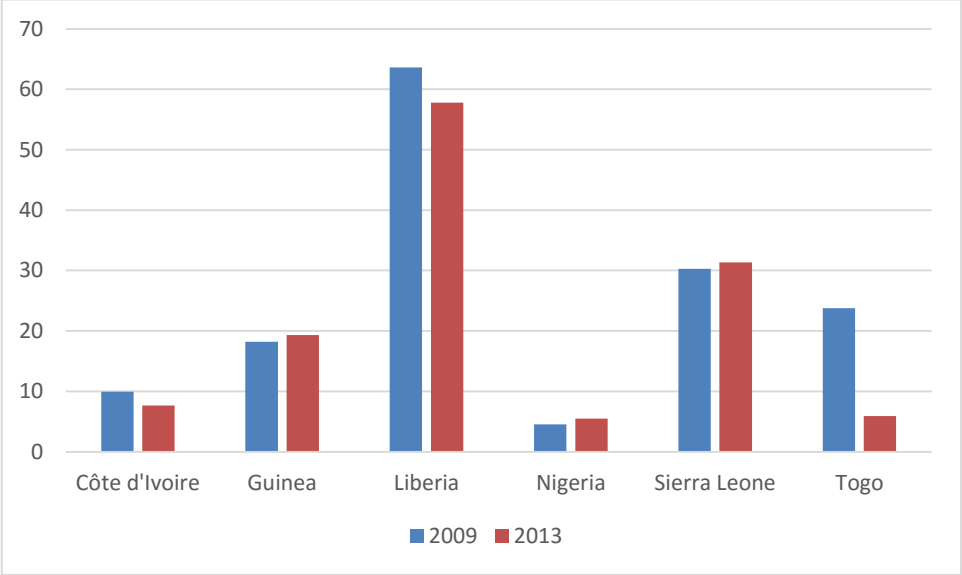


Figure 18: Donor and government financing pre-/post-FHCI (2007 prices)

Source: NHA: 2004–2007, 2007–2010, 2013*[49]

Overall, the FHCI can be argued to have catalysed donor funding with Sierra Leone having one of the highest donor-financed health systems, when compared regionally (with the exception of Liberia).

Figure 19: External resources as a proportion of THE



Source: WHO: Global Health Expenditure Database

5.1.2.2 Household and OOP financing

The composition of financing has changed significantly in the last few years (see figure 20 and table 8 below), particularly in regard to household and donor funding. Household funding as a proportion of THE has gone from a high of 83% in 2007 to 62% in 2013, with donor funding

[49] Public estimates for 2004–2006 have been taken from GoSL accounts rather than NHA given the data issues for those years.

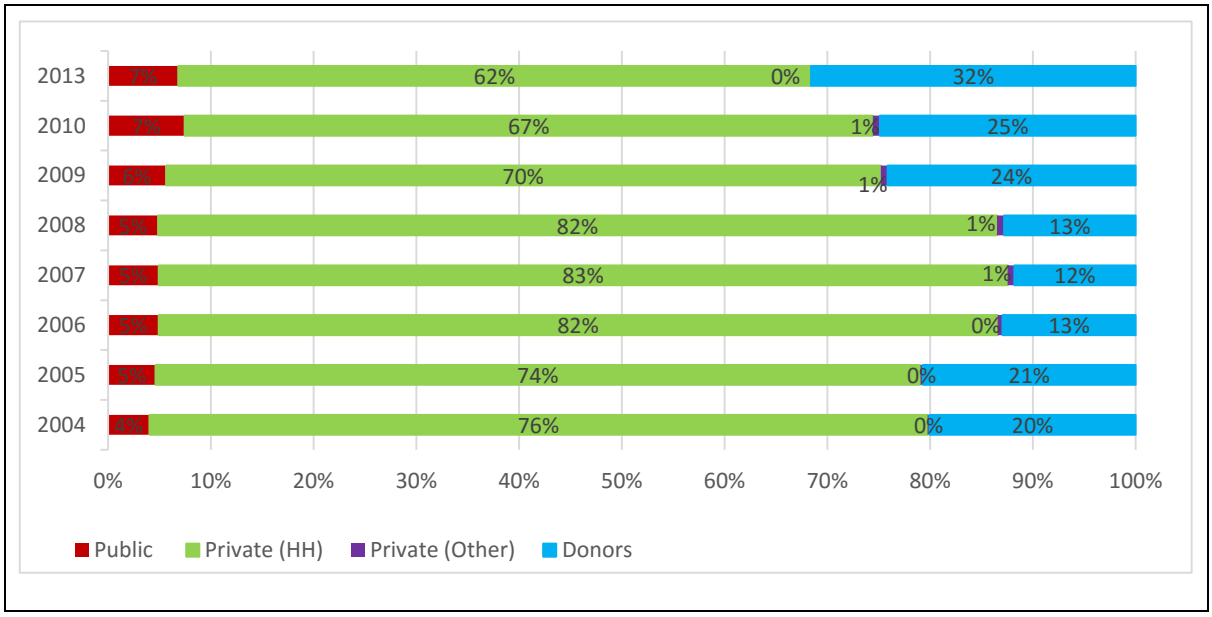
ranging from a low of 12% in 2007 to a high of 32% in 2013. Indeed, there is an almost inverse relationship between household funding and donor funding.[50]

Table 8: Sources of financing per capita, US$ per capita (nominal)

US$ per capita	2004	2005	2006	2007	2008	2009	2010	2013
THE	60.70	65.67	62.67	57.83	67.13	75.26	78.71	96.47
Donor	12.14	13.79	13.35	6.94	8.73	18.06	19.68	30.46
Household	46.13	48.59	51.39	48.00	55.04	52.68	52.73	59.43
Government	2.43	3.28	3.13	2.89	3.36	4.52	5.51	6.92

Source: NHA 2004–2006, 2007–2010 and 2013

Figure 20: Financing sources 2004–2013



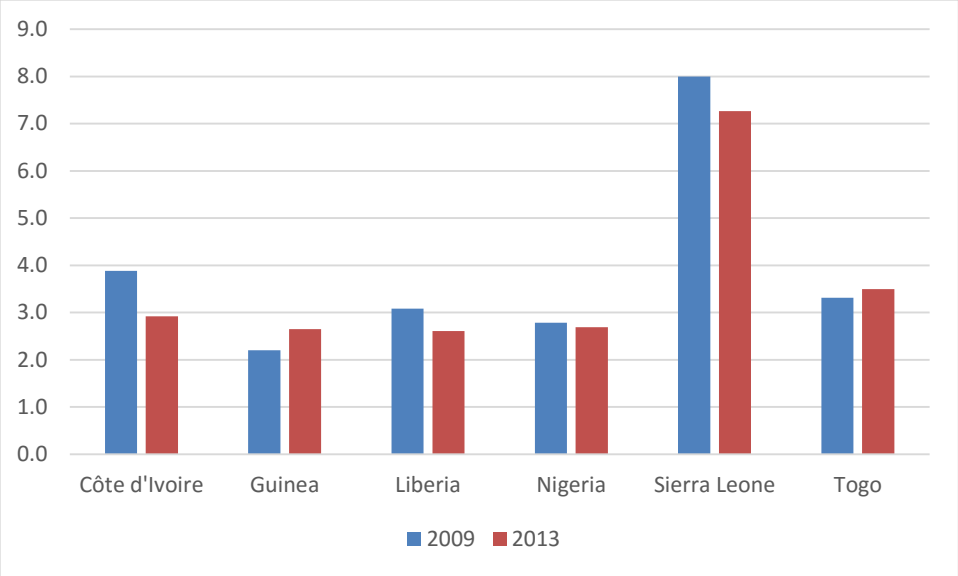
Source: NHA 2004–2006, 2007–2010 and 2013[51]

The decline in the proportion of household expenditure since the FHCI began is a positive, with donor financing boosting non-household financing and therefore reducing OOP payments and catastrophic payments. However, again this partly represents a continuation of a trend that started before the FHCI. Moreover, both as a proportion of THE and in per capita terms household expenditure is still very high. To put the 62% of household financing in context, the World Health Report of 2010 stated that it is only when direct payments fall to 15‑20% of THE that the incidence of financial catastrophe and impoverishment falls to negligible levels (WHO, 2010a).

As Box 3 earlier outlined, we should be cautious in how much we interpret household expenditure from NHA data. Simple comparisons with regional countries suggest they are artificially high, with nearly three times the proportion of the economy being spent on OOP payments than elsewhere (Figure 21), with the absolute value of these payments being higher than far richer countries (see Figure 22).

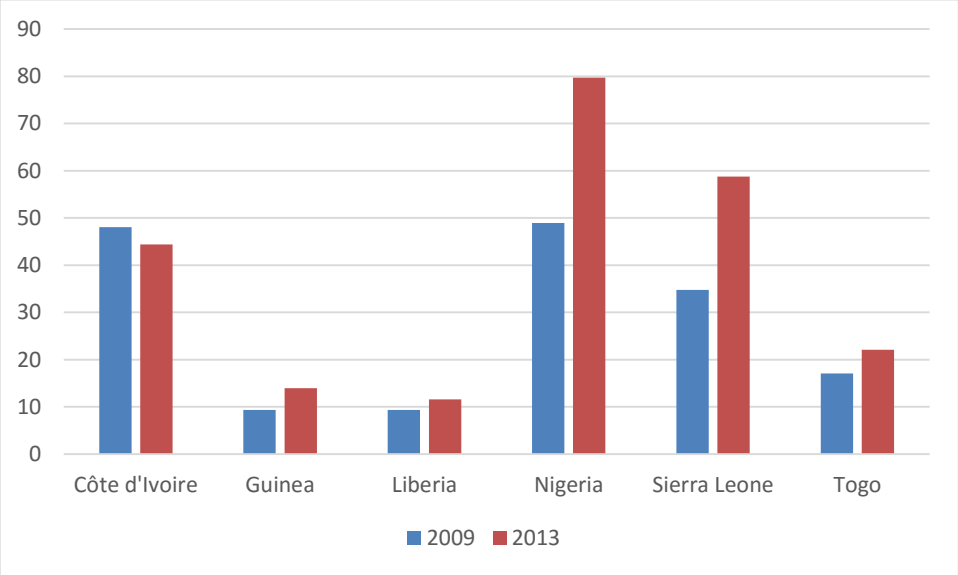
[50] This also reflects limitations in the NHA data collection process, which relied on extrapolating household financing in 2004 adjusted for inflation, and thus any increased financing from donors above inflation will invariably lead a change in overall proportion.
[51] Public estimates for 2004–2006 have been taken from GoSL accounts rather than NHA given the data issues for those years.

Figure 21: OOP payments as percentage of GDP



Source: WHO: Global Health Expenditure Database

Figure 22: OOP payments per capita (US$)



Source: WHO: Global Health Expenditure Database

Later in the report, we examine evidence on changing affordability and incidence of catastrophic payments at the household level (section 5.3.1).

5.1.3 Government expenditure

The World Health Report 2010 unambiguously states that in order to move toward UHC, mandatory prepayment financing mechanisms must form the core of domestic health care financing (WHO, 2010a). This section therefore analyses in greater depth the role of government expenditure following the FHCI.

Overall government health expenditure[52] increased significantly, from around SLL 75 billion in 2009 to SLL 129 billion in 2010, and then SLL 165 billion in 2011. Figure 23 shows that even in real terms this is exceptional growth – 44% in 2009 and 46% in 2010. However, as noted above, the growth rate in real expenditure declined in 2011 and was even negative in 2012. Government expenditure on health per capita increased from US$ 3.1 in 2009 to US$ 5.2 in 2010 and US$ 6.5 in 2011. This still remains very low given the needs in the country.

These figures suggest that increases in government expenditure were occurring before the FHCI, but that there was no additional prioritisation after the first year 'big bang' of FHCI. Table 9 supports this, showing fairly minimal reprioritisation of government resources toward the health sector in terms of *actual* expenditure as a proportion of total government expenditure or revenue in 2010, although this picked up slightly in 2011.[53]

At between 1% (2008) and 2% (2010) of GDP, the level of government expenditure is still far less that the 5% GDP recommended by Xu et al. (2010) to provide an essential package of health interventions.[54]

Table 9: Government expenditure trends, 2008–2013

	2008	2009	2010	2011	2012	2013
	Actual	Actual	Actual	Actual	Actual	Actual
Health expenditure* as a percentage of total domestic revenue	7.2%	10.0%	8.3%	9.8%	8.4%	7.2%
Health expenditure* as a percentage of total expenditure	6%	7%	8%	9%	7%	7%
Health expenditure* as a percentage of GDP	0.8%	1.2%	1.7%	1.3%	1.1%	1.0%

* Expenditure figures do not include foreign-financed capital expenditure given the paucity of data

Source: MoFED and MoHS

[52] Including development funds that are allocated to the national budget, e.g. though budget support. However, this does not include off-budget expenditure, such as individual projects in the health sector that are not funded through GoSL systems.
[53] This pick-up in 2011 is relevant given that the FHCI was introduced in the second quarter of 2010 and the 2011 Budget was the first in which the FHCI could be included. The increase in expenditure as a percentage of domestic revenue in 2010 while trends in expenditure as a percentage of total expenditure stayed similar potentially reflects the additional donor resources being provided (but that are not captured in government revenue estimates).
[54] Although if donor financing is included, this figure does rise above 5%.

Figure 23: Government health expenditure, nominal and real, 2007–2013

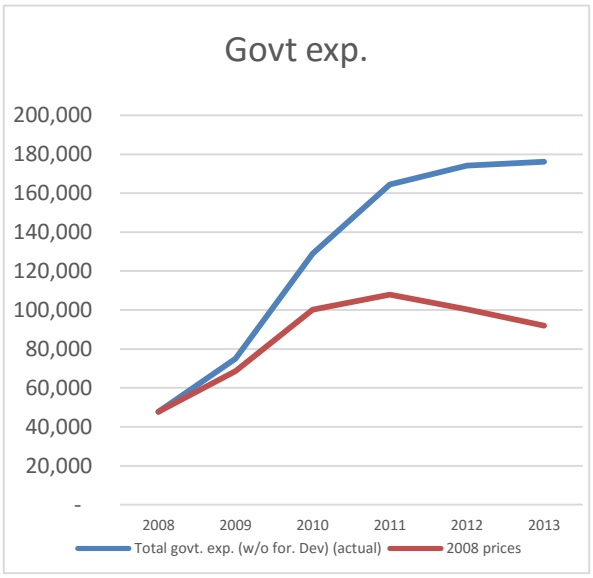
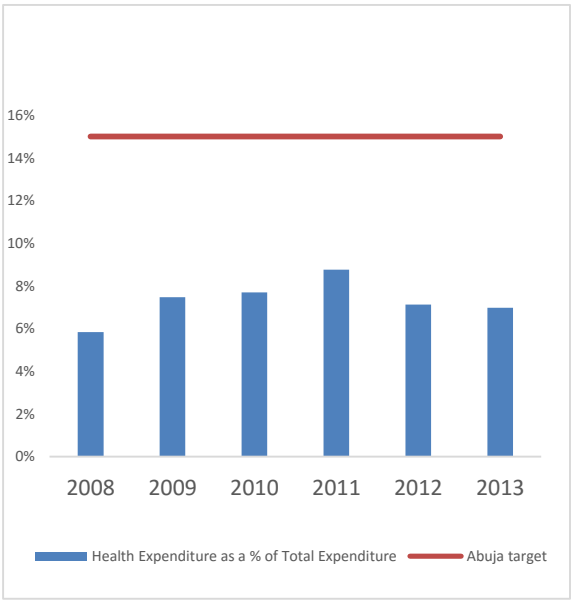


Figure 24: Government expenditure vs. Abuja target



Source: MoHS figures

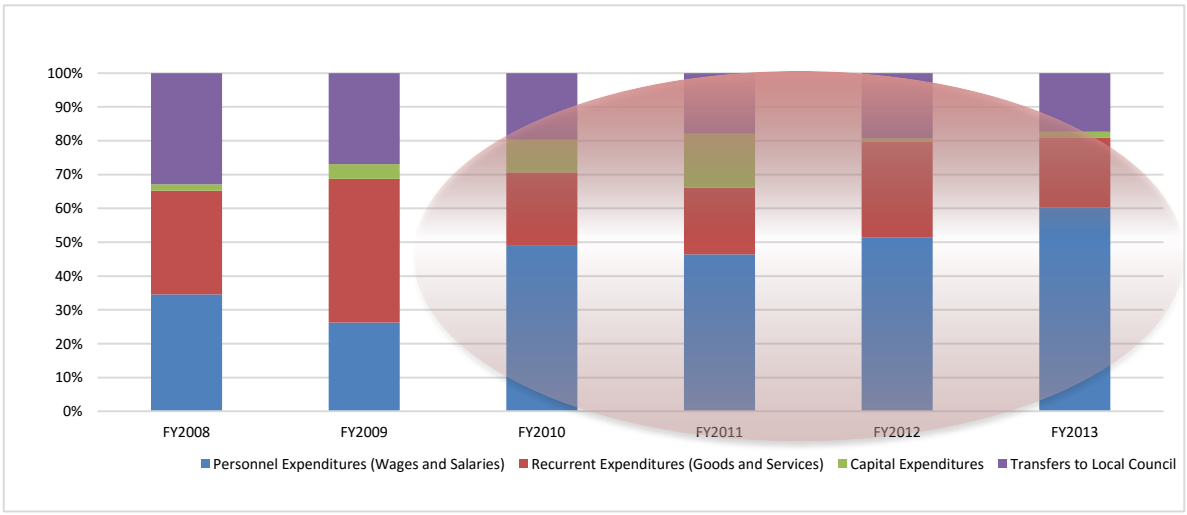
Progress toward the Abuja target, a target indicator as part of the FHCI (GoSL, 2009a), improved in 2009 to 2011, although it decreased significantly in 2012. There continues to remain a significant gap to the overall target (Figure 24). As a Save the Children (2012) report noted, '*with only three years to go, the government needs to double the current allocation to meet the Abuja Declaration by 2015, and provide a 100-fold increase in funding to meet [the government's] own target by 2015*.'

5.1.3.1 Changes to expenditure, by budget line

The composition of the health budget has changed drastically since the FHCI. There are four main budget lines within the MoHS: personnel (salaries), recurrent, capital, and transfers to local councils (primary and secondary service delivery).[55] As Figure 25 shows, there was a particularly large increase in the GoSL's payroll expenditure in 2010, and to a lesser extent in capital expenditure. This reflects the Global Fund and DFID's reimbursement of significant amounts of health worker salaries to accompany the introduction of the FHCI.

[55] Recurrent budget funds administrative issues as well as drugs and vertical programmes whereas local council transfers are used by DHMTs to fund day-to-day care at local facilities.

Figure 25: Main items of MoHS expenditure, 2008–2013



Source: MoHS figures

Transfers to local councils largely remained the same, and decreased as a proportion of government expenditure. To that end, it appears that some centralisation of expenditure occurred.

5.1.4 Changes to expenditure, by programme area

Analysing NHA data by type of funding expenditure, Figure 26 shows that there were significant expenditure increases in public health programmes in 2010 (even in real terms). This was most notably with respect to MCH, consistent with the FHCI, but also can be seen in regard to malaria prevention and preventive health care. This latter finding is important given the potential displacement effect of the FHCI on other health programmes, as well as providing another contributory cause to changing health outcomes.

Inpatient expenditures have also reduced, potentially suggesting better first-line treatment. The NHA of 2013 revealed that three-quarters of all costs associated with visits are outpatient visits. This is in line with data from the SLIHS 2011/2012, which indicates that only 2% of survey respondents were hospitalised in the last four weeks (GoSL, 2015). This significant increase in MCH expenditure was financed by new external financing in this area (going from 0% in 2009 to 70% in 2010). However, these results suggest that some reclassification of data is likely to have occurred, with the potential that stakeholders would increasingly label financing as ‘maternal health care’ following the high-profile introduction of the FHCI.

Figure 26: Expenditure by function, 2007–2013[56]

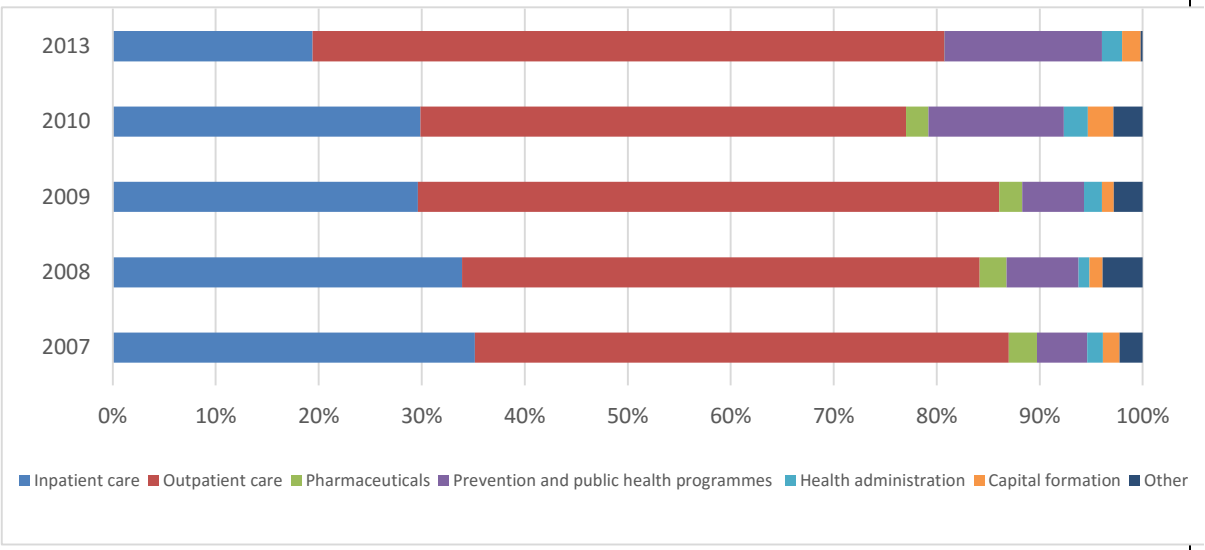


Figure 27: Expenditure by public health, 2007–2010

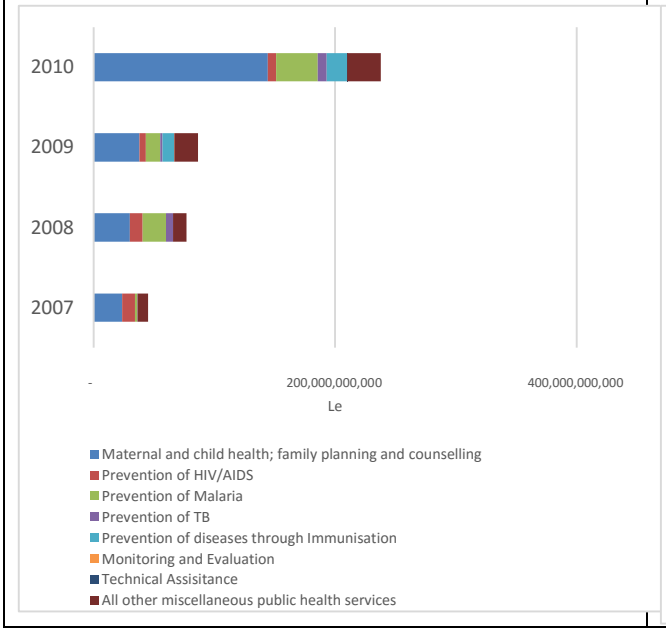
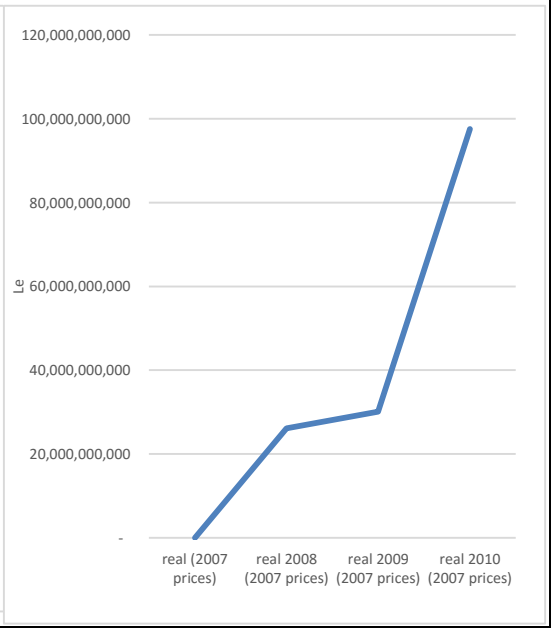


Figure 28: Expenditure on maternal health, 2007–2010 (real terms)



Source: NHA 2004–2007, 2007–2010 and 2013*

While the composition between public and private providers of health has remained broadly similar from 2007 to 2010, in 2010 expenditure through public providers increased at a slightly higher rate. Expenditure in the category 'other' (made up of pharmacies, providers of public health programmes and health administration) also increased significantly.

There was a very large increase in expenditure through PHUs in 2010 (both in nominal and real terms), which supports the suggestion that although overall resources in the sector may not have increased significantly FHCI-specific expenditure did increase. The 2013 results show that this increase continued in both normal and real terms. The majority of this financing through PHUs was

[56] A number of categories in 2013 are not consistent with 2010 and are therefore not included in the estimates (e.g. pharmaceuticals and capital formation).

managed by non-government entities (mostly individual households, as well as NGOs and other donor programmes).

Figure 29: Trends in financing providers, 2007–2010

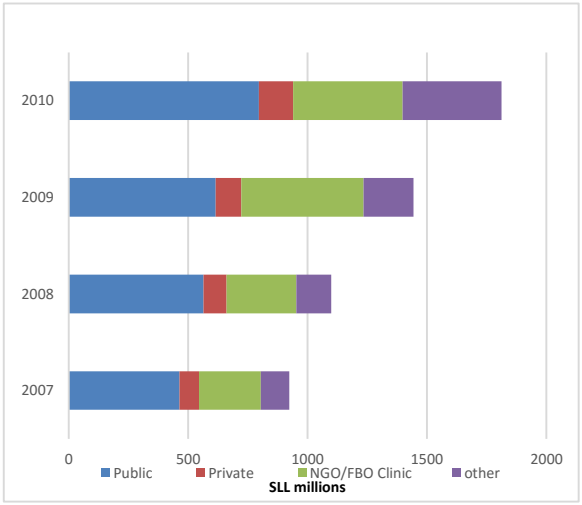
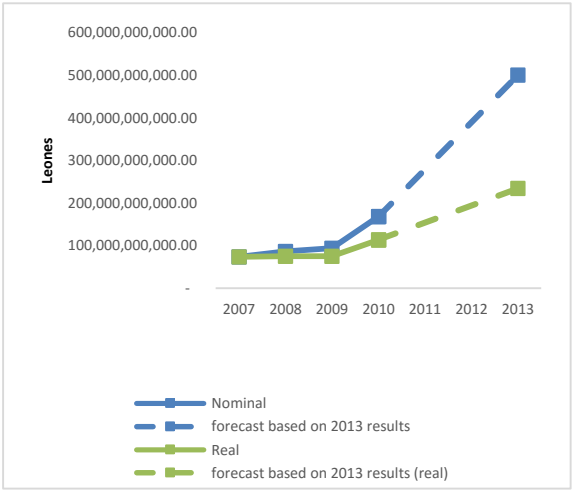


Figure 30: PHU expenditure, 2007–2013



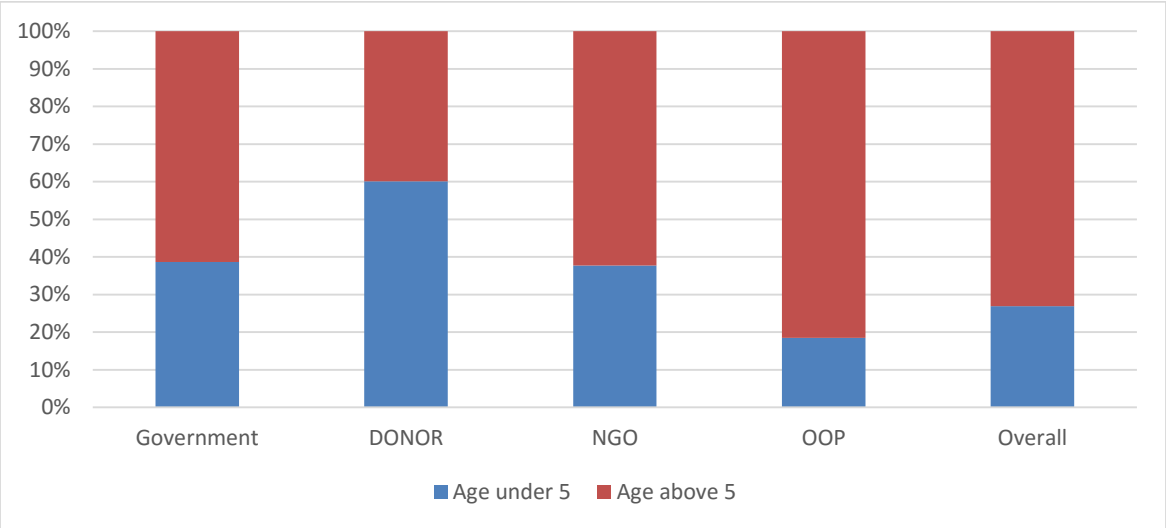
The 2013 NHA, which included more in-depth analysis related to recipients' age of expenditure, reveals that donor interventions focus mainly on MCH. Donors are contributing 60% toward under-5s, which is positive and can probably be attributed to the FHCI. The general picture is strongly influenced by OOP expenditures, which are largely spent on adults. This is also an indication that the FHCI is reaching part of its goals with less expenditure of households on the FHCI target groups (GoSL, 2015).

Table 10: THE by age, 2013 (SLL)

	Age under 5	Age above 5	Other age / not specified	Total
Government	58,474,103,449	92,741,639,036	20,474,321,555	171,690,064,040
Donor	141,444,225,731	93,951,121,070	55,936,794,997	291,332,141,797
NGO	119,697,696,208	198,057,508,130	122,083,100,791	439,838,305,129
OOP	286,950,520,339	1,264,146,362,851		1,551,096,883,189

Source: NHA, 2013

Figure 31: THE – age distribution according to source (%)



Source: NHA, 2013

5.1.5 Marginal expenditure on the FHCI

It is also possible to see how much *additional* expenditure was directed toward the FHCI specifically.[57] This provides estimates of FHCI financing by calculating the increased funds going to FHCI target groups, compared with years previous to FHCI.[58] Two costs are provided, one which includes all donor financing to RCH[59] and one which only includes only the direct FHCI costs associated with new drugs, payroll increases and PBF. The assumptions used to overcome limitations in the data are explained in Annex F.[60]

To note, these estimates are not the full cost of providing health care to the target groups. This would focus on all expenditure to those groups, rather than the *additional expenditure* as a result of the FHCI. This full costing is provided in Annex D. A complete costing would also include expenditure undertaken by households (see section 5.3.1), but the focus here is on what additional expenditure GoSL and the international community mobilised for this initiative.

A few observations to make (with the range in estimates indicative of the two methods of calculations) include:

- The direct cost of the FHCI for large known items, as an increase on previous funding to similar groups, is around US$ 25 (2010) to US$ 40 million (2013). These are not far off the estimates provided by MoHS in 2012.[61] These are much higher at US$ 40 to 90 million if all additional expenditures on these groups are included.
- FHCI direct financing (e.g. payroll, drugs, PBF) equated to an increase of an additional US$ 4 (2010) to US$ 6.2 (2013) per capita in government and donor funding. With broader indirect RCH expenditure proving an additional (i.e. on top of direct FHCI expenditure) US$ 2.5 (2010)

[57] Where there have not been new sources of funding that can easily be attributed to the FHCI, we have sought to compare expenditure post-FHCI with the trend rate previously to understand the additional cost.
[58] i.e. each year is compared with an average of the two years preceding the FHCI to estimate new funding in the sector.
[59] This uses data from the NHA in 2013, which are of better quality and more granular, to estimate the proportion of THE going to maternal and under-five groups, and then applying a similar proportion to other years. The Muskoka methodology was also used as a cross check but was discounted as it appeared to underestimate the expenditure on these groups in the Sierra Leone context.
[60] This includes the input nature of the budget, meaning programme-based budgeting is weak, limited data distinguishing between promised and actual expenditure, incomplete foreign aid financing information, and differences between fiscal years between donors and GoSL.
[61] The figures in MoHS (2012) do not explain how they were calculated with donor pledges rather than disbursement being used.

to US$ 8 (2013) per capita spend. Donors have provided between 55% and 75% of the new direct funding to FHCI, outside of household financing.

- Taking RCH expenditure as a whole (i.e. not just direct FHCI expenditure), donor financing contributed even more – from 79% to 88%.
- The main funder for the FHCI direct costs is DFID, making up 40–55% of new direct FHCI funding.

Table 11: Increased costs directly associated with the FHCI

	2010	2011	2012	2013
Total incremental costs FHCI (SLL, millions)	148,688	228,891	285,031	395,562
Total incremental costs FHCI (SLL, millions) without 'other donor funds'	91,870	127,619	129,235	172,889
GoSL FHCI cost (SLL, millions)	31,155	43,227	34,928	82,408
Salary expenditures of GoSL as recurrent expenditures	20,739	19,320	29,515	70,860
Drugs and medical consumables	0	0	0	0
Key expenditures for service delivery	0	-218	5,678	10,506
Domestic funded capital expenditure (incremental)	10,416	24,125	-265	1,042
Donor FHCI cost (SLL, millions)	117,533	185,664	250,103	313,154
Payment of health workers' salary supplement as part of FHCI	19,413	33,811	36,601	12,112
Drugs and medical consumables	32,424	37,910	37,682	52,823
Key activities for direct service delivery	8,878	11,725	13,374	14,752
PBF (World Bank)	-	947	6,649	10,794
Estimate of other donor funds going to maternal health care and under-five children	56,818	101,271	155,796	222,673

Source: Estimates based on data from MoHS data, and NHA

DFID in 2010 and 2011 contributed significant expenditure for commodities procurement through UNICEF and UNFPA. To what extent this is *all* additional financing is often unclear, with some drugs for the FHCI groups already being funded before the FHCI (given the existing exemption list). However, all stakeholders agreed that the level of funding, and amount of drugs procured on a non-cost-recovery basis, was a significant step change, and it has therefore been classified as 'new' expenditure. In 2014, there was a notable change in that some funding was provided by GoSL, through MoFED, for FHCI drugs through the newly established NPPU. However, given that 2014 data are affected by the Ebola outbreak, and the lack of NHA data for 2014, the estimates above related to the years 2010–2013.

The salary uplift undertaken in Sierra Leone was a large multiple of the preceding salary bill. On average, health worker salaries in Sierra Leone rose by a factor of two to three times their original level (through both increases by grade and grade advancement). How much of the further increase in 2011 was attributable to the additional recruitment and how much to other factors, including a possible redefinition of those entitled to salary uplift, was unclear to an earlier evaluation team (Stevenson et al., 2012).[62] In terms of estimating new payroll costs as a result of the FHCI, we

[62] It is known that the original intention was to restrict the salary uplift to 'frontline' health workers, a concept that would have excluded laboratory technicians (despite the fact that they were in a position to charge patients for laboratory tests). The line of demarcation eventually adopted was whether a staff member was liable to transfer from the MoHS, in which case they would not be eligible for the increases. What is not known is when this change in defining eligibility was implemented.

have added this new donor funding to the marginal increase of GoSL funding above the GoSL trend rate pre-FHCI. This shows that the government also greatly increased its contribution to salaries alongside that of donors. DFID will have contributed an average of 27% to the total cost of health worker salaries over the first three years of the scheme, the Global Fund will have contributed almost exactly 20%, with GoSL having contributed 55% of the total. The DFID contribution was particularly important in the first year, when it accounted for 40% of the total cost.

Payroll budget now makes up a significantly higher proportion than spending on goods and services (e.g. vertical programmes, drugs, maintenance, etc.) in contrast to the year before. Moreover, there was a massive reallocation against the original budget, with payroll 159% higher and goods and services 39% lower than the original 2010 budget. This increase continued in 2011, although it levelled off in 2012 and 2013.

Figure 32: Payroll, 2008–2013

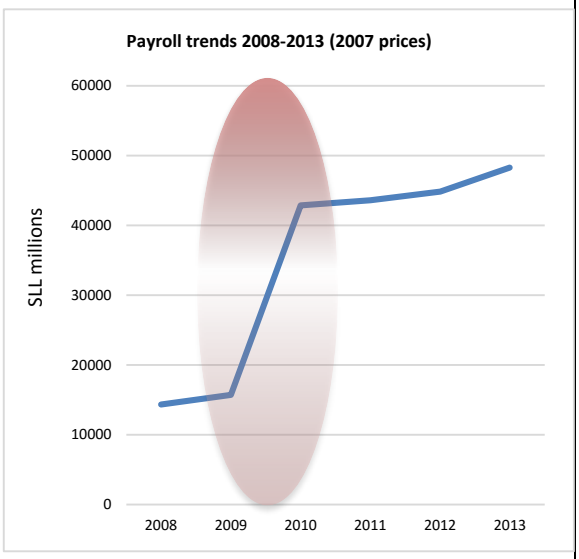


Figure 33: Capital expenditure, 2008–2013

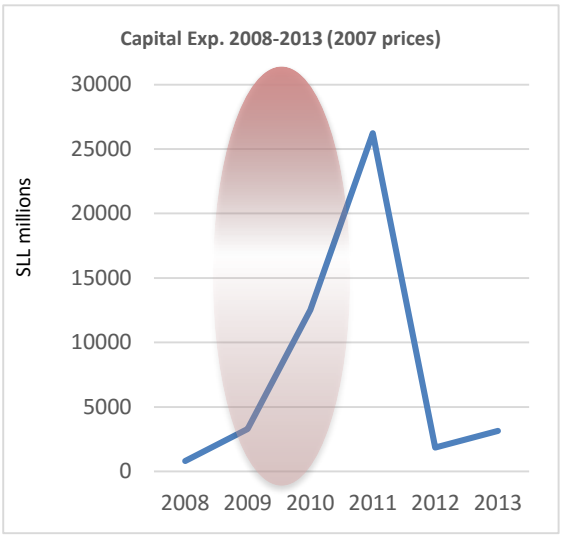


Figure 34: Budget execution – payroll, 2008–2013

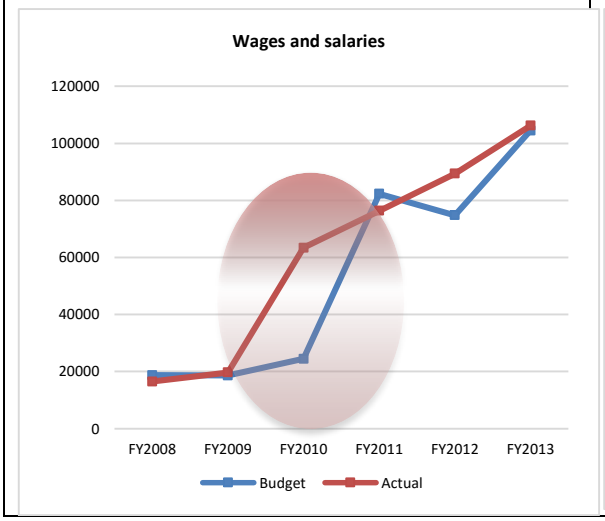
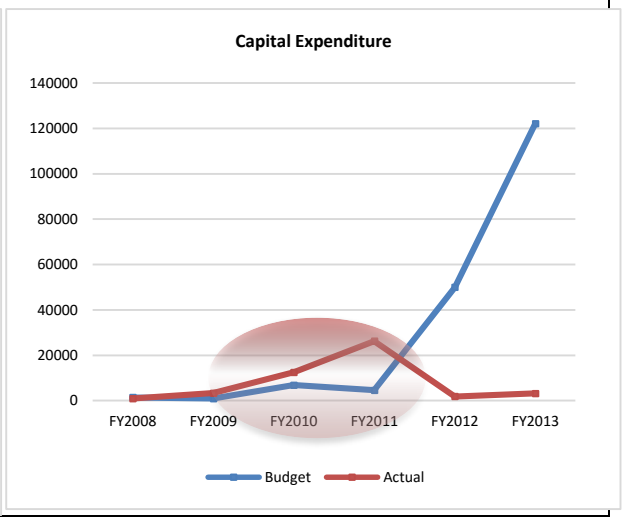


Figure 35: Budget execution – capital expenditure, 2008–2013



Source: MoHS figures

Capital expenditure also increased in 2009 from a very low base, with substantial increases in real terms in 2010 and 2011 (280% and 110% respectively), linked to the need to develop and upgrade facilities to be used for the FHCI (see sections 2.5 and 4.4.). However, there were also dramatic decreases in capital expenditure in 2012, with KIIs at facility level also supporting the idea that

after the initial refurbishment of facilities only minimal expenditure had occurred. Officials in facilities noted poor maintenance and refurbishment in recent years. Development partner financing of this capital budget is significant: it grew from SLL 23 billion in the 2008 budget to SLL 140 billion in 2014. In the last three years, foreign financing of capital expenditure has thus made up over 95% of total budgeted capital expenditure, although in reality the poor execution of projects would suggest that some of this expenditure did not materialise.

As Table 12 below shows, there were large increases in funding to MCH in the 2011 budget, the first that included the FHCI.[63] Although there was the potential for displacement of funding to vertical programmes through funding the FHCI, this does not seem to have materialised and in any case may have been minimised by some of this funding being off-budget and controlled by donors. But there were significant absolute and relative decreases in HR management, secondary, and tertiary expenditure in 2011, the first budget that included FHCI expenditure. This reflects a declining non-payroll recurrent budget (with significant increases in the payroll budget).

Table 12: MCH expenditure, Budget, 2008–2014

SLL (millions)	2008	2009	2010	2011	2012	2013	2014
of which: MCH/Expanded Programme of Immunisation (EPI)	2,044	2,495	2,995				
of which: FHCI				6,819	6,052	13,500	20,100
Growth rate		22%	20%	128%	-11%	123%	49%
% of overall MoHS recurrent (non-payroll) budget[64]	8%	6%	7%	21%	20%	35%	28%

Source: MoHS budget data

5.1.6 Impact on local funding

Were user fees still being collected?

Before considering the effects of removing user fees from facilities, it is necessary to understand the actual extent to which the FHCI was enforced. There are a range of sources on which to draw in relation to assessing whether user fees were still being collected: these range from stand-alone studies that sampled a number of facilities to studies based on nationally representative samples that assess expenditure within the household. However, in all cases some caution should be used when assessing their conclusions given the patchy availability of data and lack of comparable baselines and methods. Nonetheless, overall most of the evidence suggests that there was some continuation of payments but at a significantly lower level (see section 5.3.1).

All the KIIs undertaken during the evaluation pointed to two major issues in this regard. First, the payroll increases, which would potentially have mitigated the continued use of informal fees, only covered those in the formal payroll system. Throughout our research there continued to be health care workers operating outside the payroll system, leaving open the potential for them to be remunerated through other means.[65] Another issue, regularly cited by officials in the KIIs, was the removal of remote allowances for rural health care workers reducing motivation, and again opening up the risk that incentives would be provided in other ways. Second, problems with the availability of drugs led to potential charges for patients, with a range of coping strategies adopted by facilities

[63] Note that actual data are limited at line-item level, with various estimates having been provided to the evaluation team.
[64] This only measures government budget expenditures and does include donor financing. There is also a risk, although no evidence has been found of this, that expenditures were increasingly labelled as MCH given the prominence of the FHCI and the requirements to report performance in that area.
[65] In our research, while officials said they did not charge FHCI target groups, many expressed dissatisfaction with having not been paid for years.

found during the evaluation teams' interviews, including giving cost-recovery drugs for free, charging FHCI groups for cost-recovery drugs, sending FHCI target groups to private pharmacies (where they had to pay), and officials buying and selling (or providing for free in some cases) drugs out of their own pocket.

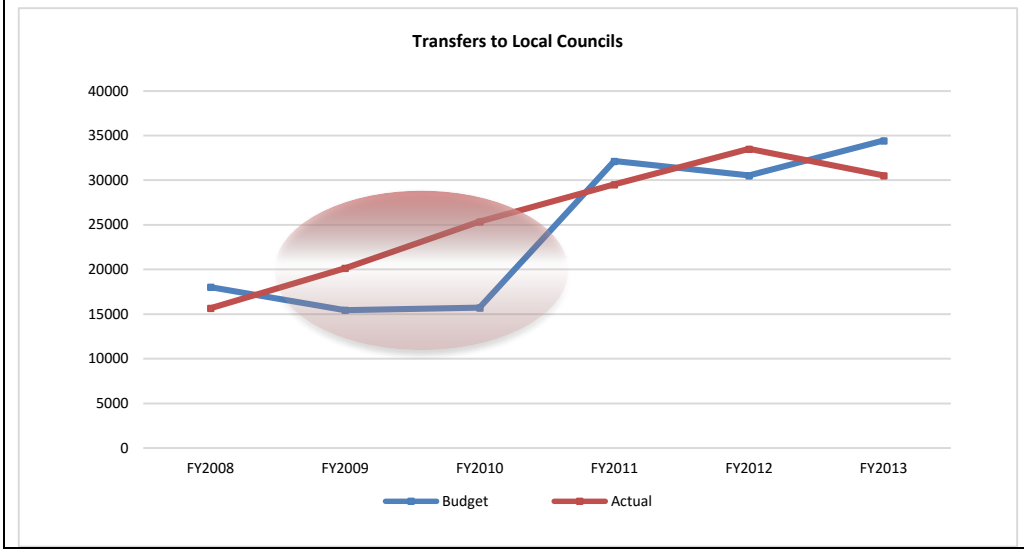
Have replacement funds been adequate?

The initial replacement of funds at the facility level outside of the salary increases was provided through a 'cash-to-facilities' programme, which transferred funds into facilities' accounts (once they had been set up).[66] This was set up as a uniform amount per facility of SLL 1,000,000 to each PHU account, per quarter against submitted returns. There were difficulties in this: as one senior MoHS official said, 'there was a vacuum' at local level. Some delays related to practical challenges, such as setting up bank accounts for local facilities,[67] whereas other issues were governance related, for example in districts passing on local council resources to facilities.

A more obvious issue, as noted by DHMTs, was that while there were some replacement funds the system needed increased funding to cope with higher utilisation. The health tracking study of 2012 found that all facilities visited reported inadequate funding (Save the Children, 2012). Figure 36 shows local councils did receive significant increases in health transfers, growing in real terms in 2009 and 2010, although remaining largely static thereafter despite increases in utilisation.

The expenditure split of local council transfers between primary and secondary expenditure has remained about even. However, as Table 14 shows, despite these overall increases, expenditure was significantly lower in 2010 than that budgeted, with a particular underspend on primary health care – a concern given the increased utilisation at this level following the FHCI. The weakness in government financing was partly offset through significant World Bank programmes (i.e. the DSDP and RCHP) that provided funding to the local councils (and facilities through PBF) for health-related expenditures. Similarly, a number of PHUs reported during interviews that they approached NGOs when urgent financing was required (e.g. for fuel or equipment).

Figure 36: Budget execution – health transfers to local councils, 2008 – 13



Source: MoHS figures

[66] Note that drugs for the FHCI were also provided centrally.
[67] It was noted that reporting can be challenging as PHU in-charges only travel to the district towns once a month; dates by which reports are demanded should reflect these constraints.

Table 13: Local council health expenditure

SLL millions	2008	2009	2010	2011	2012	2013
Primary	7,882	6,205	7,919	7,764	7,900	7,412
Secondary	6,391	7,078	7,705	7,501	8,300	7,704
Tertiary	-	-	14,942	14,253	17,300	15,414
Total	14,273	13,283	30,565	29,518	33,500	30,530
Growth rate (real – 2007 prices)		18%	7%	-2%	0%	-17%

Source: MoHS figures

Table 14: Local council health budget allocation

Variance (bud. Exe.)	2008	2009	2010	2011	2012	2013
Primary	30%	134%	-48%	-1%	6%	-11%
Secondary	-79%	-80%	-18%	-8%	7%	-11%
Tertiary				-11%	13%	-11%

Source: MoHS figures

A further issue was the timeliness of these resources. The Save the Children Health Tracking study reported that all facilities visited reported delays in receiving funds in a predictable manner. Undertaken in quarter four of 2012, the study found that facilities had still not received quarter three allocations from district councils, who highlighted delays from MoFED. This finding is supported by the Sierra Leone Health Sector Tracking Study (2013), which found that none of the local councils received their allocated funds in the first quarter of 2013. This too was supported by interviews with the Budget Advocacy Network, which suggested that little funding, apart from the World Bank's PBF (see below), was reaching remote areas, and when it does it has significant delays.[68] Hospital and district staff noted in the KIIs that the infrequency of fund disbursement affected the ability to plan for activities such as outreach or supervision in districts.

This reflects the following issues:

1. A general weakness around planning and cash management between central and local governments with weak governance arrangements;
2. A reduction in overall heath financing by government in 2012;
3. The centralised decision-making; and
4. That districts are only reimbursed once after the Local Government Finance Department has received all returns from all the councils in all the sectors. This creates disincentives for those councils that are monitoring and sending their financial returns back on time (Save the Children Health and Sanitation Budget Tracking, 2012). This is exacerbated by weak financial management capacity at the DHMT and hospital levels.

Even when disbursed, little of the local council funds are provided to PHUs, which have to rely on other sources of funding. PBF has become the main source of revenue given the reduction in cost-recovery drugs, particularly in those facilities that did not hold cost-recovery drugs or had few patients outside the target groups. However, there were consistent complaints during the research that the PBF money is not frequently forthcoming (a finding supported by an independent evaluation by Cordaid (2014)), and without the direct cash that cost-recovery provided on a daily basis, the facilities lacked liquidity (i.e. when PBF is paid, it is paid into a back account quarterly,

[68] The World Bank also supports local government through the RCHP and DSDP, the first of which provides PBF-based on achieving results related to the FHCI, as well as some financing for inputs such as vehicles and drugs. The allocation is integrated with the allocation of government funding, and uses the same allocation formula as the Ministry of Local Government (although from a budget perspective it is reported as part of the development expenditure, and requires the use of separate bank accounts).

which still requires a trip to access this cash). Other sources of funding frequently cited by officials were from donors, which included equipment and small stipends for volunteers. This had the added bonus of being quite flexible and responsive to particular needs, for example fuel for the generator, drugs to replace the FHCI drugs when there are stock-outs (especially in the early part of FHCI) or new lights for emergency deliveries, etc. The flexibility of the PBF has also allowed for PHUs to fund TBAs, who were focusing on private business pre-FHCI.

A survey conducted in 2012 highlighted that priority expenditures by PHUs went beyond informal salary top-ups, including facility maintenance, incentives to health care volunteers (who would not be part of the payroll system), support to community outreach programmes, and support for medical consumables (Save the Children, 2012 – also backed up by interviews with MoHS, and PHU stakeholders in national and district KIIs). The 141 PHUs that responded to the survey stated that they spent SLL 618 million on such expenditure, significantly more that the SLL 271.6 million they were reported to receive from cost-recovery. Interestingly, over one-third was spent on volunteer incentives and community outreach, highlighting the role of non-formal staff at PHU level.

5.1.7 PBF

As noted above, PBF was one strategy adopted to fill in the gaps of local cash financing, reduce the incentives to charge informal fees and improve the quality of service delivery. Its objectives (GoSL, 2011) were to:

1. Provide cash at facility level to cover the local costs of delivering services and remove the need for 'informal' fees – and filling the 'vacuum' noted above;
2. Provide financial incentives to facilities in order to increase productivity and quality of care, especially for the identified key indicators; and
3. Increase the equity of distribution of resources with funds from PBF allowing facilities to hire contractual workers and finance outreach activities.

Although discussions of the implementation of PBF were occurring before the FHCI's introduction, PBF can be viewed as part of the FHCI series of interventions, given its focus on service delivery related to health outcomes for women and children.[69] It was financed by the World Bank under the RCHP's Phase 2. The PBF system was intended to be additional to existing financing mechanisms for health care services, and in effect it took over from the first year of financing provided to local facilities for the FHCI. Whereas this financing was uniform across facilities, the PBF is incentive based (GoSL, 2011). PHUs receive PBF funds according to their achievement of six output-based measures and performance.[70] Up to 60% of PBF funds can be allocated for incentives for technical health staff and the rest is to be used for payments to non-technical staff, operational costs and minor investments at the facility. In general, hospitals do not receive PBF.

There are a number of potential advantages and concerns with PBF that are well documented in the global literature, with advocates arguing that it can lead to improved incentives, improved efficiency, use of data, greater participation, and a focus on quality (Loevinsohn and Harding, 2005; Eichler, 2006; Soeters et al., 2006; Naimoli and Vergeer, 2010; Perrot et al., 2010), whereas

[69] The idea of incentive-based payments was also included in the original FHCI policy documentation (GoSL, 2009). The six indicators were part of the BPEHS: 1. Women of reproductive age using modern family planning methods for protection against unwanted pregnancy and to achieve desired birth spacing (BPEHS 7.2); 2. Pregnant women receive four appropriate antenatal consultations for protection against pregnancy risks (BPEHS 7.1.1); 3. Deliveries are conducted under safe conditions: in an appropriately equipped health facility, attended by a suitably qualified health professional (BPEHS 7.1.2); 4. Women receive three postnatal consultations for protection against post-delivery risks (BPEHS 7.1.4); 5. Children under one year of age receive full and timely course of immunisations against communicable diseases (BPEHS 7.6); 6. Outpatient visits with curative services for children under five years old delivered according to IMNCI protocol (BPEHS 7.7).

[70] For example, of a full immunisation they receive SLL 6,000 whereas for treating a new patient they would receive SLL 1,000.

others have suggested that the evidence for these improvements is still weak and it may lead to perverse incentives such as facilities focusing on higher reward procedures (Witter et al., 2012).

In the early part of PBF, there were limits in awareness at facility level about these new forms of financing. One study noted that facilities expected the SLL 1,000,000 in 'cash at facilities' to arrive on a regular basis on top of the PBF (Save the Children UK, 2012). However, another early assessment – albeit one with a fairly limited evidence base – suggested that PBF has resulted in attitudinal change in health workers. The health facilities are cleaner and health workers are using innovative strategies to reduce the challenges in services utilisation and quality of care (MoHS, 2012a). Indeed, during our research some health officials expressed confusion regarding how the PBF is split between functions but overall there was good awareness of its main mechanisms.

The most comprehensive monitoring to date was by conducted in 2014 by Cordaid, the external validation team. The resulting report contained a number of important conclusions:

- PBF was providing cash at facility level to cover the local costs of delivering services and removing the need for 'informal' fees, although around 12% of patients are still paying for free services. PBF provides around US$ 0.5 to 1 per capita funding. The income from PBF is much higher than from patient fees.
- The team concluded that to some extent PBF provided financial incentives to facilities in order to increase productivity and quality of care, especially for the 12 identified key indicators, although there were signs that this was levelling off at the time of Cordaid's report. The requirement to do a quarterly verification of the data improved attention to quality and also resulted in an improvement in the amount of data provided by health facilities. This was backed up by officials, with one official noting the increased attention to detail when filling in various registries at the facility.
- The PBF programme provided an equity bonus to health facilities and personnel in remote districts.[71] This has the potential to be important given the lack of remote allowance payments through the central payroll process, but the PBF evaluation was not able to measure its impact given data limitations.
- The incentive system was not transparent enough and payments came so late that they are no longer seen as reward for good performance.
- However, it has also been suggested that some innovations have occurred as part of PBF, such as the use of PHUs paying fees to TBAs to refer clients to PHUs for deliveries and other medical help (MoHS, 2011).
- Payments can take up to a year to arrive at PHUs, leading to health workers becoming frustrated and losing motivation. Late transfers of PBF funds may also have forced PHUs to ask for contributions from patients when funds dried up. This was supported in the KIIs at facility level, with most facilities not receiving PBF for over a year (with further delays during the Ebola crisis). Having previously been receiving funding, and promising such funding to TBAs and others, this cut-off from funds does seem have heightened dissatisfaction.
- The monitoring team also questioned if the amount of PBF was too low to directly incentivise improved performance, especially given the issues with late payments and increased utilisation post-FHCI.
- Significant differences existed between aggregated numbers in the internal and external verifications. With the exception of deliveries, the aggregated internal verification figures are 12%–73% higher than the monitoring team's results. This suggests that the reporting, monitoring and verification systems are not as robust as they should be.[72]

[71] The equity bonus ranged from 0% (e.g. Freetown and Bo), 20% (e.g. Port Loko and Pujehun), 30% (e.g. Kailahun) and 40% (e.g. Kenema and Koinadugu) to a maximum of 50% (Bonthe).
[72] While the obvious conclusion from this is a systematic over-reporting of indicators, the evaluation suggests interpretation errors in relation to case definitions may be a more significant factor. For example, condom distribution was to be excluded but some DHMTs included it.

In the last couple of years these funds were also diverted to Ebola purposes, potentially further reducing trust in the regularity of PBF and thus the overall incentive system.

5.1.8 Sector coordination mechanisms

The FHCI provided an opportunity for increased coordination in the sector between government and development partners as well as between government agencies. For example, it stimulated a number of meetings between the MoFED, MoHS and development partners that had not previously occurred (centred on delivery mechanisms such as traffic light reporting, regular high-level tracking meetings, etc.). In part, this seems to have been incentivised by MoFED worries that other sectors such as education would be requesting similar salary increases and the large financing gaps present in 2010 (see section 7). It also led to new types of financing such as PBF.

The provision of budget support by donors, and their increased funding for the FHCI, also led to more focus on the nature of governance and PFM systems. This was formalised by the preparation in 2011 (published in January 2012) of the Joint Programme of Work and Funding (JPWF) (2012–2014), which was to support the NHSSP, and which preceded the Health COMPACT.[73] The COMPACT provided a framework outlining the roles and responsibilities of the GoSL and its partners in implementing the NHSSP. The framework was based in part on concerns regarding the sustainability of the FHCI and the need for a coordinated government and development partner response.

However, effectiveness in implementation has been mixed. While some planning structures were in place and new types of financing used (e.g. PBF), structural weaknesses remained. Limitations in relation to PFM have meant that the potential opportunities for the FHCI to bring about greater budget certainty and coherence between the GoSL and developments partners have not been fully realised, as evidence by weak budget execution (see Table 15 below).

Table 15: Health expenditure as percentage of government revenue and expenditure

	Budget					
	2008	**2009**	**2010**	**2011**	**2012**	**2013**
Health expenditure* as a percentage of total expenditure**	7.45%	7.94%	7.22%	9.52%	6.57%	7.13%
Health expenditure as a percentage of total domestic revenue	9.41%	9.07%	10.73%	9.78%	11.54%	11.19%
	Actual					
Health expenditure as a percentage of total expenditure	5.83%	7.47%	7.69%	8.76%	7.13%	6.98%
Health expenditure as a percentage of total domestic revenue	7.20%	9.99%	8.31%	9.78%	8.39%	7.19%

* Does not include foreign-financed development funding, which was only included in MoHS accounts in 2012.

** Includes budget support as per methodology proposed by Witter et al. (2013)

Source: MoHS

There was a continuation of the previous trends of volatile funding (from government and donors), different templates for reporting, and development partners continuing to provide significant-off-

[73] The JPWF was intended to provide a basis for harmonisation of departmental activities and work plans, the alignment of stakeholder activities to government priorities, and to facilitate in-country and external development partners to direct funds for this policy initiative transparently (GoSL, 2012).

budget funding. Indeed, there continued to be a lack of overarching financing policy and of costed medium-term plans. For example, how elements of the cost-recovery would continue post-FHCI or how new types of risking pooling mechanisms should be considered were not clearly articulated.

Stakeholders at the time also noted that, despite joint government–donor working groups, development partners tended to be quite vocal, in part reflecting the sizeable financing they were providing. Further, aside from the budget support tied to payroll supplements much of this funding occurred off-budget. Many of these working groups also became fairly inactive after a year. Simson (2013) reports, based on interviews with country stakeholders, that the level of attention is waning, with more junior officials taking roles on steering committees,[74] and worries about sustainability are prevalent, given the continued high level of donor funding, particular for routine but time-sensitive tasks (which require available cash), such as monitoring trips, stationery and printing, fixes to quirks in the database system, etc.

Indeed, a recent review (Green, 2014) cited the lack of progress on the JPWF, with around only 5% of the JPWF outputs fully achieved and only 25% of the JPWF outputs partially achieved. Other planning challenges mirror those well known in the literature on health financing (Moon and Omole, 2013), including poor data on development assistance, external financing that may displace rather than augment domestic financing (as shown above), and the proliferation of actors.

There are also challenges at local level, with disconnects between plans at central and local level, and the release of funds still slow (or not reaching people as intended). As noted above, despite decentralisation in 2004, the financing for the health sector is quite centralised, with the HR function, salaries, and the purchasing and distribution of key inputs such as drugs controlled centrally. While this can lead to economies of scale, it requires robust planning, management and supervision in order to work well.

At the local level, the FHCI has increased the reliance on a top-down supply of inputs. In the past, health clinics levied fees and used these resources locally for discretionary spending with the tacit approval/acceptance of the MoHS. In place of this, salaries have been increased significantly and staff added to the payroll – this may have narrowed the space for local decision-making and problem solving, although it is of course hard to evaluate the counterfactual (Simson, 2013).[75] This corresponds to Green (2014) arguing that there is a need to improve the district and PHU planning process.

In contrast, PBF distributes funding to health care service providers according to the outputs (health care service provision) that they provide at the local level. However, as noted above it needs to be improved, with the performance-based grant having been disbursed irregularly.

5.2 Governance

Governance timeline

2010	27 April 2010 – Launch of the FHCI

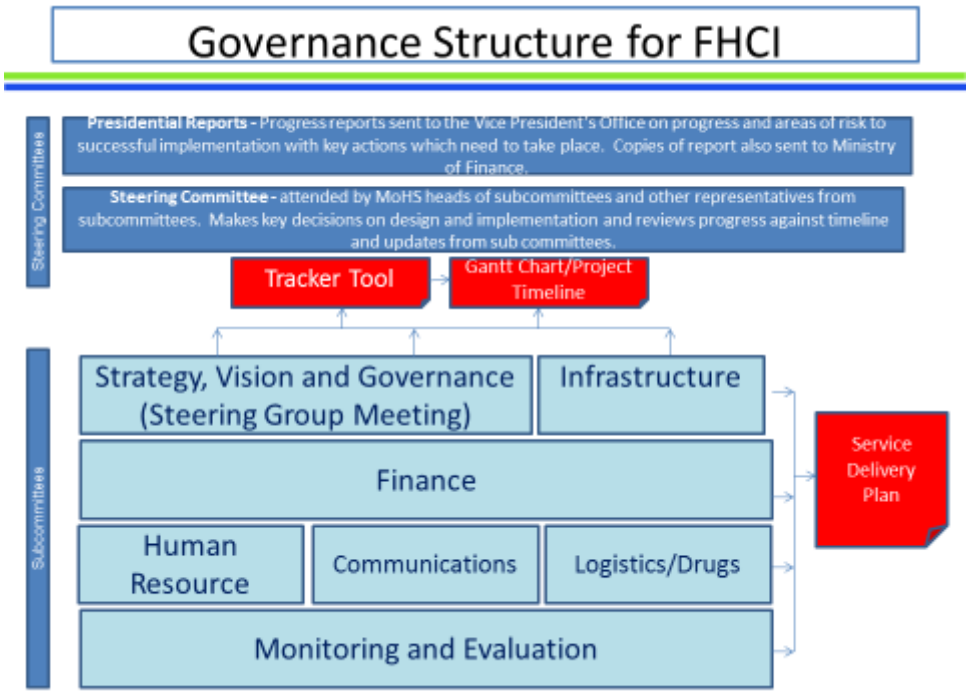
[74] Indeed, the MoHS Health Financing Unit does not appear to have a particularly prominent role in decision-making, and has had limited staffing in the last couple of years.
[75] Simson goes on to suggest that this centralised decision-making could work given the strong political commitment to health care reform from the President and development partners creating pressure from the top to improve health worker discipline. But there is good reason to suspect that both the President and donor attention to health worker performance will wane with time as new development initiatives seize the spotlight.

2011	May 2011 – Launch of the Health COMPACT July 2011 – Launch of the Reproductive, Newborn and Child Health Strategy 2011–2015
2012	January 2012 – Launch of the JPWF 2012–2014, of which the first of six focus areas was the strengthening of leadership and governance. January 2012 – Launch of the Results and Accountability Framework (for implementation of the NHSSP)
2013	June 2013 – GAVI funding scandal: many MoHS directors removed
2014	January 2014 – Launch of the NHSSP 2015–2020
2015	Launch of the six to nine month Ebola Recovery Plan Launch of the 10 to 24 month Ebola Recovery Plan

5.2.1 What changed and why?

The FHCI led to a revival and strengthening of the existing accountability structures, which had previously been inactive. While the existing working groups had been dormant until November 2009 (according to national-level KIIs), after the announcement of the FHCI by the President each working group met weekly and reported weekly to a newly formed steering committee, which was attended by development partners and other ministries of the GoSL and chaired by the Chief Medical Officer (CMO) of the MoHS. Each working group presented a tracker update of progress on each of the planned reforms. This steering committee reported monthly to the President of Sierra Leone on impact, progress, risks and possible mitigation actions (see below for the governance structure of the FHCI).

Figure 37: Governance structure of the FHCI



The health sector received vocal and sustained political support from the President, who saw the FHCI as his 'baby' (as noted by various government officials). The President chaired weekly meetings of the strategic working group, undertook various tours of the country to check on progress, and was personally involved in communication with health workers and the population. This support boosted the MoHS and the FHCI immensely.

Figure 38: The President visiting a hospital

Source: Faye Melly

There was also a marked shift in donor coordination, as mentioned in the financing section. The working groups were very well attended, and included all health implementation partners (NGOs, INGOs, donors) as well as various ministries (including MoFED). This level of collaboration and coordination was unprecedented in Sierra Leone (national-level KIIs).

Civil society groups such as HFAC and Health Alert also starting to play an important role in terms of holding the government to account through monitoring at facility level of the arrival of drugs, presence of health workers and the effective removal of user fees. For the independent HFAC data collection, a network of 300 monitors was initially recruited to cover all health facilities. The aim

was to collect information including on patient satisfaction, user fees, drugs supply, staff attendance and ambulance services.

Furthermore, a free complaints line was set up to allow patients to report any abuses in terms of the implementation of the FHCI. While we have not been able to obtain any data in relation to the number of calls made and how these were followed up, the existence of this complaints line did represent real progress in ensuring the accountability of service providers in relation to patients, although it ceased operations in 2012 due to funding issues.

5.2.2 Implementation and effectiveness

Mixed results in terms of coordination between donors and the MoHS

The working group meetings were initially very well attended and set in place an unprecedented level of accountability between MoHS, the GoSL and its development partners as well as civil society. These accountability structures remained, however, top-down, with FHCI reforms being driven at central rather than DHMT or community level (national and district KIIs). Furthermore, after the launch of the FHCI, these working groups and this accountability structure seem to have collapsed rapidly, with working group attendance dwindling and the MoHS left to its own devices.

However, while there was a marked reduction in the catalytic nature of the FHCI in terms of governance from 2011 onwards, a series of strategy papers were developed to consolidate the cooperation between MoHS and its development partners (through the COMPACT in 2011 and the JPWF in 2012 in particular). Whether this was a direct result of the positive experience of the FHCI coordination is unclear. The 2013 GAVI corruption scandal, however, which led to the dismissal of numerous key staff members in the MoHS, eroded the working relationship between donors and the MoHS.

The Ebola crisis in 2014 revived the coordination mechanisms through the six to nine month and now 10 to 24 month recovery plans. This increased collaboration between donors and the MoHS is a positive sign in terms of governance. The creation of the Health System Strengthening (HSS) Hub in 2015 is meant to further strengthen this collaboration, through service-level agreements signed with donors and health implementation partners for example, and should hopefully bring all health actors back around the same table, as in the days of the FHCI preparation.

Lack of cross-governmental integration

The realisation of the ambitions of the FHCI should have implied the involvement of many ministries, including of labour, finance and social affairs, at the very least. Yet only the MoFED was part of the initial working groups, while other ministries remained uninvolved.

Despite the involvement of MoFED, the lack of costing information on the FHCI also reduced the ability of civil society to hold the overall government to account, as identifying how much was allocated and thereafter spent on the FHCI has remained an extremely difficult exercise (see Section 4.1).

The involvement of the President and of State House also appears to be a mixed blessing: while the political support given to the FHCI has proven essential in its sustained implementation, the continued involvement of the Presidency may undermine the owenership of MoHS initiative.

Reduced involvement of civil society

As to civil society, the HFAC monitoring was slow to start and comprehensive coverage was not achieved until 2012. In 2013, the number of monitors was reduced to around 200 due to funding constraints and since then not all health facilities have been covered. The work was scaled down further in 2014 according to national-level KIIs. Also, the complaints line set up in 2010 to allow people to report any abuses in the FHCI was discontinued after two years for lack of funding.[76]

5.2.3 Outstanding challenges

- **Lack of clear leadership for the FHCI:** the FHCI remains a presidential project, which until 2014 had been clearly supported and driven by the RCH directorate of the MoHS. However, since the Ebola outbreak, there has been a lack of ownership of the FHCI on the part of the MoHS. The current director argues, probably rightly, that the FHCI touches upon the entire health system and as such should be driven by the MoHS as a whole rather than the RCH directorate specifically. However, this lack of clear leadership undermines the future sustainability and drive of the FHCI.
- **The FHCI still relies on a presidential decree.** The FHCI continues to rely legally on the 2002 presidential decree. Various initiatives have attempted to secure its future through its integration into the revised constitution being prepared at the moment, but this has to date failed. Indeed, with the next presidential elections in 2018, and the fact that the current president should not be able to stand again, there is a risk that the FHCI could be scrapped by a new party or president. While this is recognised as unlikely as it would be too unpopular a reform, the risk nonetheless exists.
- **The lack of capacity** at the MoHS, across many directorates and in terms of limited depth in technical staff, further puts limits on the ability of the MoHS to realise the ambitions of the FHCI and leaves it dependent on external technical assistance. The repeated corruption scandals (in 2010 and 2013) have also weakened the ability of the MoHS to drive policy reforms and make by-passing through parallel stewardship functions more likely.
- **The weakened engagement of civil society and communities. The reduced civil society monitoring and abandonment of the FHCI complaints** line remain an issue as reports outline numerous actual or perceived abuses to the implementation of the FHCI. There is as of now no clear mechanisms for patients to report any abuses.

[76] Note that the line had an interesting after-life as the Ebola emergency call-in number, as it was well known throughout the country. Options for its use post-Ebola are now being studied.

5.3 HRH

HRH timeline	
pre-2009	2002: National Health Policy
	2004–2008: HRH Development Plan
	2006: HRH Policy
	Review of the Scheme of Service
	Definition of allowances as percentage of salary
	PRPS II – An Agenda for Change
2009	September 2009: FHCI – Announcement
	December 2009: NHSSP 2010–2015
	January 2010: Payroll cleaning
	February 2010: Basic Package of Health Services
2010	March 2010: Fast-track recruitment
	April 2010: FHCI launch
	May 2010: Salary increase
	January 2011: Staff Sanction Framework and Performance Management Contracts
2011	April 2011: Performance-based incentives
	July 2011: Establishment of the Health Service Commission
	November 2011: Health COMPACT
2012	January 2012: JPWF
	January 2012: Remote allowance
	July 2012: HRH Policy (2012) and HRH Strategic Plan 2012–2016
2014	March 2014: Ebola epidemic: risk allowance introduced in autumn
2015	Post-Ebola, revival of HRH working group; new round of technical assistance including for payroll cleaning, review of scheme of service, and developing new HRH strategic plan

Source: adapted and updated from Bertone et al. (2014b).

5.3.1 What changed and why?

When the FHCI was announced in September 2009, and as previously discussed, HRH was picked out as an area needing immediate reinforcement as part of the policy's implementation, and a specific HRH working group was created in November as a result.

The logic behind the HRH reforms was that if health care utilisation was to increase then a number of chronic HR problems needed addressing, including:

- Fast-track recruitment and deployment to fill gaps in staffing;
- Payroll cleaning to ensure that 'ghost workers' were taken off the payroll (and those who were working unpaid – the many 'volunteers' – were added); and
- Salary uplift to ensure that health workers were adequately paid and motivated to handle increased workload without imposing informal charges on users.

These innovations were all introduced early in 2010 to prepare for the launch of the FHCI. In addition, in 2010 a policy was issued that deliveries should not be done by TBAs alone. A training assessment was done, showing the need for more midwives and the first training school was set up in Makenyi.

In a second round of HRH reforms, in 2011/12, a system of monitoring staff absences, linked to a new staff sanction framework, aimed to ensure that the now more generously paid staff were actually at work. The two other main policies introduced during this period were PBF to facilities, which could meet the dual needs of providing some small flexible funding at facility level to replace lost user revenues and providing a direct incentive to staff to provide priority services. Finally, a remote allowance was introduced in January 2012 to encourage staff to take up postings in more rural, hard-to-serve areas.

Since then the pace of change has slowed, although prior to the Ebola crisis work had been ongoing on revising the training curricula and other longer-term reform measures. These are now being picked up again in the wake of post-Ebola investment.

5.3.2 Implementation and effectiveness

The more detailed report produced in association with ReBUILD presents details on the rationale, design, implementation and funding of these reforms, all of which were important in regard to 'protecting the investment' in the FHCI. Broadly speaking, the first wave of reforms and the staff sanction framework were implemented effectively. The fast-track recruitment and deployment filled many gaps in staff, although it was a one-off process. Staff numbers doubled that year, which represents a big increase on previous years' trends, even allowing for the fact that some of these new recruits were already working but simply not on payroll. According to a nationwide monitoring exercise in 2013 (Save the Children and Health Alert, 2014), staff trained in Life-Saving Skills were found in 82% of the districts, all the DHMTs (100%) visited investigated maternal death cases, 96% of the hospitals had a mechanism to support emergency obstetric care services, and 85% of hospitals had staff able to perform caesarean sections.

The payroll system was also more robust, producing savings, although it should be noted that more people were added than removed (the issue of people working without being on payroll having been quite a severe one prior to the FHCI). Salary uplift contributed to better motivation and retention, especially for higher-level staff (the top grades seeing an increase of more than 700% in their salary). Absenteeism reduced and people were sanctioned for non-attendance. However, the later reforms were apparently less effective. Monitoring, feedback and payments under the PBF

scheme have been erratic and it remains poorly understood, although staff would welcome it if it could be strengthened. Of those surveyed by ReBUILD at PHU level, a third had received no payment over the previous year, while others had received from one to three payments. The rural allowances were even more erratic and opaque, and were stopped around 2013, albeit without there having been any formal announcement or explanation of the reason for them stopping (Witter et al., 2014).

Staff highlight benefits to themselves, in terms of pay and working conditions, as well as to the health system in general, in terms of increased use by patients and more investment in the services and facilities. They also highlight the strains, for example, of managing with too few staff, and perceive some negative effects, such as patients visiting repeatedly to seek free drugs and, for themselves, of having less time to pursue other activities, like private business (Witter et al., 2014). The overall consensus from our district KIIs in October 2015 was that the FHCI had increased the number of staff, especially through recruitment around the time of the launch and with an emphasis on getting at least one trained staff member per PHU. However, the situation has deteriorated since inasmuch as the recruitment drive has not continued and many staff who joined in recent years are not on payroll. Some new facilities have also opened, which stretches staffing more thinly.

The role of staff has also changed over the period, with community health workers CHWs taking on wider roles and TBAs being involved mainly to support women coming in to facilities for ANC and delivery care, though there were some reports from district KII of wider roles (e.g. administering malaria tests when the MCH Aide is absent). Home deliveries are no longer legal and the creation of proscriptive by-laws has in a number of areas made home delivery a finable event. Both groups are unpaid but receive some support from PBF funds. NGOs sometimes help by supplying training and transport for CHWs.

All district key informants who spoke of training felt that this had improved since the FHCI, with more training being made available and staff skills improved.

In the survey, salary is the dominant source of official income for all groups, which may be one of the legacies of the FHCI (other sources are relatively low – the next in overall importance are per diems for training, etc.). Only 4% reported any revenues from user fees or any gifts from patients, which suggests the FHCI is being relatively effectively implemented, although this finding needs cross-checking with patient reports. According to Bertone et al. (2016), PBF contributed 10% to the income of primary health workers and was seen as unreliable but highly appreciated (a windfall payment, as opposed to salaries, which were seen as an entitlement). In our district KIIs, PBF payments were reported to be motivating, when received, although many reported a long delay since they had last received any PBF. PBF is particularly important to motivate the unsalaried staff, such as CHWs and TBAs. At lower-level facilities, the availability of drugs and PBF payments are two key facilitators to work.

Many FGD participants had condemnatory comments to make about the behaviour of health care workers, especially the nurses. The attitude of the nurses was mostly described as negative across the four districts and groups. Though this was the case in all the districts, the nurses in Western Area had the worst review as a majority of participants had disapproving remarks to make about them. Most complaints revolved around assertions that the nurses shouted at patients who sought treatment and demanded money for free services:

> *"My experience when I gave birth to this child; I took my child to the hospital. The nurse I met was playing with her phone so I said 'I'm here to see you'. She told me she was busy and that I should sit aside and be patient because as a patient, you should be patient. I was*

still feeling some pain but I went to her for the second time. This time she asked me 'how you kam' (What did you bring?). Another woman had to shout at the nurse and said 'bo dis na young kombra' (Come on! She is a young lactating woman) that's the time she attended to me. I was charged SLL 50,000 but because I had SLL 30,000 she gave me half the drugs and said when you buy the rest, we will treat your child" (Adult female, Kono).

However, not all participants were critical of the behaviour and attitude of the nurses, particularly in Bo, Koinadugu and Kono, with a few giving positive feedback about them. They said that the positive attitude of health care workers was one of the reasons that encouraged them to visit the health centre. A number of participants also raised the issue of the lack of skilled and inadequate number of nurses, especially out of hours:

"The nurses, the MCH aides and state enrolled community health nurses (SECHNs) are not enough and some of them are not trained and qualified" (Adult male, Koinadugu).

A few participants mentioned that they feared to go to the hospital because the only people available are TBAs and untrained and unqualified nurses. They mentioned that most of the nurses are volunteers who did not undergo basic nursing training and who cannot even spell the names of patients. Other participants mentioned that the nurses could not do proper diagnoses. They said that it is uncommon to meet a qualified health worker at the health centre so they preferred seeking health services at private clinics or directly buying drugs from pharmacies.

A female participant raised the issue of misdiagnosis, which she thought was due to unqualified nurses at the health centre and that fact that the majority of health care workers (especially nurses) are not experienced in administering medication to babies. However, a few participants in Koinadugu confirmed that there had been issues of wrong medication even before the FHCI. They believed that with the existence of the FHCI the problem was being addressed gradually. Participants thought that a code of conduct and ethical training should be implemented for health care workers.

Figure 39: Staff and TBAs in Bo CHP (October 2015)

5.3.3 Outstanding challenges

Health workers were very badly affected by the Ebola epidemic. Hundreds died from Ebola, out of a small workforce, and many were stigmatised by their communities – seen as vectors of the disease, or shunned for contributing to combating the disease.[77] Their numbers, which had been growing, have dropped back again, and there are now plans to revive mobile recruitment to fill the gaps. Many of the activities seen in the run-up to the FHCI are being repeated: in 2015/16 international consultants are helping to do a headcount and clean the payroll; the scheme of service is being reviewed; a new HRH strategy is being developed; and the HRH working group is up and running again, helping to coordinate the new and old actors in the HRH space.

Some reforms that are recognised to be important and that were planned for in the NHSSP are still outstanding, perhaps because they require more institutional and deep-rooted transformations. Most sources agree that recruitment and deployment are too centralised and that HR management should be devolved to district level. Recruitment is done centrally, with requests made via the DHMTs. Only untrained staff can be recruited locally.

Within the MoHS, better coordination of HR policies is needed in order to avoid 'silos' managed by different directorates. The performance management contracts are not fully operational. The HRH Directorate is still under-staffed and there is a recognised but unfulfilled need for HRH officers at regional and district levels. The HR information system needs to be developed and payroll management improved. The attendance monitoring system which was brought in post-FHCI has lost momentum – reports are being filled but not checked systematically, and may therefore not be reliable, according to national-level KIIs.

Measures to encourage and retain staff in rural areas require comprehensive packages, including housing and promotion and training opportunities. Rural health workers face particular challenges, some of which stem from the difficult terrain, which add to common disadvantages of rural living (poor social amenities, etc.). Poor working conditions, the emotional and financial costs of separation from families, limited access to training, longer working hours (due to staff shortages) and the inability to earn from other sources make working in rural areas less attractive (Wurie et al., 2016). Moreover, rules on rotation that should protect staff from being left too long in rural areas are not reported to be respected. It is particularly difficult to attract and retain specialists and doctors. In Koinadugu, there were only two doctors in the whole district in October 2015, one of whom was the DMO. In some areas, respondents report gaps in nursing, even in the district hospitals.

By contrast, poor management had more resonance in urban areas, with reports of poor delegation, favouritism and a lack of autonomy for staff (Wurie et al., 2106). Tensions within the team over unclear roles and absenteeism are also significant demotivating factors in general. Revised training and measures focused on boosting competency and quality of care are all part of the unfinished agenda.

There are still too few of some key cadres, such as midwives, and attrition remains high (13% in 2011, across all cadres). Self-reported working hours averaged 54 hours per week across the staff surveyed by ReBUILD in 2012, who reported seeing an average of 117 patients per week, which is relatively high. High workload was also reported in our district KIIs, which has ambiguous effects on staff motivation. Various health workers argued that having more patients is motivating because they are actually able to do their job and feel satisfaction because they are saving lives. They also

[77] See http://blogs.lshtm.ac.uk/hppdebated/2014/11/12/ebola-suppporting-health-workers-front-line/

now see more complicated cases who would otherwise have been dying at home, which in itself is motivating. However, in rural areas, the workload results in long shifts for staff.

In our district KIIs, the ratio of trained to untrained staff was strikingly low, especially at lower-level facilities – for example, an MCHP visited in Kono had: one MCH aide, one vaccinator, 16 CHWs, and 22 TBAs (covering 17 villages). CHWs provide health education and distribute drugs around the villages, which needs close supervision to ensure that they are distributing them appropriately and without charging. Staffing roles appear to have shifted, such as many cadres are working at the level above that for which their role was designed (e.g. MCH aides who were meant to be doing outreach were staffing PHUs, SECHNs who should be serving in PHUs were in hospitals, etc.). This 'task-shifting' is an informal response to gaps in the numbers of doctors, nurses and midwives, presumably. Training and other activities also mean that the real numbers present are even lower than those in theoretical attendance. The situation may not get better quickly as a hiring freeze was imposed in 2015.

The most substantial concerns related to HRH issues raised in district-level KIIs were to do with pay (i.e. low pay, no pay, difficulties getting on payroll, etc.) and inadequate numbers. Related to this was the problem of volunteers and how they can be managed and motivated, given that they are not on payroll. More limited concerns were expressed on the need to upgrade staff skills, to provide promotion opportunities, to motivate staff, to manage their workload, to improve their working conditions and to protect them from the unreasonable expectations of patients.

The issue of unpaid staff – 'volunteers' – which was documented prior to the FHCI and was supposed to have been banished has very clearly returned. Many staff are not on the payroll, presumably due to restrictions in funding for salaries rather than technical problems with payroll. They continue to volunteer – even though the policy is that volunteering is not allowed. This causes difficulties for staff management and accountability. In some areas visited for district KIIs, the volunteers are reported to outnumber paid staff. In others they were one-third to half of the staffing in facilities visited by the team. The volunteers are often trained staff who are allocated by the DHMT to facilities, which sits at odds with the fact that it is actually illegal to recruit volunteers. All were hoping to eventually get an official position and a backdated salary. The accountability of those volunteers within the facility is also difficult to assess: some said they worked as normal staff and had the same responsibilities and accountability mechanisms, while some said there was none. Despite much probing, it was also impossible to understand how these volunteers survived financially: some did get a share of the PBF and some did not. They all denied charging under the counter, although one facility did state that patients gave fees to volunteers voluntarily.

There are now 10,000 CHWs across all districts, mostly supported by UNICEF but with implementing/supporting NGOs in most districts too. A CHW policy is under debate – most controversial is whether CHWs should be taken onto the public payroll, something which would be very challenging for the public purse (given the difficulties hiring and paying more highly trained staff).

According to analysis by the MoHS in early 2016[78], the bulk of employed staff are nurses (55%), with only 2% doctors. In addition, a significant number are approaching retirement (one-quarter of staff and one-third of midwives are over 50). Regionally, 36% of staff are deployed in Western Area, compared to 14% for Eastern, 21% for Northern and 17% for Southern Region. These disparities mask more serious ones when we consider more trained staff (doctors, state registererd nurses (SRNs), midwives, etc.), which are highly concentrated in Freetown. Community health officers (CHOs) are more evenly distributed, but all districts fall short of the minimum staffing

[78] Presentation to ReBUILD meeting on HRH, January 2016, HRH Directorate, MoHS

numbers recommended by WHO to cover an essential package of care (22.8 per 10,000 population). Only MCH aides' posts are filled to planned levels. For midwives, only 30% of posts are filled. Limited training capacity but also financial constraints are the main bars to reaching desired levels of staffing. Training places for specialists are particularly lacking in Sierra Leone.

Competency is another area where there are believed to be challenges, although according to national-level KIIs no skills audit has been carried out to verify the extent of the need. Better on-the-job training, supportive supervision, and continued professional development are recognised needs. Regulatory functions also need to be strengthened. The nurses and midwives professional board, for example, aims to become an independent council, with better processes for licensing nurses, coordinating training and disciplining non-compliant nurses.

Questions on remuneration revealed substantial differences between doctors and the rest of the staff, with doctors' salaries more than four times those of registered nurses (a differential that increases when other sources are added) (Witter et al., 2014). This may require attention, particularly given the low number of registered nurses and midwives and their apparently high attrition rate. PBF is also unevenly distributed across districts, which may in part relate to the different degree of assistance provided by NGOs (Bertone and Witter, 2015). Lack of clarity on how PBF is divided up was also mentioned in district KIIs. The perceived randomness of which facility gets PBF and which does not means that it is also creating resentment in those facilities not receiving PBF. There were also concerns about the effects of removing the hazard allowances introduced during the Ebola outbreak. Since the salary increase of 2010 there had been no increase in salaries until 2015, when an across-the-board 15% rise was given.

We know that some degree of charging for services continues but data sources are too patchy to be able to comment on what the charges are for and how they have changed over time (and why). As a result of the pay difficulties described above and the proliferation of poorly controlled staff, incidences of staff making a living from selling drugs and also charging patients were reported in the district KIIs. It is not possible from this qualitative investigation to tell how common these were, but the mechanisms for controlling them were clearly felt to be inadequate:

> *"The result is that staff often sell the FHCI drugs to provide an income. There doesn't seem to be a plan to tackle this"* (district KII, Bo).

> *"Non-payroll staff make money by asking for payment and treating people outside the facility. There have been many complaints to civil society groups about this, and it has been covered on radio, TV and in the newspapers. The government says people should report incidents to the Anti-Corruption Commission. However, the prosecution process is very long and it is unclear what if anything is done when corruption is found"* (district KII, Bo).

Inadequate supplies are another challenge. Health workers feel a lot of pressure from patients with the FHCI: the government says one thing (free care, free drugs) yet it does not send enough of these drugs, enough instruments, etc. for health workers to be able to do what is expected of them:

> *"We as the health workers are targeted – when patients go to facilities they expect free drugs – but we often don't have them, especially with ANC. If you have 1,000 tablets of iron that's supposed to last for three months based on the supply given by government – so we use our discretion"* (district KII, Western Area).

As mentioned in the governance section, presidential support for the FHCI was recognised by all as being critical to its success. The fact that donors were able to coordinate to support the FHCI was also of the highest importance. This also brought in a large number of short-term technical

assistants, who played a role in enabling quick reforms in time for the launch. All of these factors remain important and represent risks in relation to sustainability. As previously highlighted in Section 4.1, for the first three years of funding the salary uplift, for example, DFID paid 22% of the costs and the Global Fund 20%. For the PBF scheme, the World Bank is the funder. None of these sources are secure.

5.4 Drugs and medical supplies

Drugs and medical supplies timeline

2010	February 2010 – Central Medical Stores opened April 2010 – Drugs and medical supplies distribution begins October 2010 – Standard Operating Procedures (SOP) Manual for the Integrated Logistics Management of Health Commodities is published
2011	April 2011 – Distribution of medicines is suspended by UNICEF due to leaks in the supply chain August 2011 – Pilot distribution of medicines with new risk control matrix in place, regional logistics officers (RLOs), district logistics officers (DLOs) and an International Logistics Officer September 2011 – Contract with IPA begins November 2011 – National distribution of drugs and medical supplies launched December 2011 – First Quarterly IPA Review
2012	February 2012 – Second Quarterly IPA Review March 2012 – King Tom warehouse operational May 2012 – Third Quarterly IPA Review July 2012 – The NPPU Act is approved. NPPU is created as an autonomous public entity August 2012 – Revised Risk Control Matrix signed-off by MoHS September 2012 – Fourth Quarterly IPA Review (contract ends) December 2012 – NMP, National Formulary, Essential Medicines List, and Standard Treatment Guidelines for Primary Level Prescribers are launched.
2013	April 2013 –Crown Agents (contracted by UNICEF) arrive in Freetown to support the NPPU for the next three years October 2013 – Fawaz Stores operational

2014	April 2014 – All responsibilities for Procurement and Supply Management of FHCI drugs and medical supplies are transferred to the NPPU July – August 2014 – Distribution of drugs and medical supplies managed by NPPU / Crown Agents with technical assistance from UNICEF. Several capacity gaps identified
2015	November 2015 – Crown Agents leave Sierra Leone before contract termination

5.4.1 What changed and why?

Given the challenges described above and to ensure that increased demand for services through the FHCI was met with good quality standards, the 2010–2015 NHSSP encompassed a complementary supply-side intervention associated with the provision of drugs and medical supplies. The main objective of the drugs and medical supplies pillar was to guarantee the **availability**, **accessibility**, **quality** and **safety** of all drugs and medical supplies at all times and all levels (national, district, hospitals and PHUs). Specific targets for the supply of drugs and medical supplies included[79]:

1. A strengthening of the procurement and supply chain management system by improving the coordination mechanisms between different partners, guaranteeing an efficient and transparent procurement process, and implementing a strict control and monitoring system;

2. Setting up an efficient storage and distribution chain to prevent stock-outs through the construction of the CMS in Freetown and DMS in all districts and the establishment of the Logistics Management Information System (LMIS);

3. Providing necessary equipment to all health facilities;

4. A strengthening of the SOP by establishing adequate management of the Essential Medicines List and building the capacity of facilities and maintenance personnel.

To support the activities outlined above, a Procurement and Supply Chain Management Working Group (PSMWG) was set up to coordinate and oversee all planning and implementation of the supply chain. Specific activities included: (1) the review and updating of the lists of drugs and medical supplies to be procured and distributed by districts; (2) monitoring the availability of tracer medicines;[80] and (3) coordinating capacity development at Local Council and DMS (Health Sector Working Groups – Draft Terms of Reference, 2010).

The procurement (purchase, shipment and port clearance) and distribution of drugs and medical supplies was initially granted to UNICEF,[81] with support from AfDB, DFID, the EU, IRC, the World Bank and UNFPA, with the intention of progressively transferring this responsibility to the NPPU. Procurement was undertaken by UNICEF Headquarters in Copenhagen, based on consumption data from LMIS and morbidity data from HMIS, with all goods subsequently shipped to Freetown (by sea or air). Once drugs and medical supplies arrived at the CMS, goods were distributed to

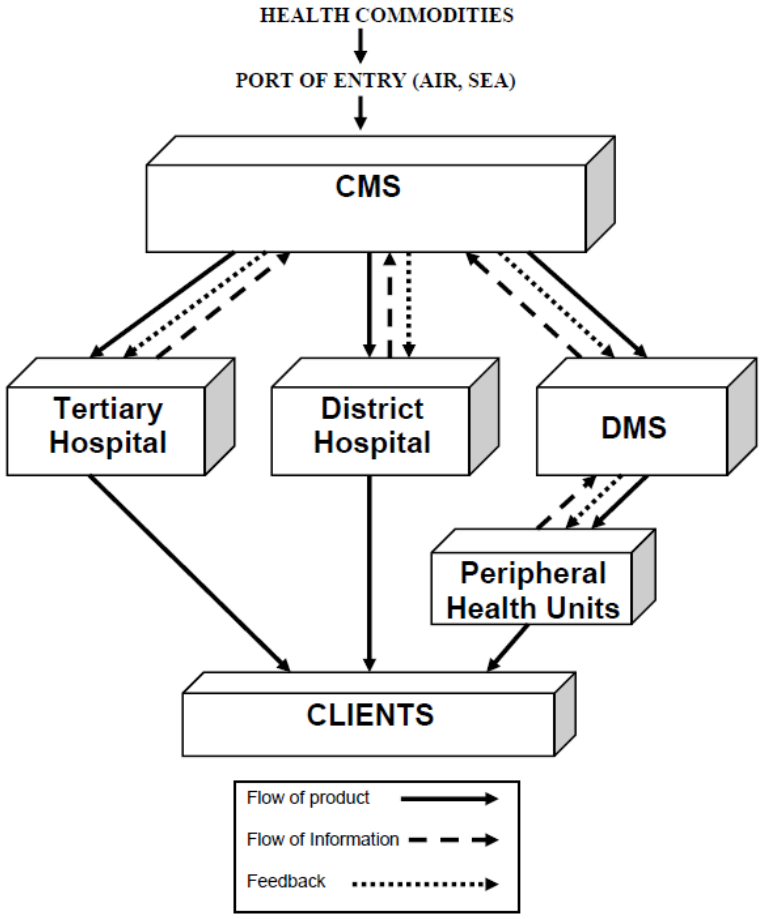
[79] Based on GoSL (2009).
[80] Tracer medicines include Albendazole, Amoxycilin, Ampicillin, Artesunate/Amodiaquine, Cotrimoxazole, Ferrous Sulphate and Folic Acid, Magnesium Sulphate, Methyldopa, Metronidazole, ORS, Oxytocin, Paracetamol, Sulphadoxine and Pyrimethamine, Zinc Sulphate, Sodium Lactate, and Dezamethasone.
[81] UNICEF worked under two programmes: (1) Provision of Essential Medicines and Medical Supplies to Reduce Maternal and Child Morbidity and Mortality in Sierra Leone; and (2) BPEHS.

DMS and hospitals. Distribution to all districts was based on a 'push' system – supplies to be distributed are centrally determined, based on DMS reported consumption data and stock on hand (BDO LLP, 2015). UNICEF and KIIs suggest that although originally a 'pull' system was envisioned, through which hospitals and PHUs make explicit requests for the drugs and medical supplies needed, human, physical and technological capacity was insufficient at the time of the FHCI's launch to guarantee its effectiveness. Drugs and medical supplies were to be distributed to DMS and hospitals on a quarterly basis, and to PHUs on a monthly basis, with 80% of drugs to be delivered to DMS and 20% kept at CMS as a backup.

To support the forecast and organise and supervise the delivery of goods from DMS to PHUs, as well as provide assistance to DHMTs, UNICEF contracted 14 DLOs. Three international RLOs, covering three regions and the Western Area, were also contracted to ensure transparency and accountability in the supply chain.

An LMIS called CHANNEL was introduced by UNFPA to be operated by CMS and DMS. As mentioned in the SOP Manual, the objective of the LMIS was to 'ensure that the right commodity in the right quantity of the right quality is available at the right place and at the right time for the right cost' (UNICEF, 2010, p. 2). CHANNEL was designed to collect information on the quantities of usable stock, the quantities of drugs and medical supplied dispensed to users, and the losses (quantities removed for other purposes rather than dispensing) and adjustments (quantities received from other sources rather than DMS or CMS) on a monthly basis (ibid., 2010). Figure 40 below shows the flow of commodities, as well as LMIS information across all levels.

Figure 40 Pipeline for drugs and medical supplies



Source: UNICEF (2010).

Regarding storage of drugs and medical supplies, the SOP Manual also specifies the requirements at all levels (UNICEF, 2010). Key elements include:

- Ensuring storage rooms are secure and entry to visitors forbidden;
- Ensuring storage facilities have specific rooms for offloading, storage and dispatch – depending on the size of the health facility, e.g. PHUs, one single room may be used for storage and dispatch;
- Commodities should be stored in alphabetical order, by type of product (e.g. tabs, injections, etc.), and according to a 'First-to-Expire, First-Out' (FEFO) policy; and
- Facilities should be dry, well-lit and ventilated, with a cold chain adequately maintained.

Since April 2014, all responsibilities related to the procurement and distribution of FHCI drugs and medical supplies were transferred to the NPPU. This is a semi-autonomous organisation[82] that will be in charge of the procurement, storage, distribution and management of drugs and medical supplies for all public health facilities in the country. Its main objective is to 'provide an effective, efficient and transparent environment for the supply of medicines of requisite quality, efficacy, accessibility and affordability in public institutions' (Koroma, 2010, p. 3). The NPPU was to be funded by budget allocations, contributions by donor agencies, and any other revenue that accrues to the Unit.

Similar to UNICEF processes, the NPPU released an international ITT for the procurement of goods, and subcontracted the private sector for distribution to DMS, hospitals and PHUs, with potential increases in efficiency (e.g. by providing both quality assurance and managing the supply chain). However, limited funding from GoSL and support from major donors and international agencies[83] have hindered the NPPU's ability to become fully operational (BDO LLP, 2015).

A partial 'pull' system, through which hospitals and PHUs determine the quantities of drugs and medical supplies to be distributed, was also introduced in the Western Area after the NPPU took over the supply chain. PHUs in other districts are increasingly submitting reports to DMS to inform distribution and have gained some flexibility to request drugs and medical supplies during stock-outs (based on KIIs and BDO LLP, 2015).

5.4.2 Implementation and effectiveness

The main issue identified in the procurement and supply chain is the frequent stock-outs of basic drugs and medical supplies, preventing the target population from receiving adequate treatment. Stock-outs are explained by several elements, including delays in the release of commodities at the port of entry, limited trucks for transport from CMS to hospitals and DMS, and a poor road network. Other issues that contribute to the mismatch between supply and demand of drugs and medical supplies are ineffective and impractical monitoring systems and lack of adequate storage facilities.

Frequent recurring stock-outs of essential drugs and medical supplies have been the major issue with the procurement and distribution chain since the beginning of the FHCI. During the first PSMWG meeting, chaired by UNICEF, members agreed that the initial procurement of drugs and

[82] The NPPU Act states that this Unit will be autonomous but in practice its Chairman will be appointed by the President of Sierra Leone. The Board of the Unit also includes representatives from the MoHS, MoFED, the Ministry of Justice, the National Public Procurement Authority, the Bank of Sierra Leone, DHMTs, international donors, NGOs, and civil society organisations.

[83] Lack of support from donors is mainly related to a lack of confidence in NPPU's capacity to manage the supply chain in a transparent and effective manner. As explained by UNICEF (2014), the NPPU failed to complete its inventory stock-taking from the CMS, it did not review its key performance indicators and nor did it finalise the recruitment of key staff members. By July 2014, the NPPU could not be certified by donors as a fully functional institution, and thus UNICEF was requested to keep providing support and oversight to the supply chain.

medical supplies should cover 60% of total beneficiaries (i.e. 1 million children and 230,000 pregnant women and lactating mothers), based on utilisation figures up to January 2010. Members also acknowledged that, while the CMS would open in February, there were few DMS, as construction was abandoned due to lack of funding. Given that storage facilities were not going to be completed for the FHCI launch in April, short-term options were assessed, including the use of empty spaces in district hospitals and the possibility of UNICEF staggering the delivery of goods until adequate storage facilities became available (Steering Group Meeting Notes, 2010).

All of the above measures did not foresee the large rise in health care demand, especially during the first few months of the FHCI, as described in Section 5, leading to stock-outs at a much faster rate than anticipated. The HFAC monitoring report for the first quarter of FHCI implementation (April–August 2010) reported shortages during distribution from DMS to PHUs in Koinadugu and Port Loko.[84] The Service Availability and Readiness Assessment (SARA) for 2011 also shows a high variation in the availability of some of the FHCI tracer drugs, ranging from 13% for Ceftriaxone to 85% for Co-trimoxazole. The Western Area generally had better drugs availability, as is the case with hospitals compared to PHUs, and private compared to public facilities – both public clinics and hospitals seem to have experienced the lowest rates of FHCI drugs availability (see Table 166 below).

Table 16: Availability of essential medicines by region, type of facility, ownership and type-managing authority, 2011

	Co-trimoxazole suspension	Amoxicillin	Ceftriaxone injection	Paracetamol suspension	Diazepam
Region					
Eastern	90%	64%	10%	68%	74%
Northern	83%	49%	5%	63%	60%
Southern	83%	46%	11%	42%	73%
Western Area	90%	77%	44%	83%	77%
Type of facility					
Hospital	86%	76%	54%	75%	90%
Primary care	85%	54%	11%	60%	68%
Ownership					
Public	85%	51%	6%	59%	68%
Private	85%	81%	53%	73%	74%
Type of managing authority					
Public hospital	77%	48%	21%	46%	89%
Private hospital	92%	94%	75%	94%	92%
Public CHC	90%	44%	8%	64%	47%
Public CHP	90%	51%	7%	54%	80%
Public MCHP	83%	54%	5%	59%	70%
Public clinic	63%	35%	7%	64%	42%
Private clinic	83%	78%	48%	68%	70%
Total	85%	55%	13%	61%	69%

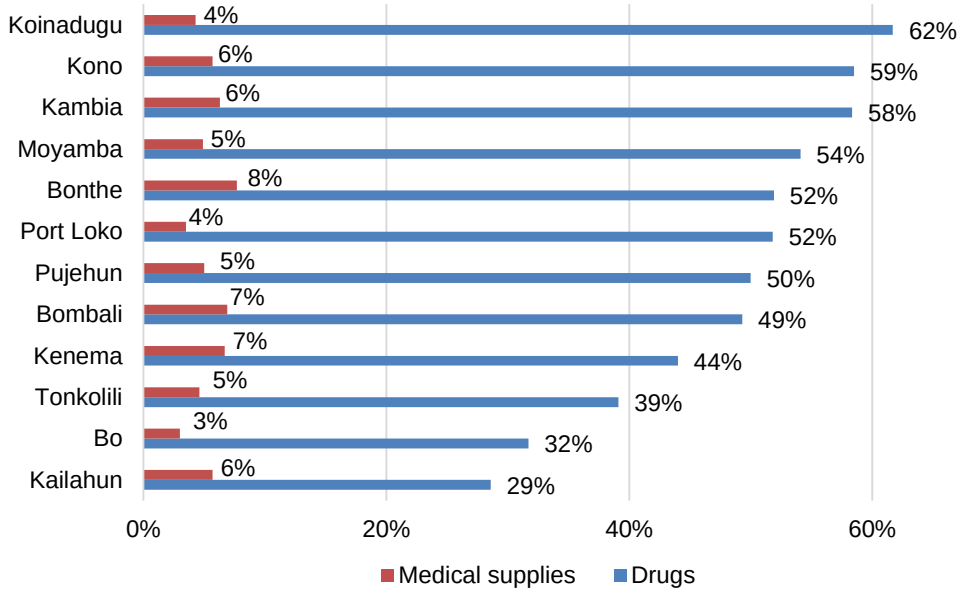
Number of facilities: 207.

[84] HFAC also reported that 450 cartons of drugs were delivered in excess to hospitals and PHUs, which had to be returned to CMS as surpluses.

Source: MoHS (2012)

Further evidence for 2012 shows that although almost 100% of drugs and medical supplies were received at DMS, 45% of the all PHUs surveyed experienced stock-outs (HFAC, 2012). Figure 41 shows this data disaggregated by districts: the proportion of PHUs that experienced drugs stock-outs varied from 29% in Kailahun to 62% in Koinadugu. Stock-outs for medical supplies were reported to be much lower, ranging from 3% in Bo to 8% in Bonthe. With regards to hospitals, out of the 12 facilities inspected by MoHS only five met all criteria, i.e. having adequate storage facilities and at least three months' supply of all tracer consumables and all tracer drugs plus IV/IM ampicillin, gentamicin and calcium gluconate (MoHS, 2012d).

Figure 41 Proportion of facilities experiencing stock-outs by district, 2012

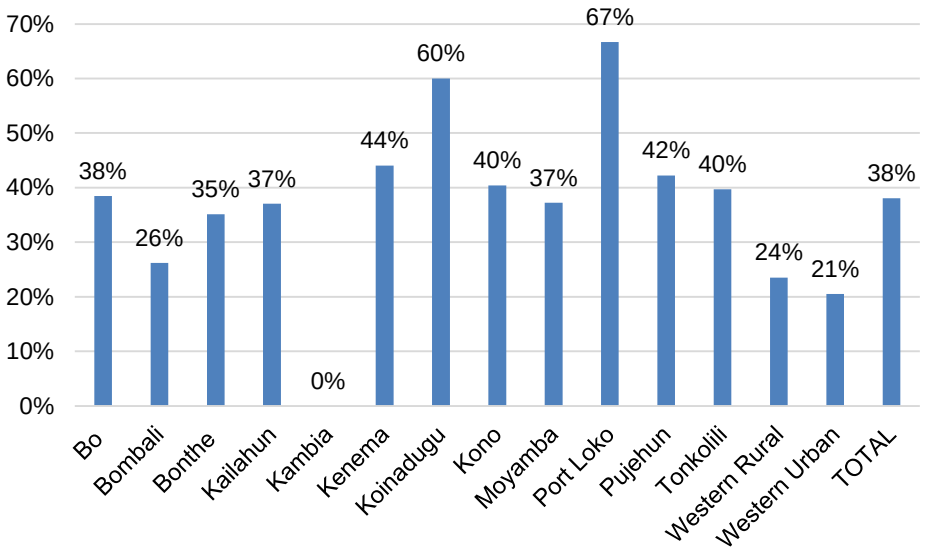


Source: HFAC (2012). Number of facilities: 274

The most recent data prior to the Ebola crisis showed that, out of 607 facilities surveyed, only 38% received drugs in the last quarter, even though distribution was supposed to be occurring on a monthly basis from DMS to PHUs and on a quarterly basis from CMS to DMS, secondary and tertiary hospitals (see Figure 42). Only 21% of facilities received supplies in the Western Urban area as compared to 67% of facilities in Port Loko, which is further away. Although these data were not collected at the peak of the Ebola outbreak, the disease was already spreading at this time, which may explain the focus of the distribution in more distant and closer-to-the-border (with Guinea and Liberia) areas.

Figure 43 shows the proportion of facilities that: (1) reported drugs stock-outs; (2) reported drugs stock-outs and made a request to DMS; and (3) made a request and received a response. Overall, 82% of facilities reported having a stock-out. Out of these, 89% made a request to the corresponding DMS but only 34% received a response. Port Loko seems to have been in one of the most critical situations, with 88% of facilities reporting a stock-out and making a request to a DMS but only 16% of them getting a reply. On the contrary, Tonkolili, with only 65% of facilities reporting a stock-out, obtained a 46% response rate.

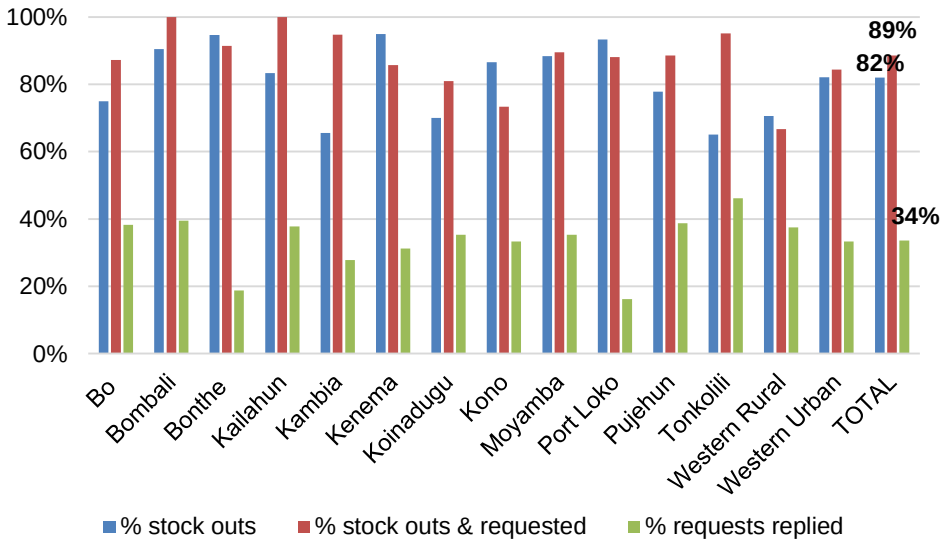
Figure 42: Proportion of facilities that received drugs in the last quarter by district, April 2014



Number of facilities: 607.

Source: HFAC (2014).

Figure 43: Proportion of facilities that reported stock-outs, made requests and received a response by district, April 2014



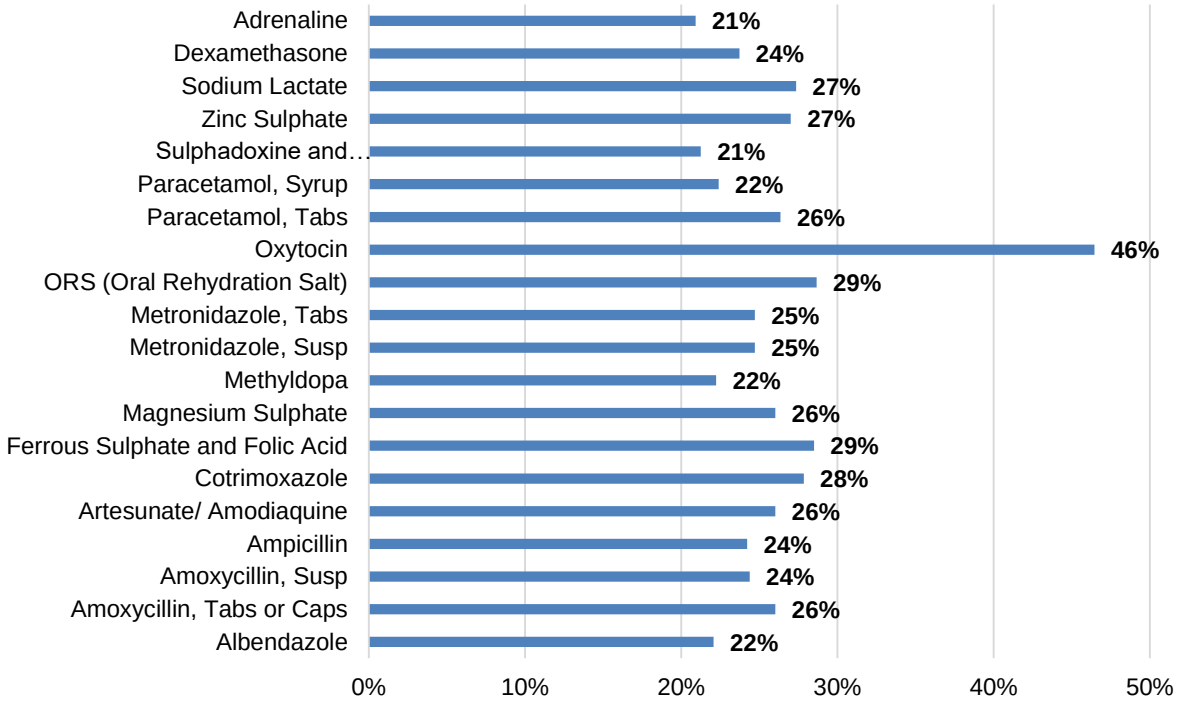
Number of facilities: 607.

Source: HFAC (2014).

Figure 44 shows the proportion of facilities where the stock level for tracer drugs was less than 14 days[85] with no alternative drugs available. Oxytocin was the most wanting, with 46% of facilities reporting low stocks. For all other tracer medicines, between 21% and 29% of facilities reported having low stocks.

[85] It is important to note that 14 days is already below the minimum stock level of two months for PHUs, as determined in the SOP Manual (UNICEF, 2010).

Figure 44 Proportion of PHUs where the stock level for tracer drugs is less than 14 days and no alternative drugs are available, April 2014



Number of facilities: 607.

Source: HFAC (2014).

Evidence from KIIs at the district level and community FGDs further confirms the issues faced with drugs and medical supplies shortages:

> *"As far as they can tell there are no calculations of the type and quantity of drugs that might actually be needed, leading to people dying, because the drugs are free but they are not available"* (District KII, Bo).

> *"The only constraint is the drug supply – especially for under-5s – you can run out of drugs for more than three months. There have been drugs but not sufficient – we get drugs quarterly – how bad it is depends on the specific PHUs: some PHUs have a large number of people attending clinics so run out much faster. When we run out of drugs we just prescribe to patients"* (District KII, Western Area).

All of the evidence above shows that there still seem to be significant mismatches between the quantities of drugs and medical supplies received and the quantities effectively needed across districts, hospitals and PHUs.

Besides a mismatch between supply and effective demand of drugs and medical supplies, stock-outs have also been related to bureaucratic or administrative issues – in particular to delays in UNICEF being granted clearance at the port of entry. These delays are mainly attributed to the duty exemption sign-off with MoHS, MoFED and the National Revenue Authority, as signatures have to be provided by the ministers themselves or their first secretaries. Despite several complaints and even interventions from the President, who established a 'No Delay, No Demurrage' strategy in 2010, the time taken to get clearance at the port only improved after the Ebola crisis, with estimates indicating that the average time taken to get clearance before Ebola

was 27 days, with containers spending around 68 days at the port (under poor storage conditions). Besides risking the quality of commodities, delays at the port also result in high storage and demurrage costs – estimates suggest that between 2014 and 2015 costs amounted to US$ 346,470 for DFID-funded containers, with clearance agent and other administrative costs coming to US$ 194,548 (BDO LLP, 2015).

Delays in distribution are also related to the lack of trucks and vehicles to transport commodities from DMS to PHUs. There have been reports of DMS personnel having to hire private vehicles to transport drugs and medical supplies to PHUs, sometimes using their own financial resources. Transport was reported to be particularly difficult in riverine (Bonthe) or mountainous (Koinadugu) areas (HFAC, 2012). Given these issues, UNICEF signed long-term agreements with six private transportation companies to deliver drugs and medical supplies from CMS to hospitals and DMS, and then from DMS to PHUs (UNICEF Sierra Leone, 2014). KIIs suggest that private transportation has been crucial in the distribution of commodities.

Another key issue is the lack of proper implementation of monitoring and accountability systems. The HFAC monitoring report for the first quarter of FHCI implementation in 2010 reported thefts and resale of FHCI drugs in Freetown, Kailahun, Kenema, Makeni, Port Loko and Tonkolili. Indeed, a stock-take by MoHS in 2010 revealed that 6% of drugs were being lost between the port of entry and the patient (MoHS, n.d.). As mentioned by one of the community members:

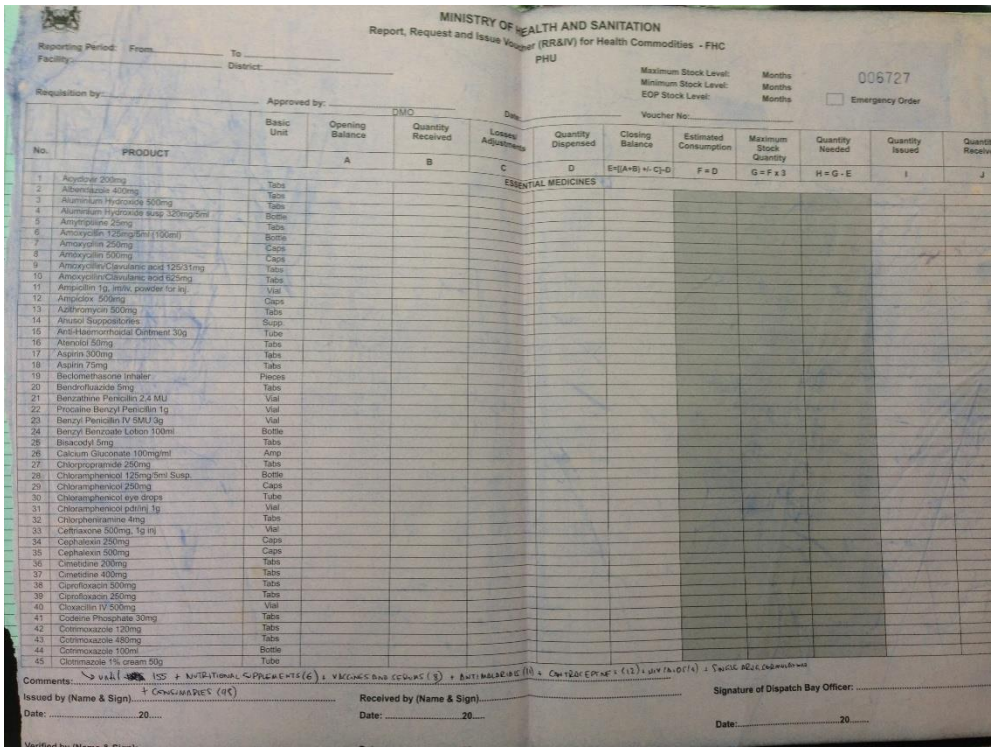
> *"Initially the FHCI worked, the government put laws to report any defaulters for the drugs or misappropriation. However, that has changed now because there is no monitoring and the nurses are doing what they want"* (District KII, Bo).

Lack of proper monitoring systems and accountability have also allowed for informal charging for FHCI drugs, as reported by community leaders in Kono:

> *"Some of us can read and write. They tell us at times there are no drugs, but if you give them money, the nurses will give you medicine with the inscription 'Free Health Care' on it. How come they still say Free Health Care drugs are not available is the big question"* (District KII, Kono).

Amnesty International also found that PHUs and hospitals have no proper record-keeping, with few health workers having an accurate understanding of official forms (i.e. Report, Request and Issue Vouchers (RR&IVs), Inventory Control Cards (ICCs), and stock cards). Forms are not user-friendly and they are homogeneous across all types of facilities (PHUs and secondary and tertiary hospitals), even though not all facilities receive the same types of drugs and medical supplies. These forms are extensive and time-consuming (see extract in Figure 45) – there is thus a misalignment between monitoring requirements and actual capacity at the facility level. As documented by BDO LLP (2015), CHANNEL is not a very practical system as: (1) it does not allow for communication across different medical stores; (2) DMS reports have to be rekeyed at CMS; and (3) it does not collect usage data nor does it provide real-time information on stock levels. The CHANNEL system has also been unreliable because of internet and electricity outages at district levels, limited the ability of DMS to upload information on a timely basis (Amnesty International, 2011). This lack of adequate and timely monitoring makes it impossible to identify leakages or any other issues across the supply chain.

Figure 45: Extract from an RR&IV form



MINISTRY OF HEALTH AND SANITATION
Report, Request and Issue Voucher (RR&IV) for Health Commodities - FHC
PHU

Reporting Period: From ____ To ____
Facility: ____ District: ____
Requisition by: ____ Approved by: ____ Date: ____
Maximum Stock Level: ____ Months
Minimum Stock Level: ____ Months
EOP Stock Level: ____ Months
006727
Emergency Order
Voucher No: ____

No.	PRODUCT	Basic Unit	Opening Balance	Quantity Received	Losses/ Adjustments	Quantity Dispensed	Closing Balance	Estimated Consumption	Maximum Stock Quantity	Quantity Needed	Quantity Issued	Quantity Received
			A	B	C	D	E=[(A+B) +/- C]-D	F = D	G = F x 3	H = G - E	I	J
	ESSENTIAL MEDICINES											
1	Acyclovir 200mg	Tabs										
2	Albendazole 400mg	Tabs										
3	Aluminium Hydroxide 500mg	Tabs										
4	Aluminium Hydroxide susp 320mg/5ml	Bottle										
5	Amytriptiline 25mg	Tabs										
6	Amoxycillin 125mg/5ml (100ml)	Bottle										
7	Amoxycillin 250mg	Caps										
8	Amoxycillin 500mg	Caps										
9	Amoxycillin/Clavulanic acid 125/31mg	Tabs										
10	Amoxycillin/Clavulanic acid 625mg	Tabs										
11	Ampicillin 1g, im/iv, powder for inj	Vial										
12	Ampiclox 500mg	Caps										
13	Azithromycin 500mg	Tabs										
14	Anusol Suppositories	Supp										
15	Anti-Haemorrhoidal Ointment 30g	Tube										
16	Atenolol 50mg	Tabs										
17	Aspirin 300mg	Tabs										
18	Aspirin 75mg	Tabs										
19	Beclomethasone Inhaler	Pieces										
20	Bendrofluazide 5mg	Tabs										
21	Benzathine Penicillin 2.4 MU	Vial										
22	Procaine Benzyl Penicillin 1g	Vial										
23	Benzyl Penicillin IV 5MU/3g	Vial										
24	Benzyl Benzoate Lotion 100ml	Bottle										
25	Bisacodyl 5mg	Tabs										
26	Calcium Gluconate 100mg/ml	Amp										
27	Chlorpropramide 250mg	Tabs										
28	Chloramphenicol 125mg/5ml Susp.	Bottle										
29	Chloramphenicol 250mg	Caps										
30	Chloramphenicol eye drops	Tube										
31	Chloramphenicol pdr/inj 1g	Vial										
32	Chlorpheniramine 4mg	Tabs										
33	Ceftriaxone 500mg, 1g inj	Vial										
34	Cephalexin 250mg	Caps										
35	Cephalexin 500mg	Caps										
36	Cimetidine 200mg	Tabs										
37	Cimetidine 400mg	Tabs										
38	Ciprofloxacin 500mg	Tabs										
39	Ciprofloxacin 250mg	Tabs										
40	Cloxacillin IV 500mg	Vial										
41	Codeine Phosphate 30mg	Tabs										
42	Cotrimoxazole 120mg	Tabs										
43	Cotrimoxazole 480mg	Tabs										
44	Cotrimoxazole 100ml	Bottle										
45	Clotrimazole 1% cream 50g	Tube										

Comments: ... + CONSUMABLES (95)

Issued by (Name & Sign)..... Received by (Name & Sign)..... Signature of Dispatch Bay Officer: .....
Date: .....20..... Date: .....20..... Date: .....20.....

Source: OPM consultants, October 2015

Problems with monitoring are reinforced by very poor storage facilities, especially at PHU level. Generally, storage facilities are small, do not have shelves (commodities are stored in boxes) and so there is no logical system of organisation, lack temperature control, have cold chains that do not work properly, and are full of expired commodities that are stored for several months (BDO LLP, 2015). In addition, there is no way to distinguish between cost-recovery and FHCI drugs and medical supplies, which has led to some FHCI patients facing charges and increases the risk of commodity losses (Amnesty International, 2011):

> *"FHCI drugs are being mixed with cost-recovery drugs, with some FHCI drugs being charged for. FHCI drugs should be tagged. Lack of trained personnel also contributes to inadequate drugs distribution"* (District KII, Kono).

Furthermore, lack of monitoring and accountability in the distribution of drugs and medical supplies has contributed to drug misuse. Evidence from FGDs suggests that some patients expressed disappointment as, in some instances, they only received one tablet when visiting a health facility. KIIs with Pharmacy Board officials also suggest that FHCI beneficiaries sometimes seek health care with their husbands to request drugs for them. Drugs mismanagement by staff has also been reported, which is likely related to a lack of knowledge of adequate dosage and treatment for different illnesses.

Table 17 gives an idea of the overall performance of the supply chain under UNICEF between 2012 and March 2014. None of the planned outputs have been achieved, with the exception of the proportion of PHUs submitting at least one LMIS report per quarter (90% achieved as compared to a 75% target). Despite this, there has been an overall improvement in the management of the procurement and distribution of drugs and medical supplies since the beginning of the FHCI.

Table 17: Progress against the UNICEF BPEHS logframe, 2012–2014

Output	Indicator		Baseline	2012	June 2013	March 2014
To ensure the continued provision of the BPEHS through the provision of essential medicines, consumables and medical supplies	% of facilities with no stock-outs of FHCI tracer drugs	Planned	0%	45%	80%	80%
		Achieved		55%	28%	65%
Adequate provision of essential medicines, consumables and medical supplies	No. of target PHUs reporting no stock-outs of essential EmONC medicines and supplies	Planned	0	52	65	65
		Achieved		35	28	52
	No. of target hospitals reporting no stock-outs of essential EmONC medicines and supplies	Planned	0	14	21	21
		Achieved		8	12	16
Adequate management of medicines and consumables, with secured storage facilities at Central, District and Peripheral levels	% of DMS and district hospitals sending timely LMIS reports to CMS	Planned	0%	60%	90%	90%
		Achieved		63%	78%	88%
	% of PHUs sending at least one LMIS report in a quarter to the district level	Planned	0%	70%	75%	75%
		Achieved		65%	86%	90%

Source: UNICEF BPEHS Progress Reports.

5.4.3 Outstanding challenges

Given the implementation issues and subsequent results described above, there are several outstanding challenges that need to be addressed in the near future:

1. **Existence of parallel supply chains**. Given the lack of support from donors and financial resources from GoSL, responsibilities for the procurement and distribution of drugs and medical supplies lay with the NPPU and UNICEF (for some time, DFID was also procuring commodities through its own supplier). In addition, GoSL also procures cost-recovery drugs for non-FHCI beneficiaries, while the Global Fund supplies drugs for malaria, HIV and sexually transmitted diseases (Pharmacy Board, personal communication). Besides a duplication of functions, the existence of multiple parallel systems for drugs procurement and distribution hinders capacity building and institutional strengthening, which are key for the NPPU and GoSL to eventually take over the supply chain.

2. **The continued 'push' system** that, besides creating rigidities in the supply chain by not giving enough flexibility to hospitals and PHUs to demand the commodity quantities they require, also contributes to stock expiration and wastage. This system also makes it harder to manage storage space as health facilities cannot anticipate the quantities of drugs and medical supplies to be received (BDO LLP, 2015).

3. **Poor monitoring systems**. Although the SOP Manual describes CHANNEL as a comprehensive and relatively straightforward system, in reality health facilities lack the human and technological capacity to effectively implement it.

4. **Poor storage facilities**, especially at district and PHU levels. Estimations for 2015 indicate that around 20% of drugs stock throughout the supply chain are expired, accounting for around US $1.1 million in stock (BDO LLP, 2015). Poor storage also allows for mix-ups to be made between cost-recovery and FHCI drugs and medical supplies.

5. **Financial sustainability**. There are important concerns about the capacity of the GoSL to finance FHCI drugs in the long run, which cost around US $15 million per year. During the first year of implementation, US$ 12,390,000 was used for commodities procurement, of which 68% was funded by DFID, 12% by AfDB, 10% by UNFPA and 10% by GoSL (MoHS, 2011). For the first NPPU procurement in 2014, GoSL allocated US$ 3 million, with US$ 10–15 million remaining unfunded. Moreover, there is no government budget clearly allocated to the supply chain, and there is no consideration of the required complementary investments in capacity building of HRH and infrastructure (BDO LLP, 2015).

5.5 Infrastructure

Infrastructure timeline

2010	February 2010 – assessment of hospitals and BEmONC and CEmONC facilities across the country – birth of seven enablers tracking system
	February / April 2010 – team of experts in North and South of the country undertook rehabilitation work
	April 2010 onwards – various infrastructure support projects led by health implementation partners (INGOs and UN institutions)
	November 2010 – first Facility Improvement Team (FIT) assessment report, followed by quarterly reports thereafter
2011	April 2011 – introduction of the PBF, of which 40% was meant to be allocated to facility improvement
2012–2015	Implementation of the JPWF, in which facilities' development was key (within service delivery focus)

5.5.1 What changed and why?

The importance of having a functioning health infrastructure was identified as a priority by all health actors and as such a working group was dedicated to devising and implementing health infrastructure reforms. The infrastructure working group planned (MoHS presentation, April 2010) to:

- Assess the status of maternity, paediatric and five potential BEmONC facilities per district;
- Identify areas that could be improved prior to 27 April 2010;
- Undertake essential maintenance and renovation;
- Provide essential equipment and supplies and completion of capital projects; and
- Mobilise partner and government resources to address critical issues.

The overall aim was to ensure that in each district at least one hospital would be able to provide the full range of CEmONC services and five PHUs upgraded to provide BEmONC services.

The JPWF also supported an infrastructure plan led by donors (JPWF, 2012), which included:

- Construction of 39 new PHUs to address equity of service accessibility;
- Seventy BEmONC facilities and 13 CEmONC facilities rehabilitated and equipped;
- Eighteen hospitals provided with functioning equipment for the provision of critical newborn care;
- Cold rooms in all 13 districts constructed/rehabilitated and equipped;
- Waste disposal units constructed in all hospitals and 25% of PHUs; and
- Solar energy power supplies installed for ward, office and security lighting systems in all 18 hospitals and 70 BEmONC facilities.

5.5.2 Implementation and effectiveness

The assessment of the status of the BEmONC and EmONC facilities that took place in February 2010 revealed a struggling infrastructure unequally distributed across the country, with a series of underperforming enablers. Nonetheless, the transformation of the existing infrastructure following the working group and subsequently JPWF plans has had mixed success. First, the work contracted to prepare for the FHCI launch did not always materialise. The President's inspection seven days prior to the launch showed that many of the planned upgrades had not been completed, with contractors reneging on their commitments.[86]

Second, an analysis of the MoHS capital expenditure budget (see Figure 25) shows that there were substantial increases in real terms in 2010 and 2011 (280% and 110% respectively), linked to the need to develop and upgrade facilities to be used for the FHCI. Indeed, prior to the launch of the FHCI, districts were given resources to pay for rehabilitation and minor maintenance (such as tiling floors). However, there were subsequently dramatic decreases in capital expenditure in 2012, with KIIs at facility level also supporting the idea that after the initial refurbishment of facilities only minimal expenditure had occurred. Officials in facilities noted poor maintenance and refurbishment in recent years.

Furthermore, since the end of 2011, PBF support to facilities was meant to cover all infrastructure rehabilitation and maintenance recurrent costs, with minimal budget allocated from the central ministry or DHMT. To what extent the resources allocated from 2012 onwards were sufficient is unclear, although the state of the infrastructure would clearly indicate that it is grossly insufficient.

This is confirmed by district-level interviews:

> *"The only budget for maintenance is the 40% from PBF"* (District KII, Western Area).
>
> *"Facilities were improved post-FHCI but the majority have not been maintained. PBF has been used for the little maintenance that has occurred* (District KII, Kono).
>
> *"Renovation was done at the maternity section as there was leakage. All that was paid for with the 40% of the PBF – in 2013"* (District KII, Western Area).

[86] See www.statehouse.gov.sl/index.php/presidential-cabinet/65-president-koroma-admonishes-health-infrastructure-consultants-and-contractors-one-could-be-

As to the implementation of the JPWF infrastructure reforms, evidence suggests that only about 25% of the expected outputs have been produced (see Section 4.1).

Identification of the scale of the problem

First and foremost, the FHCI enabled the GoSL to clearly assess the state of the health system infrastructure. It was repeatedly noted throughout various interviews that the infrastructure problems were thus identified because of the FHCI:

> *"These issues would have otherwise remained unnoticed. The FHCI brought these things under scrutiny and attention"* (Government official at the time of the FHCI's preparation, interview).

> *"Through the initial assessment, it was established that a lot of the facilities that were to have been built through various projects (referred to as capital projects) were in fact still not ready (although they were meant to be finished in 2007/08). An essential maintenance programme was set up as a result. The President called up all contractors to explain why they had not finished the buildings. The President was furious and called them every week to know their progress of completion. The President then visited every single health district before the launch"* (Government official, interview).

A MoHS document also states that, 'The assessment showed that the infrastructure [was] weak and this was made very evident during the nationwide tour of the hospitals by His Excellency the President in early 2010' (MoHS, FHCI the way forward, October 2010).

Sustained analysis of the state of the infrastructure

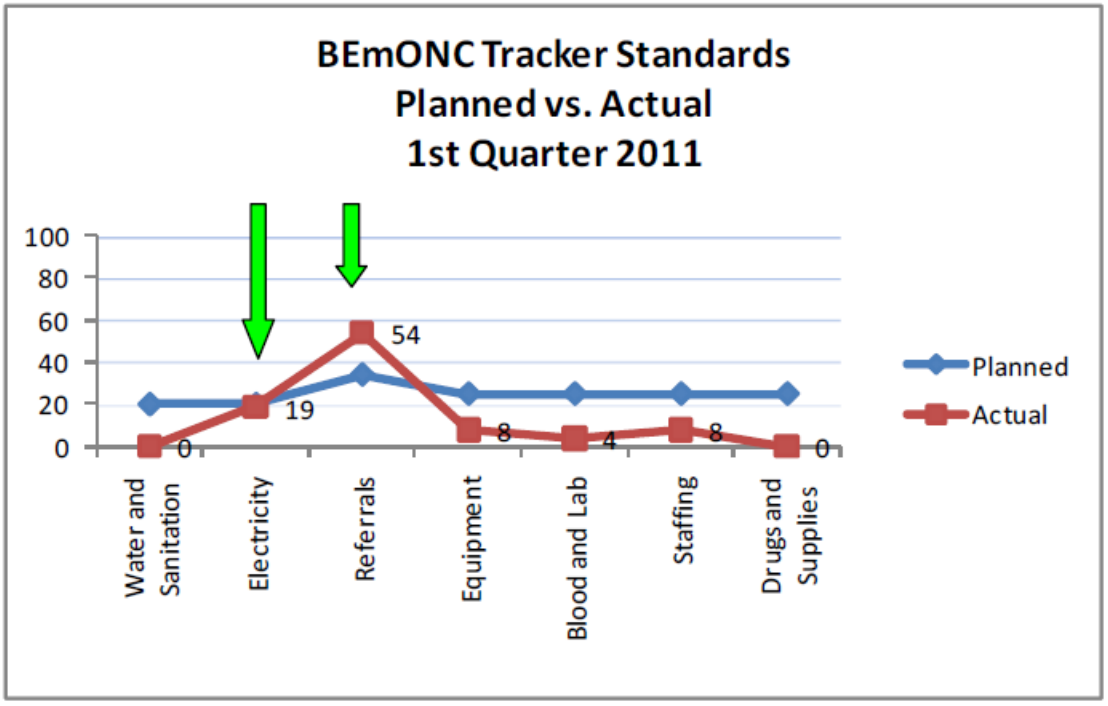
The assessment of the capacity of the infrastructure system to provide EmONC continued to be undertaken through a tracker system and the FIT assessment reports that started in November 2010, in continuation from the original assessment undertaken in February 2010. Further reports were published in 2012, 2013 and 2014. To date, 13 hospitals and 65 CHCs – five per district, roughly one per chiefdom – have been assessed on a quarterly basis (FIT Report, 2014). The initial driver for the FIT was therefore the FHCI and the continuation of these assessments is a positive outcome of the reform.

Initial improvement although slower than hoped for and still insufficient

Initial improvements in terms of overall scores were noted between November 2010 and March 2011 (see figures 47 and 48 below). BEmONC and CEmONC facilities fared better overall, although the speed at which these improvements came about was slower than originally planned. The first FIT assessments show that the actual infrastructure improvements as measured by the seven enablers were much less than expected. The figures below, for example, show that while the hope was to bring at least 20% of the BEmONC facilities to good quality standards across the seven enablers, the results across drugs and supplies availability, water and sanitation, blood, equipment and staffing were still very poor. The picture is less gloomy for CEmONC facilities but remained unsatisfactory in 2011.

Figure 46: BEmONC planned vs. actual

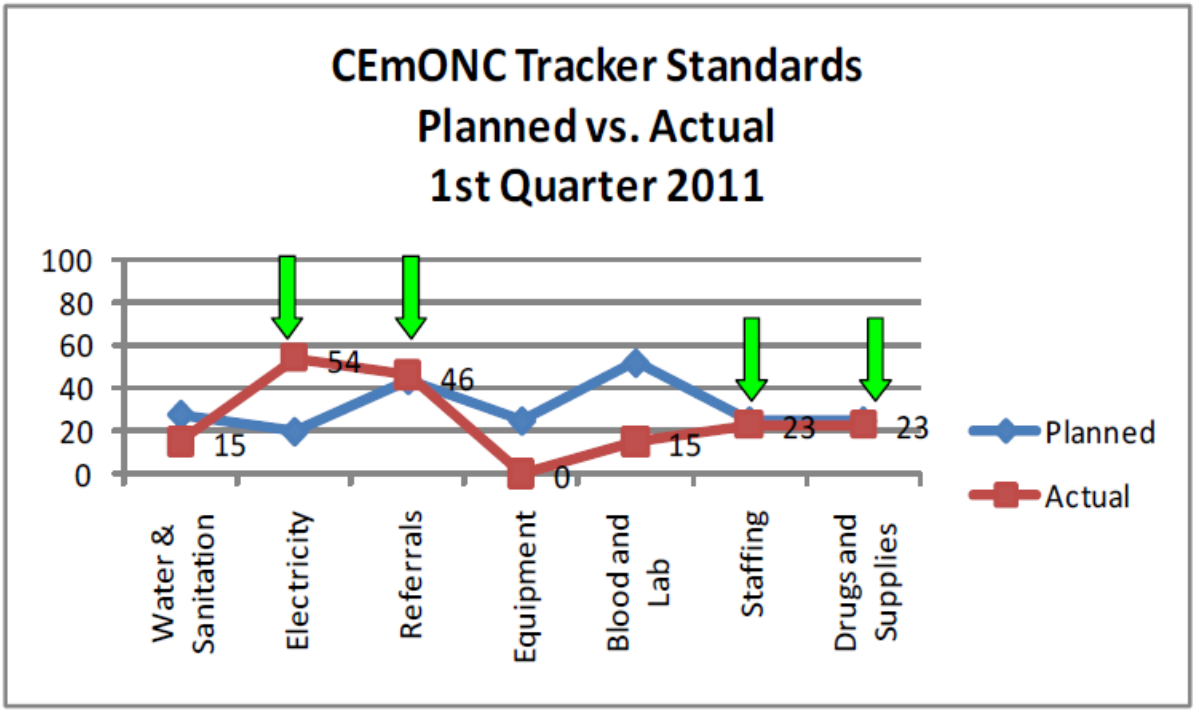
Graph 1 BEmONC Planned vs. Actual



Source: Facilities report for RCH (MoHS, 2011)

Figure 47: CEmONC planned vs. actual

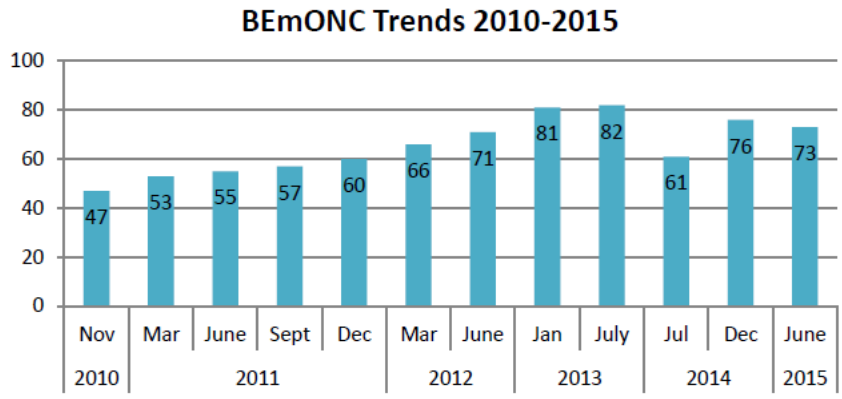
Graph 2 CEmONC Planned vs. Actual



Source: Facilities report for RCH (MoHS, 2011)

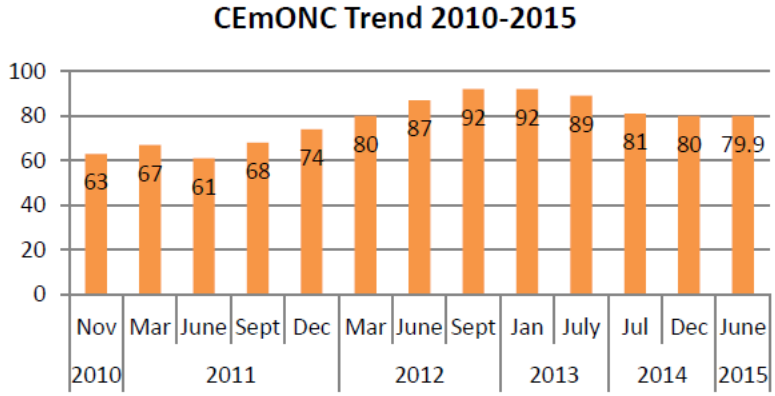
If we look over a longer period of time, however, the number of government hospitals able to deliver BEmONC rose from 47% in November 2010 to 82% in July 2013, worsened as at July 2014 (most probably because of the Ebola outbreak) but slowly recovered to 73% in June 2015 (see Figure 49 below). For CEmONC services, figures progressed from 63% to 89% (November 2010 – July 2013 respectively), worsening as at July 2014 and thereafter stabilising at around 80% as at June 2015. Whether this is solely as a result of the infrastructure reforms undertaken through the FHCI cannot be stated, although the increased level of scrutiny that infrastructure was subjected to as a result of the FHCI certainly contributed.

Figure 48: Progress of selected government hospitals in achieving BEmONC status, June 2015



Source: http://www.mamaye.org.sl/en/evidence/facilities-improvement-team-assessments-2012-2013-2014-2015

Figure 49 Progress of selected government hospitals in achieving CEmONC status, July 2013



Source: http://www.mamaye.org.sl/en/evidence/facilities-improvement-team-assessments-2012-2013-2014- 2015

Our district-level interviews confirm that the FHCI brought improvements in terms of the number of facilities providing BEmONC and CEmONC care:

> *"With the introduction of the FHCI five facilities were upgraded to BEmONC – four in the rural areas and one in an urban area"* (District KII, Kono).

> *"Pre-FHCI there were no BEmONC or CEmONC facilities. Now there are five and one respectively. The increase is definitely linked to the FHCI and the target groups. The improvements in infrastructure happened in the two years following the start of the FHCI"* (District KII, Bo).

"Previously the buildings were old and in a poor state. This has improved slightly" (District KII, Bo).

Nonetheless, the improvements remain insufficient as various health infrastructure assessments (e.g. SARA, 2011 and the FITs), our district-level interviews and community-level FGDs all show: a lack of electricity, running water, and blood for transfusions frequently makes emergency care unreliable for children with untreated malaria or severe diarrhoea, and for mothers in need of caesarean sections (Maxmen, 2013).

Indeed, there is a persistent issue with the lack of electricity and water across the districts, limiting the ability of facilities to provide services at night and to provide hygienic conditions. There were protected water sources in only 67% of the health facilities visited and only 58% have functional refrigerators (Save the Children and Health Alert, 2014). As at June 2015, only 64.6% of the BEmONC facilities and 76.9% of the CEmONC facilities met the criteria for electricity (FIT assessment, June 2015). Similarly, for water and sanitation only 73.8% of the BEmONC facilities and 80.8% of CEmONC facilities have at least one source of water. In the BEmONC facilities, only Koinadugu and Kono districts have three facilities each that are compliant for water and sanitation, while Kailahun, Pujehun, Tonkolili and Bonthe districts have no BEmONC facility that is compliant (FIT assessment, June 2015).

"The health centre has been classified as able to carry out BEmONC since 2012/13. They have a generator – but no fuel to run it (although there is solar lighting for the labour ward). The water pump has also been broken for three months and an old rain harvesting system doesn't work" (District KII, Koinadugu).

"We used to have water from a tap outside the facility but now it is not working so we get water from stream" (District KII, Western Area).

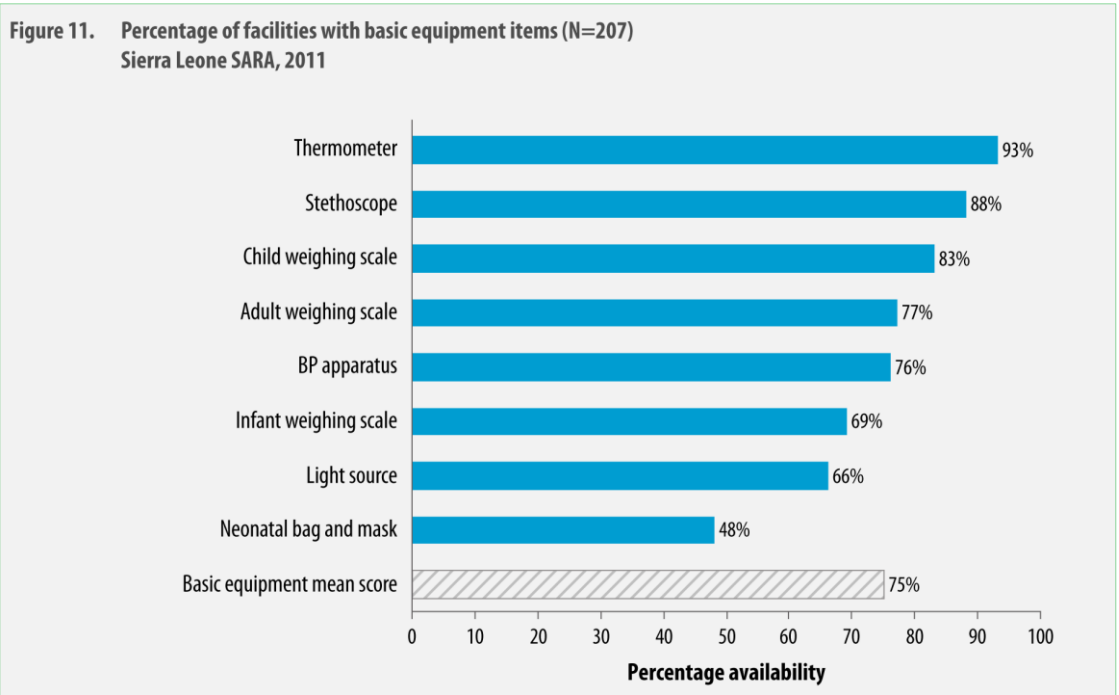
Figure 50: Baoma station water pump, Bo District

Source: OPM consultants, October 2015

Participants in Kono were especially vocal in highlighting the poor state of health facilities and equipment in the district. They shared that some facilities were in deplorable conditions and were not well managed. The unavailability of medical equipment such as scanning machines and the lack of water and electricity posed a huge problem, especially in rural areas. In some communities, there is no electricity at the facility and patients would have to provide their own source of light if they went into labour at night. In some communities, the lack of electricity and a medical storage facility such as a refrigerator prevented them from having children under five immunised, given that the distance to the next available facility with a refrigerator may be too far for health workers to go and return with the vaccines in one day (OPM and Focus 1000, 2016).

Furthermore, the improvement in terms of the equipment used at facility level is insufficient. In 2011, on average, facilities had six of the eight items, for an overall basic equipment readiness score of 75 out of 100. The most commonly available items were thermometers (93%) and stethoscopes (88%). Less than half of health facilities had a neonatal bag and mask and only 19% of facilities were fully equipped with all eight basic equipment items. Almost half of hospitals had all eight basic equipment items (48%) compared to 18% of primary care facilities (SARA, 2011).

Figure 51: Percentage of facilities with basic equipment items



Source: SARA (MoHS, 2012f)

As at June 2015, only one hospital (Pujehun) and nine BEmONC facilities were compliant with this enabler. The greatest challenge for the CEmONC facilities are shortages of equipment to perform assisted vaginal deliveries and basic equipment for routine care and the lack of chlorhexidine spray for cord care (FIT assessment, June 2015). A key informant even stated that 'the x-ray machine is as old as my grandfather' (district-level KII, Bo) and many complained about the state of equipment.

> *"We have a (non-standard) delivery bed that has been at the facility since it opened in around 2000"* (District KII, Bo).

Figure 52: Delivery bed, CHC, Bo district

Source: OPM consultants, October 2015

Figure 53: Bo district CHP delivery room

Source: OPM consultants, October 2015

Finally, the lack of blood continues to be a problem. There is inadequate space, blood bags, equipment and reagents for blood screening and storage at regional centres (Save the Children and Health Alert, 2014). As at June 2015 the combined score for blood handling and laboratory in the BEmONC facilities is 48.8%, and only 6.2% met the green criteria (FIT assessment, June 2015). Our district-level interviews consistently highlighted the difficulty with blood across districts, with patients asked to come to the facility with family members in case of need for blood.

> *"Availability of blood is very big issue. Donating blood is culturally not understood"* (District KII, Koinadugu).

Despite a recent effort to strengthen 13 hospitals and 65 CHCs nationwide and upgrade them to EmONC status, an assessment conducted in July 2014 suggested that *not a single facility* had been sufficiently upgraded to meet standards across the seven domains assessed – with a lack of necessary equipment, staffing, supplies, water and sanitation noted as frequent obstacles (MoHS, 2014).

5.5.3 Outstanding challenges

There is an urgent need to recognise the importance of the state and readiness of the infrastructure to tackle MCH issues. In particular, it is necessary to increase the budget allocated for capital and recurrent expenditures with investments focusing on access to water and electricity, improvements in equipment, and investments in blood availability.

These continuing challenges erode the trust of the population in the services provided, and pose a serious threat to the quality of care provided.

5.6 Monitoring and evaluation

M&E timeline

2008	DHS conducted
2009	Development of the DHIS to capture HMIS data (not specifically linked to FHCI) DHSBS conducted (not specifically linked to FHCI) M&E subcommittee set up
2010	Development of the FHCI M&E strategy Strengthening of the forms used to capture data at the health facility level Regular M&E reports submitted to the FHCI Steering Committee Production of the first quarterly health bulletins
2012	DHIS system freezes and data from 2010 to 2012 are lost Complete change of staff in the section dealing with health M&E and HMIS Production of health bulletins stops
2013	New staff recruited to work on HMIS and data from April 2011 put back onto the system from district back-ups DHS conducted (not specifically linked to FHCI)
2015	M&E subcommittee is re-established after a period of inactivity Proposals developed to re-introduce the production of health bulletins

5.6.1 What changed and why?

Before the start of the FHCI in 2010, Sierra Leone's M&E system for health was weak. However, there have clearly been positive changes to the M&E system in the last five years and some of these are directly linked to the FHCI.

During the preparations for the initiative in late 2009 and early 2010, the Directorate of Policy, Planning and Information (DPPI) within MoHS was given a much more explicit role in monitoring and data issues. It coordinated the M&E work within and outside MoHS and took the lead in the M&E working group that was formed for the pillar.

The M&E working group was active immediately before and after the FHCI's launch. Minutes of meetings and other documents show that the group contributed in the following areas:

- An M&E strategy for FHCI was prepared in early 2010;
- Regular reporting on key indicators was carried out for the first few months of the initiative; and
- The HMIS system was developed, to incorporate revised data collection forms, the collection of a wider range of variables, and electronic transmission of data between districts and MoHS.

In addition to the activities of the working group, there was also the development of independent data collection by the HFAC, as mentioned in Section 4.1.

Our interviews with staff in DHMTs and health facilities confirm that they have seen changes to M&E practices in recent years. These have provided better structures for M&E and partly improved its effectiveness.

> *"Monitoring has increased dramatically since the FHCI"* (District KII, Kono).

> *"Before the FHCI there was some M&E but it was not effective. But now it is really well structured. There is a really good system in terms of data collection"* (District KII, Western Area).

The start of the FHCI brought an increase in the number of people who were involved in data collection, a clearer indication of this in their job descriptions, and an increase in the level of priority for M&E work. The number and length of forms also expanded.

> *"Before the FHCI there was no motivation to move around to collect the reports. Now it's part of the job description and we're given a motorbike and fuel"* (District KII, Koinadugu).

> *"The FHCI brought in a number of changes, including more data operators and a number of new forms"* (District KII, Kono).

Supervision and checks by the DHMT teams have also expanded since 2010. The additional supervision is seen as helpful by health facility staff. It also involves new consistency checks and unannounced spot checks that aim to improve data quality. There is also evidence that improvements in data collection are often discussed at the monthly district 'in-charge' meetings.

> *"The system has consistency checks, e.g. to prevent wrong large or small values, and also to cross-check between, say, the number of vaccines used and the number of children vaccinated"* (District KII, Bo).

> *"We find errors by comparing figures with previous trends to see if they look right"* (District KII, Kono).

> *"We get supervision from DHMT every two to three months"* (District KII, Kono).

How the changes were implemented

M&E was identified as an important area of work at the start of the FHCI. Despite this evidence arising in the national-level KIIs suggests that it was not a main focus of attention as the FHCI was being developed and launched. As a result, the M&E work was not implemented as effectively as it could have been.

The M&E subcommittee was certainly active in 2010. This is clear from the minutes of the FHCI Steering Group, which mention their work on the M&E strategy and their regular reporting. However, we have found few references to the work of the M&E subcommittee from around 2011 to 2014 and it does not appear to have been active during these years.

Interviews with UNICEF suggest that aspects of the M&E strategy that were implemented included: continued strengthening of the HMIS/DHIS system and the improvement of the health facility data collection forms; quarterly health bulletins; monitoring of key tracer drugs; and two reviews of the

FHCI in 2010 and 2011. However, we have not been able to explore these areas in further detail due to the lack of institutional memory and missing documents.

The HMIS was developed primarily by a small group of external consultants from the University of Oslo working with DPPI staff. These consultants are now no longer in the country, although DPPI staff can contact them.

A series of data forms was developed for each health facility to complete each month. The forms are completed by the health workers at the facility and are collated at the district level and then transferred to the MoHS. The information is now transferred electronically from the districts to the ministry. According to MoHS there has been a rise in the proportion of facilities completing the forms to around 90% (Health Information Bulletin, Volume 4, Issue 2, MoHS, 2013). However, our exploration of the database shows that the amount of data present does not seem to reflect this. Interviews with HMIS staff suggest that the returns from many health facilities have missing values.

Furthermore, although DPPI produced quarterly health bulletins starting in 2010 these stopped in 2012. A new series is now planned and the first of these was produced in late 2015.

5.6.2 Implementation and effectiveness

M&E subcommittee and strategy

In terms of its membership, there does seem to have been a broad range of government, NGO and development partner representation. There was, however, no representative from SSL. This would have been a significant weakness, particularly in the area of exploring how the survey data and the management information could be used together, as participants in national-level KIIs attested.

At the ministry level, the DPPI has suffered significant levels of staff turnover among those working on M&E issues in the last few years. This has led to a large loss of institutional memory and expertise and hampered the creation of a robust M&E system.

One potentially key piece of work by the M&E subcommittee was the FHCI M&E strategy. It was extremely difficult to track down a copy of this. There were also very few people who could remember its contents or its implementation, which is a strong indication that it was not effectively put into practice. In terms of its contents, its focus was in four areas:

- improving the HMIS;
- strengthening community monitoring through ward development committees;
- establishing effective feedback and review mechanisms; and
- developing supervision and audit systems.

The proposals in each of these areas were generally weak and the evidence from our review suggests that the strategy was poorly implemented.

For the HMIS, the focus of the strategy was on printing registers and cards for the health facilities to record information. Improved availability of these documents was, and remains, an important issue – but the strategy is missing discussion of much more significant areas. For example, there is no mention of assessing the strengths and weaknesses of the system and addressing these, and nor is there any reference to assessing and improving data quality and relevance.

In terms of community monitoring, there are very few details on the proposed role of the ward development committees. In our district interviews, there was no mention of them being involved in FHCI M&E now or at a previous stage.

Moreover, the strategy does recognise the importance of review and feedback mechanisms. It proposes a hierarchy of monthly, quarterly and annual processes at district and national level. However, there is little substance to the proposals and we have found little evidence that they were effectively implemented.

On the fourth area – developing supervision and audit systems – our interviews at district level did find that supervision took place, that it was seen as useful and that it uncovered errors and weaknesses staff could then correct. But it was also clear that the amount of supervision undertaken is only a small fraction of what is needed to create a robust and good-quality data collection system.

Data availability and quality

The issue of collecting baseline data at the start of the FHCI was discussed before its launch but no action was taken. This lack of baseline data presents a significant hurdle in conducting a review of the FHCI's impact. There were two key reasons for not collecting data at the start of the initiative: first, the speed at which the FHCI was introduced did not allow time for new data collection; and, second, there do not seem to have been the resources available to pay for a baseline assessment.

In terms of wider data, there has certainly been an increase in the amount collected through the HMIS. There are, however, concerns with the quality of the data. Our explorations of certain variables show that health facilities have missing data for between 20% and 40% of cases. In addition, a review by Options Consultancy (2015) shows that there are large variations between the figures recorded in the health facility registers, the summary sheets at the district level, and the data recorded centrally in DHIS. The Options review looked at the impact of the Ebola situation on HMIS data quality but it found that these weaknesses existed both before and after the onset of the virus. Both the missing data and the inconsistent data mean that the HMIS dataset is likely to contain significant biases within it.

HMIS data from before April 2011 are not available. The DHIS software used to hold the data was upgraded in 2012 but the system initially froze as a result. This led to a complete loss of data. DPPI staff were able to restore data from April 2011 onwards from back-ups but there is no HMIS information on the DHIS system from the early period of the FHCI or from before its start.

The HMIS data collection system has been strengthened to use electronic transfer of data over the internet from districts to the MoHS. But poor access to the internet has made this process difficult in some areas and is likely to be behind some of the data gaps that have been observed. In addition, the districts currently use stand-alone versions of the DHIS and this also hinders the smooth transfer of data to the centre.

Figure 54: Hospital records drying in the sun

Source: OPM consultants, October 2015

Availability and use of monitoring outputs

Regular reports were initially submitted to the FHCI Steering Group showing facility response rates and service utilisation. At the time, members of the Steering Group noted that the monitoring reports showed unusual and unexplained trends, but according to national-level KIIs there was little further discussion either about the data itself or what lay behind the trends.

The M&E strategy does contain a table of indicators and targets for the FHCI; however, we have not been able to find evidence that there was ever any reporting of progress against these targets.

Until recently there were very few regular reports produced by DPPI. Data have been provided to other parts of MoHS and external partners on request but this has not typically been accompanied by information on data quality or interpretation. According to national-level KIIs, staff at the DPPI are hoping to move forward in developing regular outputs, assessments of data quality and more interpretation in the next year.

As noted above, there are issues with the completeness and consistency of the monitoring information collected by HFAC. Concerns have also been expressed about HFAC monitoring by other stakeholders:

> "*HFAC does produce some reports but these are only shared with government. The process is not inclusive"* (District KII, Bo).

In theory there should be annual health sector reviews led by MoHS. These would be the appropriate time to review monitoring reports and assess progress against the original FHCI targets and objectives. These annual reviews do not seem to be happening regularly (only one

was produced, in 2011). So far it has also proved difficult to obtain any regular reporting of FHCI progress from the M&E system.

Overall, we have found little evidence that there was a deliberate effort to link the results of the M&E outputs to policy and accountability processes.

5.6.3 Outstanding challenges

There remain significant outstanding challenges for the M&E system in the health sector. This has been recognised by MoHS and in 2015 DPPI reconvened an M&E technical working group with a wide range of stakeholders to take forward this work. Our review of the M&E pillar highlights outstanding challenges in the following areas: strategy and work planning; data sources; data quality; and encouraging the use of data. Ebola has also had an effect that needs to be taken into account.

Strategy and work planning

A new strategy is needed to provide an overarching framework for the M&E work in the health sector. It should start by looking at what is required in terms of M&E and then design/redesign the system to deliver this. A clear time-bound work plan is also required, including costs and indications of the relative priority of each component. The strategy and work plan need to be underpinned by consultation with current and potential users of the M&E outputs.

Data sources

The focus so far has been primarily on the HMIS data. Further work is necessary to design a coherent set of data sources including management data, surveys, censuses, vital registration and surveillance systems. Each of these types of data source will have different strengths and weaknesses and they need to be considered and designed together to produce a cost-effective and appropriate system.

Data quality

Poor data quality is one of the main weaknesses with the existing system. This affects both the administrative data from HMIS and the survey sources such as the DHS.

Areas that require particular attention are improving the completeness and accuracy of the data at the facility level, increasing the amount and effectiveness of supervision by DHMT staff, developing and implementing robust quality control processes, and reporting on data-quality issues alongside data analysis. In addition, the quality of the various sources can also be assessed and improved by comparing and contrasting the pictures shown by the various sources.

Encouraging the use of data

In general, the main factors that drive improvements in the availability and quality of data are the level of demand for the data and how much they are used. A high demand for data provides a strong incentive for data producers to strengthen and expand their data collection. Intensive use of the information can highlight the strength and weaknesses of the various datasets, helps identify areas that can be improved and demonstrates where resources can best be directed. The use of data has been an area of weakness for Sierra Leone's health sector. This should be a focus area in the future.

Impact of Ebola on the M&E system

The Ebola situation has had both negative and positive effects on the health M&E system. Much of the data are collected by health staff at the facility level and collated and checked by members of the DHMT. During the Ebola period these staff will have been stretched and the data collection will almost certainly have suffered. Response rates from health facilities are not yet available for this period but it is likely that these will have dropped as staff resources were focused on addressing Ebola. The accuracy of the data is also likely to have suffered.

However, our district-level interviews did show that Ebola has brought some benefits to the data collection system. Efforts to collect information on the number and causes of deaths were improved significantly during the Ebola period, and this process attempted to cover all deaths, not only those from Ebola. If this data collection is continued and improved in the coming years, it will fill a large gap in Sierra Leone's Health Information System.

5.7 Communications

Communications timeline

2009	November 2009 – communications working group created
	January 2010–April 2010 – series of communication initiatives
2010	April 2010 – FHCI launch event at Cottage Hospital and across various districts
	May 2010 – 'One month on' briefing
	October 2010 – six-month anniversary
2011	April 2011 – One-year anniversary (followed by yearly anniversaries since then)

The communications pillar is unusual for two main reasons: first, national-level KIIs suggest it was not seen as a priority despite a working group being created to tackle FHCI-related communications. Second, this working group's function was to prepare the launch of the FHCI, with little attention given to the post-launch side of communication. The MoHS did have a communication expert, but his capacity was limited due to lack of funding. As such, all the information provided below is related to FHCI-specific communications rather than the communications of the MoHS as a whole.

5.7.1 What changed and why?

Removing user fees for target groups has proven, in other countries undertaking a similar reform, to be a potentially controversial policy choice: health workers may worry about the loss of revenue and the increase in workload, non-targeted groups may resent being left behind, and target groups may not fully understand their entitlements. As a result, communication was identified as a vital element for the successful implementation of the FHCI. US$ 3 million was planned to be allocated to support all communication-related activities (GoSL, 2009a) and a communication working group was set up during the preparation phase.

This working group's aim was to communicate the policy widely to:

- **Policy-makers/managers**: Clearly communicate the policy change and implementation roles and responsibilities (duty bearers).
- **Health workforce**: Clearly communicate about the change, eligible services and recipients, and support that will be provided for policy implementation (duty bearers).
- **General population**: Inform about the change, eligible services and recipients, and signal that user fees removal is about valuing care seekers (rights holders).

A full communication strategy was developed. This strategy identified four types of audiences (health care providers, the general public, policy-makers (non-MoHS) and community leaders and groups) (see Table 18 below for a summary of the audiences and channels used for each). Detailed activities and timelines according to audience were developed. However, this strategy was only partially implemented due to lack of funding. Indeed, the US$ 3 million originally promised did not materialise and the working group had to fundraise for each activity it wished to undertake.

Table 18: Audiences and channels

CHANNELS	Traditional media				Outdoor media		Partnership promotion		Influential local/peer promotion			Other	
AUDIENCES	Radio	News-papers	TV	Internet	Billboards	Flyers & posters	On-pack promotion with companies	Promotion through community structures	Peer-2-peer word of mouth	Community/ religious leaders	Town criers / Court Barray	Formal reports & surveys	Lobby-ing
Policy-makers													
Donors													
Senior government / Other ministries													
Parliamentarians													
Senior religious leaders and judiciary													
Paramount chiefs													
Councillors													
Health providers													
1 - Freetown/senior													
2 - District management													
3 - District qualified													

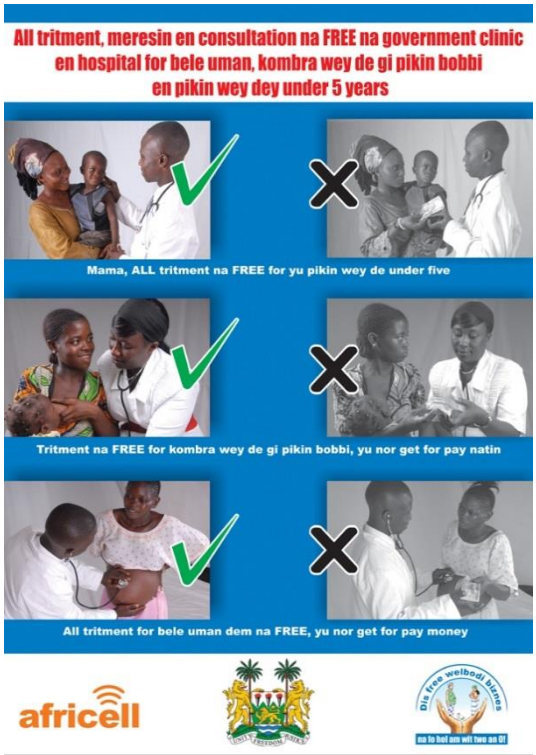
4 - District low-qualified MoHS													
5 – District non-MoHS													
Public													
Lactating, aged 12–20													
Lactating, aged 20+													
Pregnant, aged 12–20													
Pregnant, aged 20+													
Grandmothers													
Fathers													
Community leaders/groups*													
Religious leaders													
Traditional leaders													
Comm. groups rural													
Comm. groups urban													
Secret societies													

Source: FHCI communication strategy (final), January 2010.

Within this strategy, a long list of activities per target group was developed. Some of the key activities included:

- Messaging to the population through various means including radio interviews and a jingle in local languages;
- Launch events in Freetown and at district levels;
- Three-month and one-year anniversary events;
- District workshops with health workers;
- FHCI brochure;
- District letter from the President explaining the policy;
- Organisation of district tour by chief nurse and eight other nursing staff in April 2010 prior to launch;
- Film on the policy process developed by partners;
- Letter to health workers explaining the reform;
- Regular media round-ups to assess the extent of media exposure; and
- Development of posters for patients at health facility level (see example below)

Figure 55 Poster for patients



5.7.2 Implementation and effectiveness

Lack of funding

Of the above list of interventions, all have been implemented according to informants in the national-level KIIs. However, the US$ 3 million that had been required to undertake these activities did not materialise, which meant that the MoHS was left scrambling for funds and making last-minute requests to various donors. This was not conducive to a strategic approach to communications, and underlines the lack of support this pillar had throughout the preparation and after the launch.

Communication with policy-makers and managers

The communication with health implementation partners and policy-makers across the government was a defining feature of the FHCI prior to its launch, and was facilitated for example through the working group meetings as well as the presidential letter referred to above and district-level visits by the Chief Nursing Officer and the president. However, the level of communication and integration across policy-makers dramatically reduced after the launch, when international health partners' interest in the initiative seems to have dwindled (at least according to national-level KIIs). Indeed, these national-level KIIs also suggested that the communication interest of many stakeholders centred on the 'branding' opportunity the FHCI represented. Once the FHCI had been launched, partners were much less interested and abandoned the working group and its initiatives:

> *"After the launch itself, all energy was lost and you would go to working group meetings and find them nearly empty, only with government staff. Most of the external stakeholders had lost interest – UNICEF and WHO stayed but focus was lost straight after. We all knew that might happen"* (MoHS communications staff at time of preparation and launch).

Communication with health workers

The initial communication with health workers came after the presidential announcement in September 2009. As a result, and because of a fear of additional work and loss of revenue, health workers went on strike. After an increase in their salary (detailed in Section 4.3) and the implementation of a series of communication approaches (e.g. letter to health workers, district-level workshops, training on the FHCI, district-level letter by the President explaining the policy, etc.), the situation settled. Our district-level interviews confirm that clear efforts were made in briefing health workers thoroughly before the launch and after the launch through workshops and training sessions, although some still heard the announcement over the radio.

> *"The message about the FHCI came from DHMT around three months before the launch. The CHCs and DHMT then worked together to tell the communities"* (District KII, Bo).

> *"The Minister of Health came to Kabala and the SAS came too"* (District KII, Koinadugu).

> *"The first real information on the FHCI came from listening to the President's April 2010 speech. After this we were invited to a workshop in July 2010 at the DHMT in-charges meeting. This gave more information about how the FHCI would work and the target groups. The health minister visited several districts including Bo to talk about the FHCI around this time"* (District KII, Bo).

Effects and effectiveness of the communication reforms

Based on the available evidence gathered, a number of conclusions on the effects of the communication work around the FHCI can be drawn:

Successful communication with policy-makers and managers

The evidence from both district- and national-level KIIs suggests that district-level managers were made aware mostly prior to the FHCI of the rationale for the FHCI and were on board in terms of its implementation.

Good communication with the population

Awareness-raising campaigns targeting the population were perceived as successful by some CSOs. There was indeed a substantial increase in communication through various means (e.g. radio programmes, newspapers, television and street theatre). Civil society groups also argue that they played a crucial role in the success of the awareness-raising and that without their

support communication with the community would not have been possible. As a result, attendance to facilities soared immediately after the launch.

Figure 56: The main children's hospital in Freetown on 27 April 2010 at 8am

Source: SAS Kargbo

Clear guidelines to health workers

The communication with health workers was successful in that, as a result, all health workers were clear as to the target groups and what was or not included in the FHCI.

5.7.3 Outstanding challenges

Despite these successes, there are still, after five years, misconceptions as to the breadth of the FHCI: some members of the population believe that the FHCI is meant to benefit everyone (see Section 5.3.3).

The approach to communication around the FHCI seemed to take it as a one-off event (although anniversary celebrations do take place), which meant that the need for constant strengthening of the message of the FHCI is lost. It is lost on the population but also on district managers, policy-makers and donors, who all need a constant reminder of what the FHCI is meant to do and the reasons why it was introduced in the first place.

Communication should therefore be recognised as essential to the success of any policy reform and an appropriate level of budget therefore allocated to it; it should be continuous and messages should be regularly reinforced, mainly through radio channels for the population and further district-level efforts for managers and donors. This implies a need for capacity building across the MoHS at national and district level and integration of communication for all new programmes.

5.8 Summary of findings on the implementation of core interventions

5.8.1 Increase in resources

One fundamental goal was to increase resources to support health services for target groups. Estimates of the amount needed *ex ante* were somewhat hastily assembled – it was estimated that US$ 20 million of additional funding was needed in year 1 of the FHCI, largely for logistics and staffing costs. According to the MoHS 2012 figures, US$ 51.5 million and US$ 85 million were disbursed for the FHCI in 2010 and 2011 respectively, with substantial contributions from DFID and the Global Fund, among other partners, although figures differ. Judging overall adequacy is hard, as the costing was not systematic and the nature of the FHCI makes judging it as a free-standing package inappropriate.

To address this, we have looked at the additionality of funding for the sector as a whole over the period. Results vary according to whether nominal or real growth is analysed, the period of analysis and whether total or public health expenditure is included. Public financing shows strong increases in 2010, the first year of the FHCI, but falls in real terms over time, whereas donor financing continued to increase, albeit marginally in real terms. While an important result, it is important to note that with high inflation during this period it is perhaps slightly less surprising that government expenditure was unable to maintain this 2010 increase in real terms. Perhaps more interestingly, expenditure as a proportion of overall government expenditure increased slightly in 2010 and 2011, although it declined again in 2012. The preliminary conclusion is that the FHCI probably contributed to an overall increase in public funding for health care, particularly in its early years, but may also have been a reaction to increased donor (and to a lesser extent government) support in 2009, which may have given the government the confidence to launch the FHCI.

Government expenditure on health per capita increased from US$ 3.1 in 2009, to US$ 5.2 in 2010 and US$ 6.5 in 2011 (although these were more modest increases in real terms), suggesting that the FHCI continued the upward progress from 2009, although expenditure remains very low compared to the recommended US$ 86 for an essential package of health care (McIntyre and Meheus, 2014). Progress toward the Abuja target – a key target indicator as part of the FHCI – improved in 2009 to 2011, although this decreased significantly in 2012, which potentially suggests that the initial commitment to health reduced somewhat.

5.8.2 Timeliness, adequacy and reliability at facilities

Prior to the FHCI, facilities were highly dependent on user fees, especially at primary level, which limited their ability and willingness to exempt users from fees. The FHCI led to an initial provision of funds to the hospitals to cover non-salary recurrent costs, but it took longer for bank accounts to be set up for PHUs. An initial disbursement of facility finance was followed in 2011 by PBF, which linked funding to primary care units to the meeting of targets relating to the quantity and quality of Reproductive, Maternal and Newborn Health (RMNH) services.

Systematic before-and-after data on health financing at facility level are missing, but we know from a survey in 2012 and from our district-level KIIs that facilities were largely using funds for maintenance, incentives to health care volunteers, support to community outreach programmes, and support for medical consumables.

Resources to local councils increased significantly, growing in real terms in 2009 and 2010, although they largely stayed static thereafter and actually represented a decline as a proportion of the MoHS total expenditure, given the massive increases in payroll. There was a very large increase in expenditure through PHUs in 2010 (both in nominal and real terms). Based on preliminary 2013 results it appears that this increase continued in both nominal and real terms. The majority of this financing through PHUs was managed by non-government entities (mostly individual households, as well NGOs and other donor programmes). The FHCI may have contributed to increasing resources to the primary care level, including through PBF, which is focused on PHUs.

5.8.3 Improved resource management and planning

In addition to concerns relating to the volume and quality of funding, the evaluation was interested in assessing whether the public financing system had been strengthened over the FHCI period. Delays in receiving funds from the MoFED, underspends by the ministry and volatility in funding

had been noted in the period before 2010. Budget execution has continued to be volatile since, suggesting that systemic weaknesses may still be present.

Delays in the arrival of funds have continued through 2012 and 2013, according to tracking surveys, and these delays are linked to a number of systemic weaknesses, including weak planning and cash management, a reduction in overall heath financing by government in 2012, centralised decision-making, disincentives to report in a timely fashion for districts and weak financial management capacity at the DHMT and hospital levels. A number of operational constraints and inconsistencies relating to PBF payments were also picked up by a monitoring study in 2014.

5.8.4 Governance

The provision of budget support by donors, and their increased funding for the FHCI, also led to more focus on governance and PFM systems, initially through the working groups. This was formalised by the preparation in 2011 of the JPWF (2012–2014), which was introduced to support the NHSSP and preceded the Health COMPACT. This COMPACT provided a framework outlining the roles and responsibilities of the GoSL and its partners in implementing the NHSSP. The framework in part was based on concerns regarding the sustainability of the FHCI, and the need for a coordinated government and development partner response. To that extent, the FHCI accelerated this process.

However, weaknesses in PFM have meant that the potential opportunities for the FHCI to bring greater budget certainty and coherence between GoSL and developments partners have been limited. There was continuation of volatile funding (from government and donors), different templates for reporting, and development partners continuing to provide significant off-budget funding.

Although the reputation of the MoHS may have been strengthened – it is now seen as a ministry that can deliver on a core public policy commitment – the continued corruption scandals are testimony to continuing weaknesses in government and financial controls, which have disruptive effects and undermine donor confidence.

5.8.5 HRH

The HRH reforms linked to the FHCI took place in two waves – the first, in 2010, involved fast-track recruitment and deployment to fill gaps in staffing, payroll cleaning to ensure that 'ghost workers' were taken off the payroll (and those who were working unpaid – the many 'volunteers' - were added), and a substantial salary uplift to ensure that health workers were adequately paid and motivated to handle the increased workload without imposing informal charges on users. In the second round of HRH reforms, in 2011–2012, a system of monitoring staff absences, linked to a new staff sanction framework, aimed to ensure that the now more generously paid staff were actually at work. Another policy introduced during this period were performance-based funding to facilities, which could meet the dual need of providing some small flexible funding at facility level to replace lost user revenues and providing a direct incentive to staff to provide priority services. Finally, a remote allowance was introduced in January 2012 to encourage staff to take up postings in more rural, hard-to-serve areas. Since then, the pace of change has slowed, although work is now ongoing again, in response to the Ebola crisis, including on revising the training curricula and other longer-term reform measures.

Assessment of the effectiveness and effects of these changes, undertaken with ReBUILD, found that the first phase was effectively implemented but the second phase less thoroughly, with a loss

of momentum for reforms over time. Documented effects include: increased staff numbers; a more robust payroll, which generates savings; better motivation and retention of staff; and reduced absenteeism. These gains are attributed to the political will and coordinated donor support for the FHCI, along with the deployment of technical assistance to support the implementation of reforms in a timely way.

However, a number of HR challenges remain to be tackled to ensure that the FHCI's momentum is carried through. These include the decentralisation of HR functions to ensure greater responsiveness to district needs and ability to performance manage staff effectively, developing integrated packages to retain qualified staff in remote areas and in shortage cadres (or those with high attrition levels), revising training curricula (including to improve staff ability to control infectious diseases, as illustrated in the Ebola epidemic), and verifying staff competences.

5.8.6 Drugs and supplies

It was recognised that improved procurement, distribution and management of drugs was essential to the success of the FHCI. Given the weaknesses in the existing systems and the urgency of the launch, the procurement of drugs was contracted to UNICEF, with a longer-term plan of establishing the NPPU. This was enacted in 2012 but is still not operational.

Results show that drugs shortages have continued to varying degrees, although the supply chain is better than before the FHCI. Although the FHCI allowed for a general improvement in access to drugs and medical supplies, monitoring systems, and storage facilities, the procurement and distribution system is still ineffective and faces important challenges in the near future.

Outstanding challenges include (1) the handing over of procurement and drugs management to the NPPU, which is clearly needed for longer-term sustainability; (2) improving the LMIS data; (3) addressing ongoing delivery and storage issues, and (4) improving regulation to prevent informal transactions, have some level of oversight over the private sector and more importantly, to guarantee the quality of the drugs and medical supplies that are procured and delivered. Both improved monitoring and regulatory frameworks should enhance accountability of supply and distribution processes and thus provide the necessary conditions for a smooth transition towards an effective "pull" system.

5.8.7 Infrastructure

No systematic assessment of the state of health infrastructure had been undertaken prior to the FHCI and significant problems were noted in the survey done in February 2010 in preparation for the FHCI. FIT assessment reports show linear progress in 2010 to 2013, with the number of government hospitals able to deliver BEmONC rising from 47% in November 2010 to 82% in July 2013, and from 63% to 89% in the same time period for CEmONC services. The FHCI contributed to this through its focus on the need for service readiness for the target groups, although independent projects were already investing in RMNH before and after the launch (see section 8).

Outstanding challenges include the need to complete the work to meet the standards for the selected hospitals, and improving water access and sanitation, paediatric wards and blood banks in district hospitals as well as ensuring access to electricity across the facilities.

5.8.8 M&E

The health M&E system before the FHCI was weak and it is clear that some improvements have subsequently been made, including more structured data collection, improved supervision of data gathering and an increase in the amount of data. However, overall the M&E work developed for the FHCI was not as effective as it should have been and there remain significant weaknesses.

Although M&E was identified as one of the supporting pillars of FHCI, it was not given sufficient emphasis or resources. As a result, the activities of the M&E subcommittee quickly declined after 2010. No baseline data were collected before the launch of the initiative and this has hampered the assessment of the impact of the FHCI. The M&E strategy that was developed did not cover key areas such as the quality and coherence of data or the use of the information and reporting. High levels of staff turnover within DPPI and a corresponding loss of institutional memory also affected progress.

There were also problems with the quality of the health data and these remain. The database holding HMIS data does not contain data from before April 2011; this information has been lost. A review by Options Consultancy showed that there were large inconsistencies in the information as it is transferred from health facility to district level to MoHS. Our examination of the HMIS dataset showed that the level of missing data is high. The survey data also suffer from known quality problems. All these issues mean that health-related M&E work is likely to contain unknown errors and biases.

The major factor underlying these problems is that there is a low demand for M&E and the information is rarely used. Increasing the demand for and use of data is one of the main ways of increasing incentives to data producers to improve and expand M&E outputs.

The main outstanding challenges in this pillar are to develop a robust overarching health M&E strategy, consult users on their priorities for M&E, improve the quality and coherence of health data, and develop new and innovative ways of increasing the demand for, and use of, health M&E information.

5.8.9 Communications

A detailed communication strategy was drawn up in January 2010, along with materials targeted at different groups. There is evidence of widespread activity by government and civil society in 2010–2011. A HFAC survey in 2011 found 95% awareness of the FHCI in general (with variation by district), but correct identification of target groups was lower (82%) and many thought the initiative was of finite duration.

While an original budget of US$3 million was promised, it was not forthcoming and this hampered the breadth of communication activities. Since then, the energy to support communications initiatives has dwindled.

Outstanding challenges include developing a more integrated and long-term approach to information, education and communication, with adequate budgets and a proactive approach. This would have been of obvious utility during the Ebola epidemic and could also have been deployed early with sectoral stakeholders such as health staff to prevent industrial action (e.g. during the run-up to the FHCI launch).

5.8.10 Overall

The FHCI really was a systemic change, which was both its strength – the underlying health system prerequisites for the fee change to work were well identified and plans laid to address them across the health system pillars – but also of course a source of risk, in that the ambition to change was large. Addressing such a wide range of issues across a relatively weak health system has meant that, while the needs were well identified in most pillars, many reforms were partial or partially effective, that gaps remain, and that the challenges to sustainability are real.

This raises an evaluative judgement of what the yardstick for success is. The FHCI aimed high and within the health system arena appears to have met many, but certainly not all, of its targets. The question of how these achievements compare to the investment is returned to in Section 9.

6 Unpacking effects – outputs

6.1 Did the FHCI achieve improved service uptake, coverage and equity for the target groups?

In this section, we examine the available evidence on changing uptake and coverage of key services for the target groups, including family planning, ANC, delivery care, PNC and care for children under five (preventive services and curative consultations). The focus is on examining trends and whether there is evidence of a shift around the time of the start of FHCI, both for overall coverage but also broken down by quintile, region and rural/urban residence. On the basis of this we can draw conclusions about whether the FHCI has contributed to changing coverage and equity of coverage of essential services.

6.1.1 Family planning

Family planning is argued to be one of the most cost-effective health interventions and became free as part of the FHCI. It reduces maternal mortality through enabling women to time their pregnancies – such that they do not get pregnant at too young or old an age or too soon after they have recently delivered. Spacing births also contributes to reducing child mortality by enabling women to leave at least two years between births (Smith et al., 2009). Global access to some form of modern contraception is close to 60%, with unmet need ranging from 6% in Europe to 23% in sub-Saharan Africa. It is estimated that 41% of pregnancies are unwanted, and that 22% result in induced abortion. If these estimates are accurate, between one-quarter and two-fifths of maternal deaths could be prevented just through avoiding unwanted pregnancies (Campbell and Graham, 2006).

Knowledge of family planning is widespread in Sierra Leone, with more than 95% of both men and women knowing about a contraceptive method. Moreover, the use of a modern method of contraception has been rising in recent years. Among all women aged 15 to 49, rates of use rose from 6% to 21% between 2008 and 2013. The most commonly used methods were injectables, the pill and implants. More than two-thirds of current users obtain their contraceptives from public sector sources. However, despite the increases in the use of contraception, around a quarter of currently married women have an unmet need for family planning.

6.1.2 ANC

ANC can contribute to reducing both maternal and child mortality. With respect to maternal mortality, ANC is valuable as it offers the opportunity to spot preclinical or early morbidity states and to promote healthy behaviour. The main causes of maternal mortality worldwide are haemorrhage, sepsis, eclampsia, obstructed labour and complications from induced abortions. Where malaria and HIV are endemic, they can also cause complications during delivery. The effectiveness of ANC in decreasing maternal mortality depends on the ability to spot the early warning signs of one of these conditions, and then do something about it. Monitoring for eclampsia risk (through urine, blood pressure and physical testing) and screening for malaria and HIV are the key mechanisms through which ANC could decrease maternal mortality (Oyerinde, 2013).

With respect to child mortality, there is evidence that ANC has significant impacts on neonatal health. Tetanus toxoid immunisation during ANC is estimated to decrease all-cause neonatal mortality by 33% to 58%, as well as the incidence of neonatal tetanus by 88% to 100%. Intermittent presumptive treatment for malaria may reduce neonatal mortality by 32%. Pre-eclampsia and eclampsia prevention may reduce the incidence of prematurity by 34%, calcium

supplementation may reduce the incidence of low birthweight by 31%, and the detection and treatment of asymptomatic bacteriuria may reduce the incidence of prematurity and low birthweight by 40% (Darmstadt et al., 2005).

Basic ANC is now nearly universal among pregnant women in Sierra Leone (see Table 19). Coverage rates from the surveys were fairly high before FHCI at 88% in the period 2004 to 2009. Rates actually rose before the initiative started, reaching 95% in 2009/10, and by 2010/11 as many as 98% of pregnant women received at least one antenatal appointment from a skilled health provider. An independent before/after estimation analysis of the 2013 DHS confirmed that it does not reveal a statistically significant increase in the utilisation of ANC once existing trends are taken into consideration (Edoka et al., 2015).

Table 19: ANC before and after the FHCI

	Before FHCI		After FHCI	
	2004 to 2009	2009 to April 2010	May 2010 to 2011	2012 to 2013
ANC from a skilled provider*	88	95	98	97
Four or more ANC visits	66	76	76	76
Urine sample taken	45	77	72	72
Blood sample taken	54	90	89	90
Protected against tetanus**	80	86	88	87

Notes: Percentage of women aged 15–49 who had a live birth in the five years preceding the survey, in relation to their most recent birth.

* Skilled provider includes doctor, nurse, midwife and MCH aide.

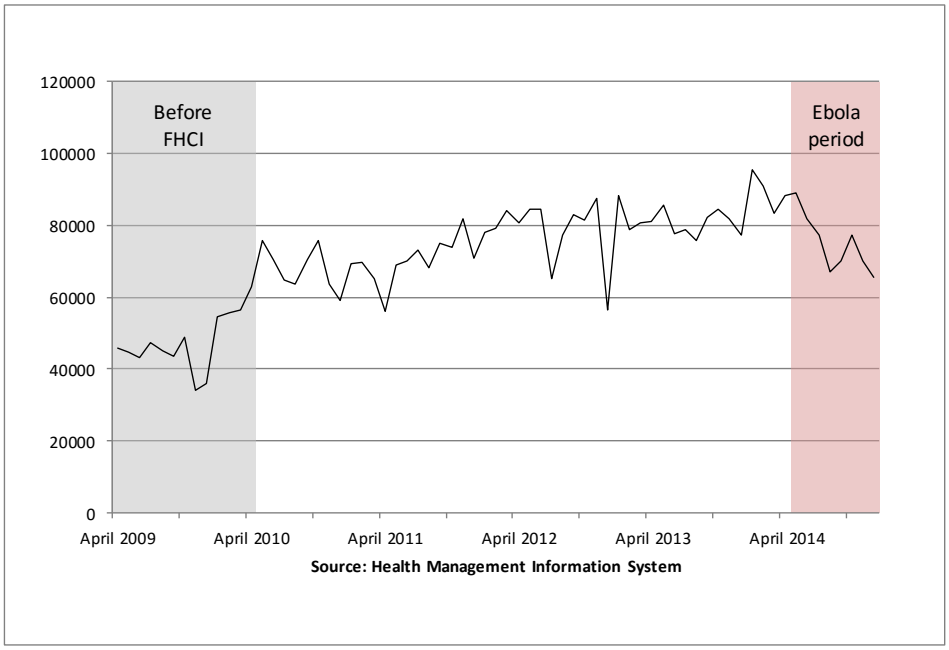
** Received two or more tetanus toxoid injections during last pregnancy.

Sources: DHSBS 2009 and DHS 2013.

This pattern of improvements in the period before the FHCI but little change after it is also present in other ANC indicators (e.g. the percentages of pregnant women that have four or more appointments), and also the figures for those that had urine and blood tests as part of ANC. We have not been able to identify a clear reason for these pre-FHCI improvements.

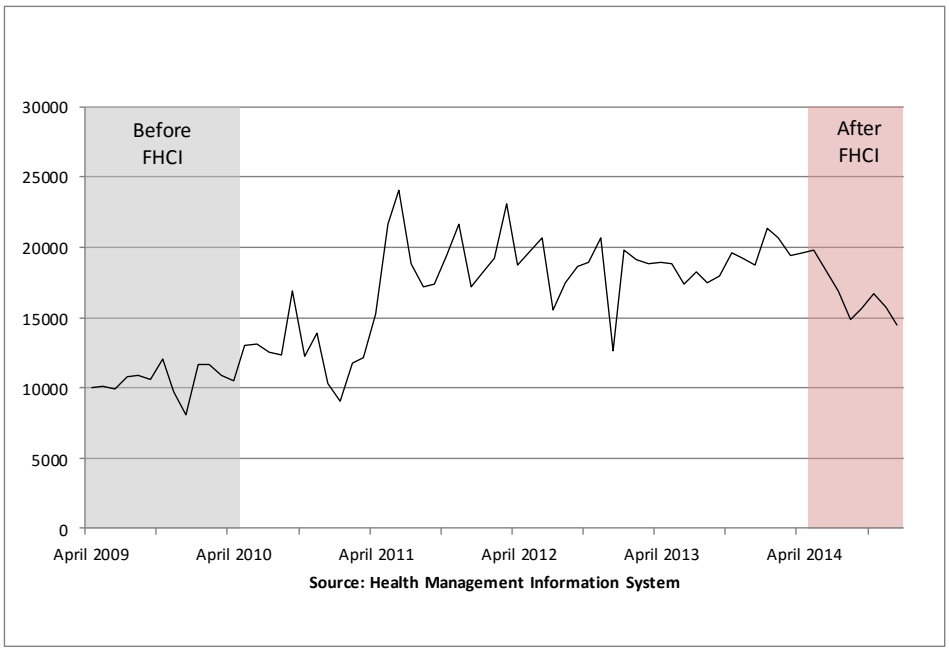
The HMIS data also tell a similar story, with improvements before the FHCI and more gradual improvements in ANC coverage in the years after 2010. There were around 5,000 ANC appointments a month in the year before the FHCI, rising to 7,000 at the time of the launch (see Figure 58). By 2014, monthly ANC appointments were typically above 8,000. However, the onset of the Ebola virus saw some of the gains eroded. For tetanus toxoid vaccinations in pregnancy the improvements are more clearly visible after the introduction of FHCI (see Figure 59).

Figure 57: Total number of ANC consultations per month



Source: HMIS

Figure 58: Number of pregnant women receiving two doses of tetanus toxoid vaccine per month



Source: HMIS

In terms of equity, the gap in ANC coverage rates between different areas and wealth groups has virtually disappeared (see Table 20). All regions and wealth groups now have coverage rates of between 96% and 98% for women receiving ANC from a skilled health worker. The largest increases in coverage have been seen in rural areas, the Northern Region, and the lowest two wealth quintiles – with coverage rising from between 82% and 84% to match the levels seen in the best covered areas and groups.

Table 20: ANC: Equity issues

	Received* antenatal care from a skilled provider**		Urine sample taken***		Blood sample taken***	
	2004-2008	2009-2013	2004-2008	2009-2013	2004-2008	2009-2013
Residence						
Urban	94	98	65	84	68	93
Rural	84	97	30	69	38	88
Region						
Eastern	90	98	22	63	23	88
Northern	82	96	41	75	50	89
Southern	90	98	28	69	36	89
Western	94	98	81	93	82	96
Wealth quintile						
Lowest	82	96	22	64	26	86
Second	83	97	31	68	37	87
Middle	86	97	37	71	46	89
Fourth	89	98	44	79	51	91
Highest	96	98	76	89	78	96

* Percentage of women aged 15-49 who had a live birth in the five years preceding the survey, in relation to their most recent birth.

** Skilled provider includes doctor, nurse, midwife and MCH aide.

*** Percentage of women aged 15–49 who had an ANC visit in relation to their most recent birth in the last five years who received the selected service.

Source: DHS 2008 and 2013

For the components of ANC, the inequalities between different areas and groups have also closed. Coverage rates for the taking of urine and blood samples were much lower in the Eastern and Southern regions and in rural areas in 2008. For example, only 23% of Eastern Region women had a blood test as part of their care in the earlier period compared to 82% in Western Area. By the time of the later survey, however, the Eastern figure had risen to almost 90% and was thus much closer to the 96% that were now having a blood test in Western Area. The lowest two wealth quintiles have also shown large improvements in these coverage rates, although a gap still remains with those higher up the wealth ranking.

Pregnant women in particular are encouraged to protect themselves and their babies from malaria to prevent anaemia, low birth weight and other complications. Take-up rates for this protection among pregnant women have improved greatly since the start of FHCI. Table 21 shows that rates more than doubled for the use of ITNs by pregnant women (from 21% in 2009 to 53% in 2013). A similar rise was seen in treatment with Sulfadoxine-Pyrimethamine (SP)/Fansidar to protect mother and child from malaria during pregnancy (from 24% to 62%).

Table 21: Malaria prevention during pregnancy

	Before FHCI	After FHCI
	2009	**2013**
Use of ITNs*	21	53
Use of IPTp**	24	62

* Percentage of pregnant women aged 15 to 49 who slept under an ITN the night before the survey.

** Percentage of pregnant women aged 15 to 49 with a live birth in the two years preceding the survey who received any SP/Fansidar as intermittent preventative treatment (IPTp) to protect the mother and child from malaria during pregnancy.

Sources: DHSBS 2009 and Source: DHS 2013

6.1.3 Delivery and PNC

Facility deliveries, assistance by skilled staff during delivery and PNC are important in reducing the health risks facing mothers and newborn children. In comparison with other countries, coverage remains extremely low in Sierra Leone, although there have been improvements in recent years.

It is estimated that as many as two-thirds of maternal deaths occur between late pregnancy and 48 hours after delivery. The potential reduction in maternal mortality from its four main causes (obstructed labour, eclampsia, sepsis and haemorrhage) through the assistance of skilled birth attendance has been modelled using available incidence rates, expert opinion and an assumed basic level of infrastructure and limited access. With universal access, between 16% and 33% of maternal deaths are considered to be avoidable (Graham et al., 2001). This represents the theoretical efficacy of this intervention; however, in practice its actual effectiveness may be quite different.

Postnatal care is considered a good opportunity for a variety of education based interventions for mothers – in particular for providing advice on postnatal maternal danger signs, safe sex, nutrition and breast care. It is also an opportunity to distribute bed nets, contraception and iron folate supplementation, and to detect postnatal maternal complications early. Through these mechanisms PNC is expected to contribute towards preventing all cause maternal mortality and future unwanted pregnancies, as well as promoting well-being and general good health (Campbell and Graham, 2006).

Care during delivery can also have an impact on neonatal health. Evidence suggests that the detection and management of breech (caesarean section) may reduce perinatal/neonatal deaths by 71%, labour surveillance (including partograph) by 40%, and clean delivery practices by as much as 58 to 78%. Clean delivery practices may reduce the incidence of neonatal tetanus by 55 to 99% and antibiotics for pre-term premature rupture of membranes may reduce the incidence of infections by 32% (Darmstadt et al., 2005).

For births taking place in a health facility, both the survey data and the administrative information show that there has been a significant improvement. The survey data show that there was a rise in the years up to 2009 from 36% of births to 49% (see Table 22). There was also a further modest increase to 56% following the launch of the FHCI.

Table 22: Delivery*

	Before FHCI		After FHCI	
	2004 to 2009	2009 to April 2010	May 2010 to 2011	2012 to 2013
Delivery in a health facility**	36	49	56	57
Delivery assisted by a skilled health worker***	50	56	61	62
Delivery assisted by a skilled health worker, excluding MCHAs****	35	43	48	47

* Relates to women aged 15–49 who had a live birth in the five years preceding the survey, in relation to their most recent birth.

** Percentage that delivered in a health facility.

*** Percentage that were assisted in delivery by a doctor, nurse, midwife or MCH aide.

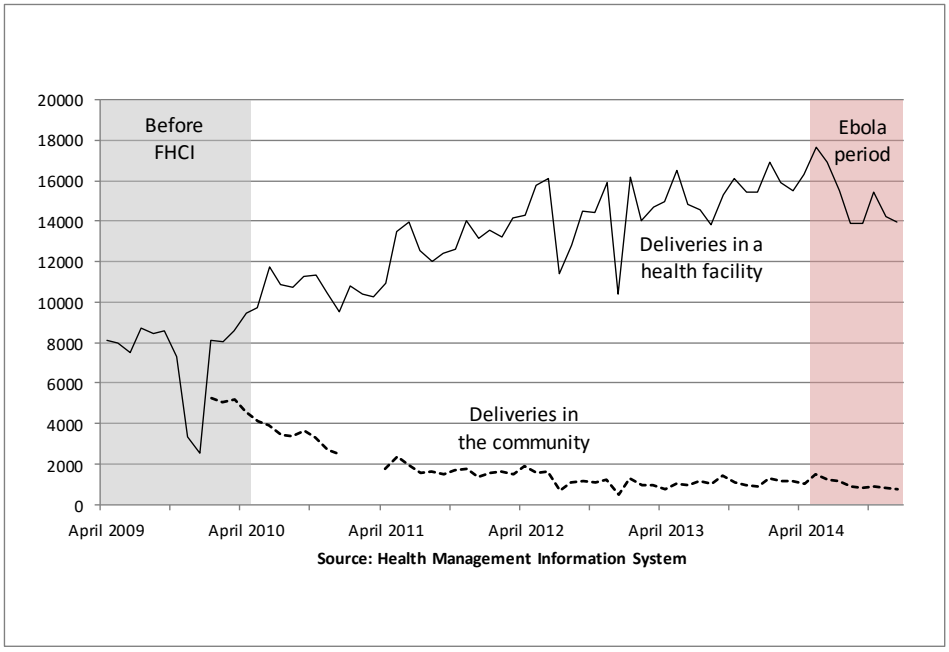
**** Percentage that were assisted in delivery by a doctor, nurse or midwife.

Sources: DHSBS 2009 and DHS 2013

The HMIS trend rises steadily from around 9,000 births per month in a health facility just before the FHCI to levels that are typically close to 16,000 by early 2014 (see Figure 60). This fell toward 14,000 in the second half of that year, most likely due to the Ebola virus situation.

The rise of births in a health facility has, as expected, been overwhelmingly concentrated in government heath facilities. Births in a private health facility make up just 2% of all births and this proportion has remained steady from before FHCI. There is no evidence from these figures that women are switching from private to public facilities in significant numbers due to start of free heath care in the government sector.

Figure 59: Number of deliveries, by place of delivery each month



Source: HMIS

Despite the increases in facility births, women in rural areas and those in the bottom three wealth quintiles still have much lower rates of health facility delivery than others – at or below 50% (see Table 23). Furthermore, Northern Region has especially low levels with its rate of 16% in 2008, rising to only 37% in 2013. Within Northern Region, the two districts of Kambia and Koinadugu have rates of only 34% and 33% respectively.

Table 23: Delivery and PNC: Equity issues

	Percentage* delivered in a health facility		Percentage* delivered by a skilled provider**		Percentage*** receiving a postnatal check-up within two days of their last birth	
	2004–2008	2009–2013	2004–2008	2009–2013	2007–2008	2012–2013
Residence						
Urban	40	68	67	79	69	78
Rural	19	50	33	53	53	71
Region						
Eastern	29	73	50	77	72	80
Northern	16	37	27	42	45	67
Southern	34	60	53	64	58	74
Western	35	61	64	74	77	75
Wealth quintile						
Lowest	17	48	28	51	47	68
Second	21	50	35	52	55	71
Middle	23	49	39	53	55	72
Fourth	28	60	49	67	60	78
Highest	39	70	71	84	74	77

* Percentage of women aged 15–49 who had a live birth in the five years preceding the survey, in relation to their most recent birth.

** Skilled provider includes doctor, nurse, midwife and MCH aide.

*** Percentage of women aged 15–49 who had a live birth in the two years preceding the survey, in relation to their most recent birth.

Source: DHSs 2008 and 2013

At the national level, there have been increases in the proportion of births that are assisted by a skilled health worker (the Sierra Leone definition for this includes doctor, nurse, midwife or MCH aide[87]). As with other aspects of reproductive health, the data show improvements in the years before the initiative, as noted in Edoka et al. (2015). But there was also a rise in assisted births in the period immediately after the FHCI from 56% to 61% (see Table 22).

Rates of skilled attendance at birth are highest in urban areas, the Eastern and Western regions and among the highest wealth quintile – all with percentage rates in the high 70s or low 80s (see Table 23). Northern Region is the region with the lowest rate at 42% – and within that region it is Koinadugu district that has lowest proportion in the country at 33%. However, Moyamba district in Southern Region also stands out as an area with very low rates, with coverage of just 36%.

The bottom three wealth quintiles have similar rates to one another at just over half of all births attended by a skilled health worker. This is sharply lower than the highest wealth quintile, which has a rate of 84%.

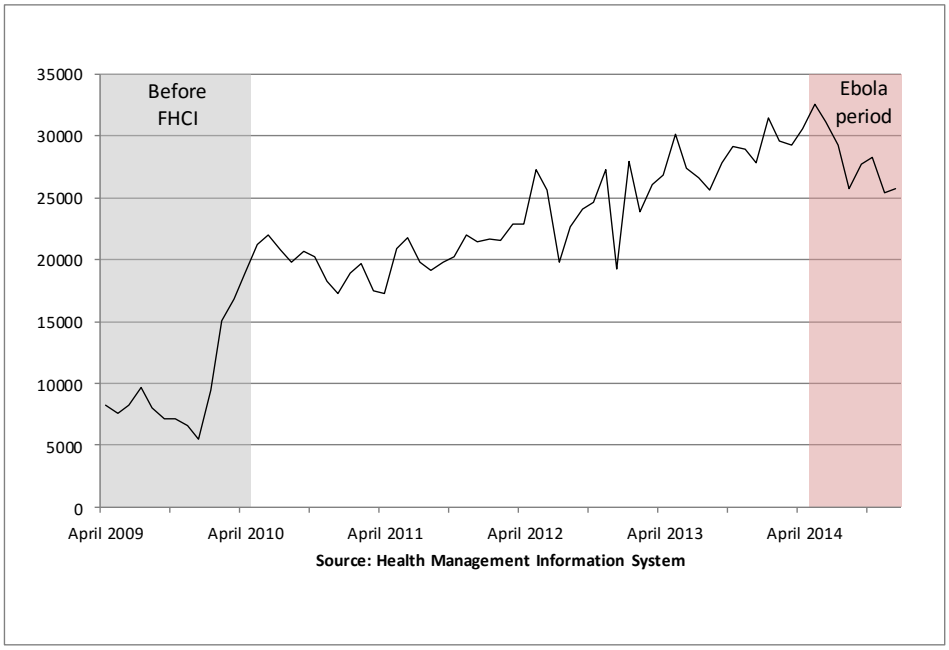
[87] The international definition of assisted birth excludes MCH aides and figures for this measure are also shown in Table 22. The general increasing trend remains the same, although levels are around 14 percentage points lower.

Caesarean section rates provide a rough indication of met need for emergency obstetric care, with rates expected to be in the range of 5–15% in most populations, according to WHO. The rates in Sierra Leone remain too low in general, indicating continued unmet needs for EmONC. Overall, 3% percent of births were delivered by caesarean section in 2013; this is double the rate of 1.5% in 2008. Caesarean sections were highest among births to mothers with secondary or higher education (5%), to mothers in the highest wealth quintile (6%), urban births (5%), and births in Western Area (6%) (DHS, 2013).

PNC has the potential to have a substantial effect on infant mortality – greater than that of ANC and similar to that of intrapartum care but at lower estimated cost (Darmstadt et al., 2005). Resuscitation of a newborn baby may decrease mortality by 6 to 42%, breastfeeding by 55 to 87%, prevention and management of hypothermia by 18 to 42% and community-based pneumonia case management by 27%. Kangaroo mother care (for low birthweight infants in health facilities) may reduce the incidence of infections by 51% (Ibid.).

For PNC, the survey data show there has been a moderate increase in the proportion of women receiving a postnatal check – up from 60% in 2009 to 73% in 2013. The administrative information from HMIS shows stronger growth, with 20,000 women a month receiving a first PNC check in April 2010 rising to 30,000 by early 2014 (see Figure 61).

Figure 60: Number of women receiving first postnatal visit each month



Source: HMIS

In general, the gap has narrowed between the areas and groups that had the highest levels before the FHCI compared to the others. For example, a 32 percentage point gap between Northern and Western regions has now shrunk so that the Northern Region is only eight percentage points behind. Moreover, the lowest wealth quintile is only nine percentage points behind the highest, whereas in 2008 it was 27 percentage points behind.

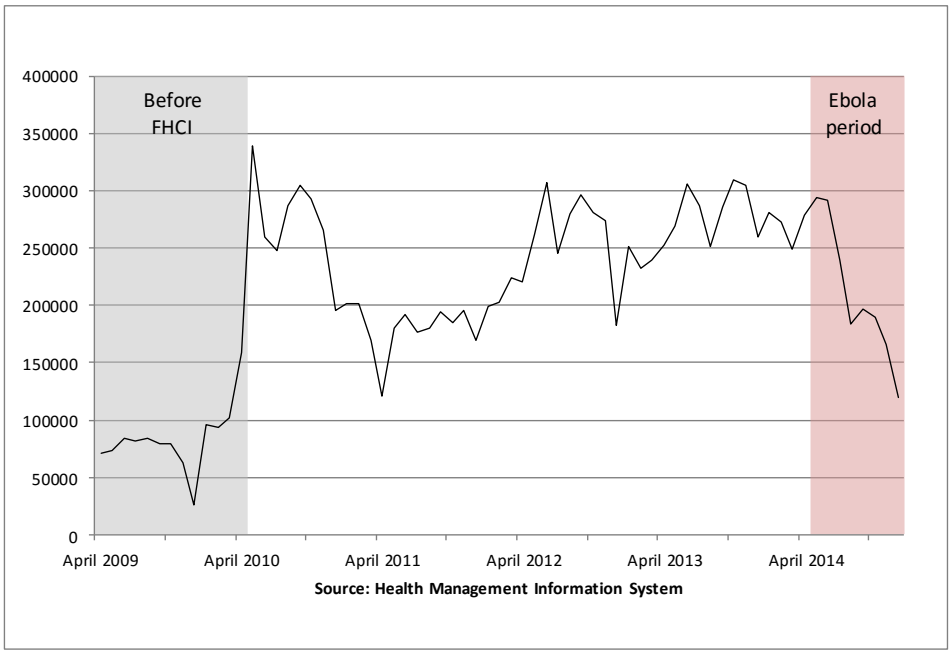
One of the aspects of PNC is information about breastfeeding and encouragement to use this method of feeding. In 2013, 54% of babies were breastfed within one hour of birth and 89% within one day. However, these rates were virtually unchanged from those in 2008.

6.1.4 Curative and preventive services for children under the age of five

Curative and preventative services for children provide the setting for a variety of interventions. Important services for children include, among others, the treatment of sepsis or pneumonia with antibiotics, of diarrhoea with oral rehydration salts (ORS), of measles with vitamin A, of malaria with Artemesinin compounds, and of wasting and malnutrition with nutritional supplements (Spectrum System, 2015).

The start of free health care for children under five brought a surge in the numbers of these children attending health facilities. In the months before the FHCI there were typically less than 100,000 consultations for under-fives each month (see Figure 62). This rose dramatically so that in May 2010 there were almost 340,000 consultations. However, the high numbers were not sustained during the initiative's first year and by April 2011 consultation numbers reached a low point of 120,000.

Figure 61: Number of consultations for under-fives per month



Source: HMIS

The fall appears to be because people were put off using health services where these had become overwhelmed by the increase in numbers. However, in the following years the number of under-five consultations steadily grew again, so that between mid-2012 and mid-2014 monthly numbers again approached the 300,000 mark.

Regression discontinuity analysis of the 2011 SLIHS (Edoka et al., 2015) was used to look at health service utilisation by children under five compared with those over five during 2011. The expectation was that this would show a decrease in utilisation once children reached the age of five and were no longer eligible for free health care. However, the data did not demonstrate this. The explanation offered by the authors is that the boundary of eligibility for free health care is, in reality, fuzzy – and that children close to but above the boundary may still be included. In addition, we note that this analysis is based on data collection in 2011 when the HMIS data show that under-five consultations had reduced almost to pre-FHCI levels (see Figure 62). Therefore, it is not surprising that there is little difference in utilisation between under-fives and older children at this point in time. As noted above, the number of under-five consultations has steadily increased in the years since 2011.

Vaccinations are one of the key health services for young children. Only clean water performs better than vaccinations in reducing the burden of infectious diseases. The potential benefits of vaccination are widespread. For the individual, they protect against specific diseases and in many cases are very effective. In instances where correctly immunised individuals do contract diseases against which they have been immunised, the effects are often milder (Andre et al., 2007). Children should receive their basic set of vaccinations by the age of one year. This includes BCG, measles and three doses each of DPT and polio vaccine.

The picture shown by the different sources of data for immunisation is not entirely consistent. The survey data show a large rise in fully vaccinated one-year-olds, from 41% in 2009 to 68% in 2013 (see Table 24). Figure 63 shows the HMIS monthly data for fully vaccinated one-year-olds. The trend before FHCI is erratic and the picture is unclear. But after April 2010 there is a gradual rise from around 15,000 per month up to in the region of 18,000 a month between mid-2012 and mid-2014. This is a more modest increase than that suggested by the survey data.

Table 24: Disease prevention for children

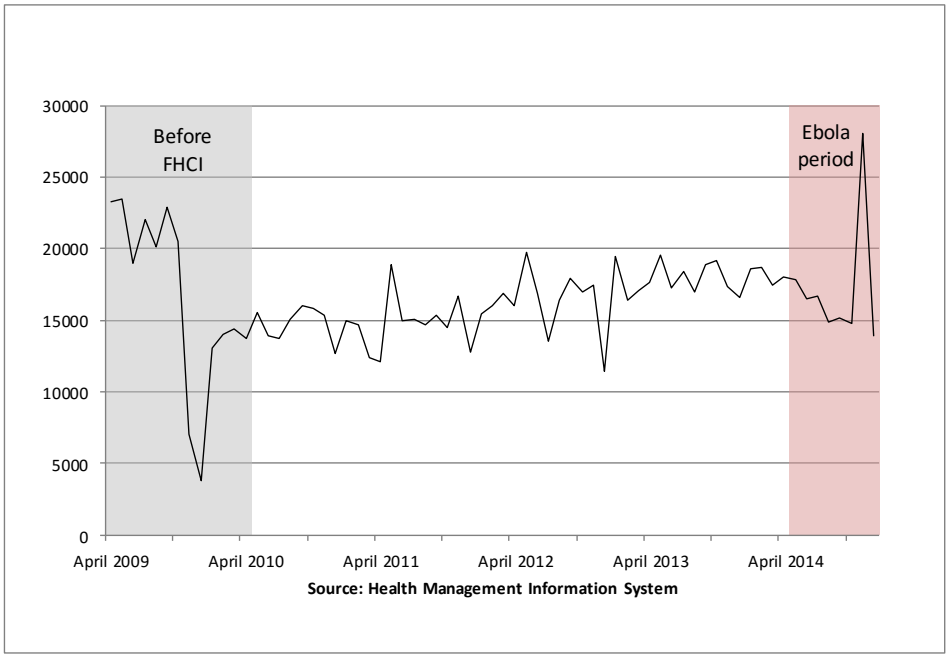
	Before FHCI	After FHCI
	2009	**2013**
One-year-olds with full vaccinations*	41	68
Use of ITNs by under-fives**	23	49

* Percentage of children aged 12 to 23 months who received all basic vaccinations at any time before the survey.

** Percentage of children under five who slept under an ITN the night before the survey.

Sources: DHSBS 2009 and DHS 2013

Figure 62: Number of children under one fully immunised each month



Source: HMIS

The analysis by Edoka et al. (2015) confirms a statistically significant increase in the rate at which access to a complete course of DPT is growing post-FHCI, which also suggests that the FHCI may have improved access to immunisations.

In terms of equity, immunisation coverage rates between wealth quintiles were almost identical before the FHCI (see Table 25). However, by 2013 coverage rates for the lowest quintile were higher than those in the middle and wealthiest groups.

Table 25: Disease prevention for children: Equity issues

	Percentage of one-year-olds* with all basic vaccinations**		Percentage*** who slept under an ITN	
	2008	2013	2004–2008	2009–2013
Residence				
Urban	40	66	30	40
Rural	40	69	24	52
Region				
Eastern	47	79	25	49
Northern	33	62	22	48
Southern	45	75	35	63
Western	42	56	26	27
Wealth quintile				
Lowest	39	73	23	50
Second	41	66	22	51
Middle	39	67	26	53
Fourth	41	69	32	51
Highest	40	62	27	35

* Percentage of children aged 12 to 23 months who received the vaccinations at any time before the survey.

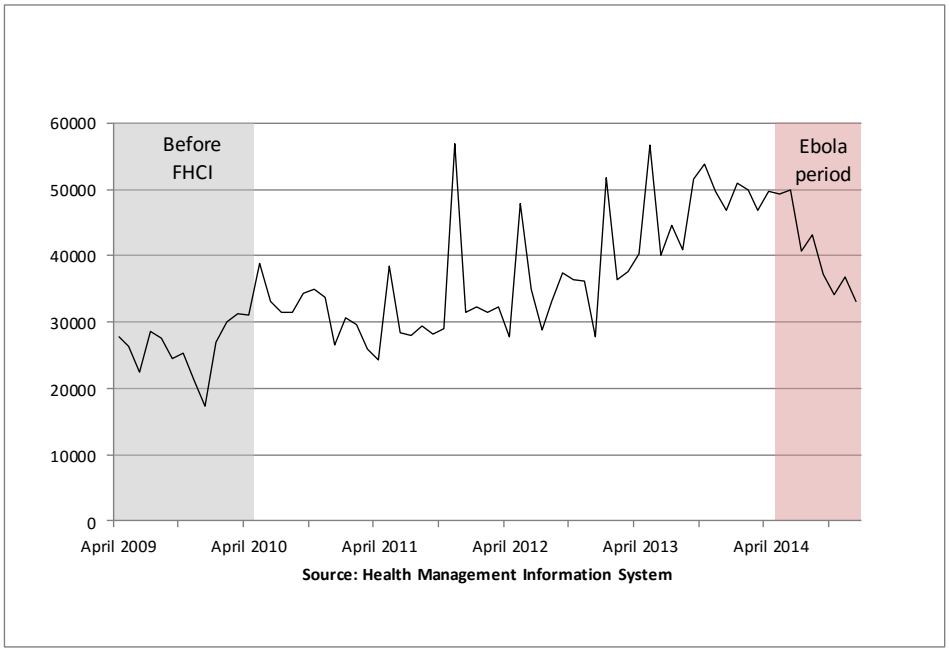
** BCG, measles and three doses each of DPT and polio vaccine.

*** Percentage of children under five who slept under an ITN the night before the survey.

Source: DHS 2008 and 2013

The provision of vitamin A supplements is another service typically given to children under five. This has shown a steady increase from the launch of the FHCI, when around 30,000 received supplements each month, rising to typical levels of 50,000 a month in early 2014 (see Figure 64).

Figure 63: Number of under-fives taking vitamin A supplements per month



Source: HMIS

There has been a doubling of the number of children under five sleeping under ITNs – from a quarter of children in 2009 to half in 2013 (see Table 24). The rise is particularly noticeable in rural areas: coverage rates were previously below urban areas in 2008 but the situation had reversed five years later (see Table 25).

Looking at rates by region shows that large increases have been made in children's use of ITNs in Southern, Northern and Eastern regions. On the other hand, rates are low and unchanged in Western Area, at around a quarter in both periods.

Analysis by wealth ranking shows strong growth in under-five ITN use among the bottom four quintiles, with much lower increases for the households with the highest wealth rankings.

The DHS also provides measures that can be used to look at changes in the treatment of under-fives for pneumonia, malaria and diarrhoea. As a proxy for pneumonia, the survey looks at children who had symptoms of ARI in the previous two weeks. Among those with ARI symptoms, the proportion receiving antibiotics rose from 22% in 2009 to 45% in 2013 (see Table 26). Increases were seen in both rural and urban areas, although rural areas still lag behind in the coverage of treatment with antibiotics (see Table 27).

Table 26: Treatment for under-fives

	Before FHCI	After FHCI
	2009	**2013**
Received ARI* treatment**	22	45
Received antimalarial drugs for fever***	38	48
Received treatment for diarrhoea***	72	86

* ARI symptoms (cough accompanied by short, rapid breathing which was chest-related or difficult breathing which was chest-related) are considered a proxy for pneumonia.

** Percentage of children under five with symptoms of ARI in the two weeks preceding the survey who received antibiotics.

*** Percentage of children under five with a fever in the two weeks preceding the survey who received antimalarial drugs.

**** Percentage of children under five with diarrhoea in the two weeks preceding the survey who received oral rehydration therapy.

Sources: DHSBS 2009 and DHS 2013

Table 27: Treatment for under-fives: Equity issues

	Percentage* with ARI*** symptoms who received antibiotics		Percentage with fever* who took antimalarial drugs		Percentage* with diarrhoea who were given oral rehydration therapy (ORT)	
	2008	**2013**	**2008**	**2013**	**2008**	**2013**
Residence						
Urban	41	59	35	45	79	87
Rural	25	42	28	50	72	86
Region						
Eastern	18	60	23	60	68	87
Northern	25	40	26	46	74	84
Southern	33	44	44	48	72	90
Western	47	52	32	37	81	89
Wealth quintile						
Lowest	26	38	27	49	61	89
Second	20	50	29	47	74	87
Middle	27	34	29	49	75	83
Fourth	24	53	29	51	80	84
Highest	56	64	37	44	80	88

* Percentage of children under five with the stated symptoms in the two weeks preceding the survey who received treatment.

** ARI symptoms (cough accompanied by short, rapid breathing which was chest-related or difficult breathing which was chest-related) are considered a proxy for pneumonia.

Source: DHS 2008 and 2013

At a regional level, Eastern Region has shown a dramatic increase from 18% receiving antibiotics in 2008 to 60% in 2013. This increase is far higher than other regions and has transformed it from the worst to the best performing region. The pattern appears to be driven by extremely high rates in Kono district, although the sample size at the district level is relatively small so this finding should be treated with caution.

The presence of fever is considered a proxy for malaria. Among children under five years who had had a fever in the two weeks before the survey, the percentage who took antimalarial drugs increased from 38% in 2009 to 48% in 2013. In addition, rural areas have overtaken urban areas during this period (see Table 26).

As with treatment for ARI, Eastern Region stands out as moving from the worst performer in 2008 (23% receiving antimalarial drugs) to the best in 2013 (60%). Rates are high in all three of the Eastern Region districts: Kailahun, Kenama and Kono.

Variation in coverage is low between wealth quintiles in 2013, with all groups showing around half of children with fever taking antimalarials.

Dehydration caused by severe diarrhoea is a major cause of morbidity and mortality among young children, although the condition can be relatively easily treated with ORT. Table 26 shows that the percentage of children with diarrhoea in the two weeks before the survey that were given ORT increased from 72% in 2009 to 86% in 2013.

In the earlier period there were some variations between different areas and groups, with those in rural areas, in Eastern Region and in the lowest wealth quintile having lower rates than others (see Table 27). By 2013 the pattern was much more even, with all areas and groups showing rates between 83% and 90%.

6.1.5 Summary

There have been clear improvements in the coverage and uptake of services in recent years. Some of these appear to have started before the launch of the FHCI, but there have also been positive changes since the start of the initiative. In many cases the gap in coverage between geographical areas and wealth groups has closed significantly.

Basic ANC is now near universal in Sierra Leone. The improvement in overall coverage appears to have been predominantly before the FHCI. ANC coverage is also now more equal, with improvements particularly seen in rural areas, the Northern Region and the lowest two wealth quintiles. The gap in coverage between groups has virtually disappeared in many aspects of ANC.

Protection from malaria during pregnancy has increased greatly from before the FHCI. The proportions of pregnant women using ITNs and taking protective treatments for malaria both more than doubled between 2009 and 2013.

Births in a health facility remain low by international standards but there have been improvements. These started before the FHCI, but there has also been growth in the numbers since 2010, reaching 57% of all births in the period 2010 to 2013. The picture is similar for births that are attended by a skilled health worker, with improvements both before and after the FHCI. However, in terms of equity, the lowest three quintiles and the Northern Region still lag behind in both health facility deliveries and those attended by a skilled health worker.

Coverage of PNC has improved since the start of the FHCI, with the administrative data in particular showing strong growth: numbers of first PNC appointments rose by 50% between 2010 and 2014. The gap between geographical areas and wealth groups has also narrowed.

The FHCI brought a surge in the number of consultations for under-fives at health facilities. The numbers more than tripled immediately after the launch to over 300,000 consultations in one month in May 2010. Numbers then declined rapidly, probably because the facilities struggled to cope with the increased demand, but by 2014 the number of under-five consultations was once again approaching the 300,000 per month mark.

The picture for child immunisation rates shows improvements, although the size of these is less clear. The survey data show strong growth in fully vaccinated children under one. On the other hand, the administrative data show more modest growth after the FHCI, although this data source is likely to be weaker than the survey. The lowest wealth quintile group has seen the most improvements: before the FHCI rates were fairly even across groups, but the latest figures show the bottom wealth quintile now has higher rates than others.

The use of ITNs by children under five years old more than doubled between 2009 and 2013. The growth was particularly noticeable among those in rural areas and the bottom four wealth quintiles.

Treatment rates for children under five for pneumonia, malaria and diarrhoea all appear to have improved in the years following the FHCI. In particular, the proportion of children under five with symptoms of ARI (a proxy for pneumonia) that were treated with antibiotics doubled to 45% in 2013 compared to just before the FHCI. Eastern Region in particular showed great improvements moving from the worst region to the best during this period. This pattern for Eastern Region was also seen in improvements in malaria treatment for these children.

6.2 Has the FHCI improved quality of care?

Quality of care can be defined broadly as including all needed inputs, good processes of care-giving, and satisfactory outputs and outcomes of health care services, as well as strong relationships with the community using the care. This section focuses on processes of care provision, as all other topics have been examined in other sections of the report. Table 28 below shows the indicators we planned to examine (Witter et al., 2014). However, data to systematically document these were not available. We are therefore only able to present snapshots of information based on studies conducted in different areas of the country over the past five years, along with the community perceptions of quality of care from our FGDs.

Table 28: Planned quality of care indicators

Target group	Quality of care marker
Mortality	
Mothers	• Total CFR by cause at all levels /types of service (BEmONC, Non-BEmONC, hospitals) *And specifically examine:* • Bleeding/haemorrhage • Sepsis • Miscarriage (total numbers + deaths – includes abortions) • Number of caesarean births as a proportion of all deliveries in a year • Referral time to hospital for haemorrhaging women (i.e. as part of the three delays)
Newborns	• Percentage of newborns dying in a 12-month period at all levels of service delivery (and disaggregated by service level) • Percentage of fresh stillbirths in a 12-month period at all levels of service delivery (disaggregated by service level)
Children (< 5 years)	• CFR from diarrhoea, pneumonia, malaria for children under five at all levels of service delivery in a 12-month period
Morbidity	
All three target groups	• Adherence to clinical protocols • Assessment of service 'enablers' • Continuum of care/care pathways analysis

A series of studies by NGOs and others highlight progress against the pillars – particularly in terms of improvements to staffing and infrastructure, as described above, and the development of the BPEHS for Sierra Leone in March 2010 to serve as a guide to implement FHCI (e.g. Save the Children UK, 2013; Amnesty International, 2011; Maxmen, 2013). The BPEHS provided a comprehensive list of services to be offered at all levels of health facilities within the health system (emphasising primary health care) up to and including the district hospital (first referral level) and the inter-linkages between them. There was also evidence of improved sanitation in some district hospitals (Save the Children UK, 2013).

However, the same studies describe a number of important challenges, including continuing problems of drug supply, poor management of drugs, late disbursement of local council and PBF funds, shortages of staff, lack of equipment, continuing informal payments, poor staff attitudes,

access and referral problems, absence of water, electricity and blood supplies in facilities, and poor coordination. These are examined elsewhere but all clearly have some impact on quality of care. As there is no systematic information prior to the FHCI, it is hard to assess the changes that have taken place and the role of the FHCI. Most stakeholders and reports document improvements but also increased expectations and pressures, which come on top of an initially weak and still underfunded health care system. It is clear that, whatever the change, quality of care needs to be improved.

A year after the inception of the FHCI, data collected by the Health Information System (UNICEF, 2011) reflected a 150% improvement in maternal complications managed at health facilities, with 12,000 more maternity complications dealt with in health facilities and a 61% reduction in the maternal CFR in that first year of the FHCI compared with the previous period. In the Freetown study (Bull, 2012), 89.2% of women delivering in health facilities had oxytocin administered to prevent PPH in 2011.The use of any uterotonic including oxytocin to prevent PPH was 95.5%. A maternal death review presentation of 2013 reported national maternal CFRs of 1.9%, which is clearly a drop from the 7% found in the 2008 EmONC assessment (UNFPA, 2008).

Bull (2012) concludes from the overall maternal near-miss mortality ratio in Freetown (70:1) that the quality of care for life-threatening obstetric complications remained suboptimal despite slight improvements from 2009 to 2011, which were partly attributed to the contribution of the Making it Happen programme interventions as well as to the FHCI.

In June 2012, 97% of all health facilities could test patients for malaria (Agenda for Change Progress Report, January 2011 to June 2012) and the CFR for malaria in public hospitals had fallen dramatically by approximately 90%. The proportion of children under five years of age who were treated appropriately for malaria with Artesunate nearly tripled. About 90% of the 1,288,828 children under five who were diagnosed with malaria during the first 12 months of the FHCI were treated with Artesunate compared to 51% of the 682,539 diagnosed cases in the 12 months preceding the FHCI (UNICEF, 2011).

Optimising quality of care remains a challenge. According to the National Recovery Strategy 2015–2020, while 90% of health facilities provide MCH services the quality of these services remains suboptimal. Only 1% of health facilities had basic amenities,[88] including standard measures for ensuring patient safety (WHO, 2012). Just 35% of facilities had basic equipment required for service delivery.[89] As previously mentioned (see Section 4.5), an assessment conducted in July 2014 suggested that *not a single facility* had been sufficiently upgraded to meet standards across the seven domains assessed (MoHS, 2014).

6.2.1 Community views on quality of care

Participants in district-level KIIs viewed the impact of the FHCI on the quality of care positively and generally remain committed to it. However, the increases in utilisation and the growing confidence between clients and providers have been negatively affected by the Ebola epidemic.

> *"Before Ebola if you look at some of our health indicators we are not at 100%. We started achieving something – saw that we were making progress with the FHCI. With the Ebola breakouts some of the gains started going down..."* (District KII, Western Area).

[88] Sanitation facilities, Emergency transport, Consultation room, Improved water supply, Communication, Power supply and internet connection.
[89] Thermometer, stethoscope, adult and child scales, BP apparatus and light source.

For child health, several respondents mentioned Integrated Management of Childhood Illness (IMCI) protocols and MCH training inputs. Generally speaking, health staff perceive there has been an improvement in the care provided and a reduction in maternal and newborn mortality since the introduction of the FHCI.

> *"In terms of the nursing care, nurses and maternity staff frequently undergo training on different aspects, protocols etc. so there is an improvement there – especially in terms of eclamptic patients. We don't have frequent maternal deaths – from 2010 till now we haven't had more than 10"* (District KII, Western Area).

Participants across the various FGD groups and in all the four districts expressed the view that the FHCI is working, but there was widespread scepticism about the level of competency and efficiency. Most participants in all four districts overwhelmingly believed that the quality of health services for babies had improved greatly under the FHCI. However, a few participants in Western Area raised concerns about the storage of available vaccines in refrigerators. Most participants in the provinces, especially in Koinadugu, attested to an improvement in the health care provision for women, with a shift away from insanitary care by TBAs. However, some participants in Western Area expressed their dissatisfaction with the quality of health services offered to women. They reported that the services have remained the same as those offered prior to the FHCI.

Participants from the different groups across the four districts mentioned the non-availability of services, non-availability of medicines, poor condition of health facilities and equipment, and the negative behaviour and attitudes of health care workers as the key aspects that were not working well under the FHCI.

They pointed out that health care workers did not 'take them seriously' when they sought medical attention under the FHCI scheme. These participants thought the health care professionals viewed them as less important because the GoSL was doing them a favour by providing free health care services. Other participants were more concerned about the standards of sanitation of the surroundings of the health centre, which they described as unpleasant and as preventing them making a visit:

> *"One of the main factors that blocks me [from using the FHCI services] is [that] the quality of service the government clinics have is very poor. [At] some hospitals the environment is very dirty. If you go behind the wards in Cottage Hospital you will not eat for the rest of the day [because of] the dirty things you will see there"* (Adult female, Western Area).

Most participants stated that if their children are treated badly or given inadequate drugs once they would not go to the health centre anymore. Similarly, they believed their neighbours would be discouraged from visiting the health centre because of such situations. A few participants believed that the wrong medication and a single tablet were most times given to them when they visited the hospital/health centre.

The unavailability of health care services at night was seen as a major problem under the FHCI, while the time it takes to access the health services at night was also perceived as longer in comparison to seeking services during the day.

6.2.2 Summary

In Sierra Leone, the challenges to quality of care in the delivery of MCH services continue to be wide-ranging, with both supply- and demand-side factors as well as underlying social determinants (discussed in the next section) exerting influence. Some progress had been made prior to the

Ebola outbreak, largely catalysed by the FHCI but also by other programmes focusing on RMNCH, according to documentary evidence and KIIs. However, the health services remain weak and communities express mixed opinions, with some strong concerns. In addition, the evidence base to track changes to care-giving in facilities is exceptionally weak. Information on inputs and outputs have been collected, but to really examine the effectiveness of services more information is needed on indicators such as CFRs, re-admissions, sepsis and fresh still births, as well as on some of the influencers such as adherence to protocols and staff competences and responsiveness.

6.3 Are there reduced barriers to service uptake?

In order to understand not just whether uptake has increased but also why or why not, as well as the links to the FHCI, we examine here the extent to which some of the major hypothesised barriers to care have changed, and what challenges remain. We look at these 5 'A's in turn: affordability, access, awareness (of the policy and danger signs for mothers and children), attitudes (toward health seeking) and accountability.

6.3.1 Affordability

In relation to financial barriers, we looked for evidence on changes to total OOP payments by household, overall and for different population groups. Clearly, the FHCI did not aim to remove all OOP payments, even for the target groups. However, we would expect to find a reduction, especially for service fees and drugs. We also examined the evidence for changes to informal payments, which, if they continued for the target groups and services, would be an indicator of problems with policy implementation and would represent a barrier to service use. This barrier is both financial and psychological (the lack of certainty about payments and the grievance when expectation of free care is met with illicit charges can both lead to reduced effective demand, among other things). Analysis based on survey data is cross-checked with qualitative evidence from our FDGs.

6.3.1.1 Changes in overall OOP expenditure on health care

As discussed in Section 4.1, extremely high OOP expenditure on health was a primary motivation for the introduction of the FHCI. In 2003/04, the average person had OOP expenditure on health of US$ 40 a year, equating to 15.6% of per capita consumption expenditure (SLIHS, 2003/04). Such high OOP expenditure on health made Sierra Leone an outlier even compared to other low-income countries (Xu et al., 2010).

Unfortunately, the SLIHS was not repeated again prior to 2010, and so the 2003/04 SLHS represents the best available baseline for household OOP expenditure on health. Another SLIHS was then conducted in 2011.

As Table 29 shows, the seven-year high inflationary period between the two surveys means that the distinction between nominal and real prices matters hugely to the findings on whether OOP expenditure per capita has gone up or down. If nominal prices are used, then the average person had higher OOP expenditure in 2011 compared to 2003/04, spending US$ 44.8 a year compared to US$ 40.0 a year (SLIHS, 2011). However, if both figures are converted to 2007 prices then, in real terms, OOP expenditure per capita went down between the two surveys. In 2007 money, the average person spent US$ 49.9 a year in 2003/04 compared to US$ 39.1 a year in 2011. Table 29 also shows that OOP expenditure is a lower fraction of per capita consumption expenditure in the post-FHCI time period, with 15.6% of consumption being on health in 2003/04 and 11.3% in 2011.

Table 29: Average per capita expenditure on health, 2003/04 and 2011

	2003/04	2011
SLL, nominal prices	100,486	192,674
US$, nominal prices	40.0	44.8
SLL, real (2007) prices	148,795	116,790
US$, real (2007) prices	49.9	39.1
As a proportion of per capita consumption expenditure	15.6%	11.3%

Note: 2003/04 SLL/US$ average exchange rate.

Source: SLIHS 2003/04.

The NPSS was another household survey conducted in Sierra Leone in 2007, 2008 and 2011. Like the SLIHS, it also included questions on health facility utilisation and household consumption. Estimates from the 2011 survey indicate that households spent on average SLL 17,907 a month in 2013 prices on medication and health services. Unfortunately, unlike the SLIHS, the NPSS was only conducted over three months (e.g. from July to October 2011) rather than a full year. This means that monthly expenditure can technically not be annualised to account for seasonality in health expenditure, which does vary over the year due to, for example, differences in morbidity and access to health facilities. Ignoring this, monthly expenditure of SLL 17,907 equates to annual expenditure of SLL 214,884 or around US$ 50 a year per household in 2013 prices. Converting to 2007 prices for comparison, this is equivalent to SLL 99,319 or around US$ 33 a year per household. This is substantially less than US$ 44.8 a year per person (not per household); a potential reason for this is lower expenditure during the rainy season due to difficulty in accessing health facilities. However, morbidity is also higher during the rainy season because of illnesses like malaria and diarrhoea. The survey methodology is another likely explanation for the differences; the consumption module for the NPSS is much shorter than for the SLIHS and asks only about expenditure over the last month, which would both contribute to lower expenditure estimates. Most unfortunately, previous years of the NPSS did not include a consumption module and so we cannot compare the 2011 estimate to previous estimates from the same survey to see how estimates for health expenditure changed within the same survey.

It is therefore hard to draw conclusions about the contribution of the FHCI to the modest reduction in real OOP payment expenditure over the time period and even harder to speculate about what difference the FHCI *should* have made. To shed a little further light on these questions, it helps to think about the mechanism through which the FHCI would in theory contribute to a reduction in OOP heath expenditure. Aside from second-order effects, this would be primarily through influencing the chance of payment and amount of payment of the FHCI target groups. These groups comprised 17% of consultation and 16% of prescription OOP expenditure in 2003/04. A reduction in OOP expenditure for the target groups would therefore be expected to contribute to a reduction in overall OOP payment expenditure, but not a dramatic one. This is also assuming that the policy did not have large unintended consequences on health-seeking behaviour or payment for non-FHCI groups. For example, if demand for health care for other groups had been supressed, then the FHCI could allow for increased utilisation (e.g. through freed-up funds) for these fee-paying groups.

6.3.1.2 Changes in household OOP expenditure for FHCI groups

The more nuanced impact question is therefore whether FHCI groups are paying significantly less for health care than they would have without the introduction of the FHCI.

Table30 shows descriptive statistics on consultation payment at government outpatient facilities for children under 5 and lactating mothers, again using data from SLIHS 2003/04 and 2011. The

proportion of FHCI groups paying for consultation in outpatient health facilities reduced between the survey years for all groups. However, a significant proportion were still paying in 2011 for services that should have been free—particularly lactating mothers. In addition, of those who paid, the amount paid only reduced marginally in real terms for children under 5 and lactating mothers and increased for pregnant women. Mindful of data limitations, it appears that there is a bigger improvement for children under 5, than either pregnant women, who saw an increase in expenditure for those who did pay (although a substantial reduction in those who paid in the first place) or lactating mothers, who saw a smaller reduction in those who paid.

Table 30: Out of pocket payments (OOP) for FHCI groups, 2003/04 and 2011

		Under 5s		Pregnant women		Lactating mothers	
		2003/04	2011	2003/04	2011	2003/03	2011
Proportion who utilised a government health facility in the last two weeks (if sick)	Estimate	64.4	74.8	71.7	80.2	65.6	75.5
	N	1638	1580	276	150	287	105
Of those, proportion who paid for consultation	Estimate	76	20.2	79.7	41.7	65.9	50.6
	N	1028	1183	196	118	177	76
Of those, average amount paid (2011 USD)	Estimate	3.1	2.8	5.2	14.2	3.2	2.9
	N	775	227	152	51	120	39
Source: 2003/04 and 2011 SLIHS							

Data from other surveys and research do not find the same high proportions of FHCI groups paying as SLIHS, but still consistently shows that a small proportion of FHCI groups are still being charged. For example, Table 31 shows Health for All Coalition (HFAC) monitoring data for one quarter in 2012 and two quarters in 2014. Around 5% or fewer of FHCI groups sampled at the health facility had been asked to pay for drugs or treatment, with under 5 and lactating mothers who were paying for consultation in 2012 paying similar average amounts found in the 2011 SLIHS. The small sample sizes for average amount paid make it difficult to draw firm conclusions here, however, for example about any trends over time. Although any amount of payment is not ideal, given the known implementation issues, this level is relatively low.

That said, the Cordaid verification study of 2014 found that 12% of the target groups had made some payment. The average payment was SLL 7,881, ranging between SLL 200 and SLL 50,000. These payments were either for general consultations, MNCH services, medicines or the medical equipment needed to provide the care. There was found to be significant variations in the proportion of patients asked for payments between the different local councils. None of the patients in Bonthe Municipal Council or Makeni City Council were asked for payments, but 52% of those in Kailahun District Council, 35% in Koidu New Sembehun City Council and 22% in Kono District Council were asked to pay.

Table 31: HFAC monitoring data on payment by FHCI groups, all districts

		Jun–Aug 2012	Mar–May 2014	Jun–Aug 2014
Children under five				
Proportion who paid for drugs	Estimate	1%	4%	3%
	N	1385	1740	1921
Average amount paid for drugs	Estimate	2.2	1.9	1.8
	N	16	54	40
Proportion who paid for treatment	Estimate	3%	4%	4%
	N	1384	1730	1920
Average amount paid for treatment	Estimate	2.3	4.5	5.2
	N	36	72	40
Pregnant women				
Proportion who paid for drugs	Estimate	2%	5%	4%
	N	942	1315	1497
Average amount paid for drugs	Estimate	3.1	1.6	1.3
	N	23	58	55
Proportion who paid for treatment	Estimate	4%	4%	5%
	N	942	1309	1493
Average amount paid for treatment	Estimate	3.0	5.5	3.8
	N	33	34	21
Lactating mothers				
Proportion who paid for drugs	Estimate	5%	5%	6%
	N	111	690	897
Average amount paid for drugs	Estimate	2.4	1.9	1.6
	N	6	35	49
Proportion who paid for treatment	Estimate	5%	5%	6%
	N	111	686	896
Average amount paid for treatment	Estimate	3.0	4.9	5.2
	N	5	32	28

Source: HFAC monitoring data, 2012 and 2014 reports

However, these descriptive statistics still do not tell us the extent to which the FHCI contributed to these apparent reductions in chance of payment and amount of payment by FHCI groups.) Edoka et al. (2015) attempt to estimate the effect of the FHCI on OOP expenditure for children under five using impact evaluation techniques and find no statistically significant impact on OOP expenditure for children under five. This is in contrast to what we see in the descriptive statistics and suggests that there may be other factors at play in the reduction in payment for health care for children under 5. However, Edoka et al.'s study does assume that children just over five, because they are in principle not eligible for free health care, are a good control group for children just under five, who are. In reality, the policy was fuzzily implemented such that some children under five paid for health care and some children over five did not. The impact on OOP expenditure for pregnant women and lactating mothers could not be tested due to the lack of a credible control group.

In summary, the best available data show a modest reduction in real OOP expenditure from 2003/04 to 2011. Data from various sources suggest that chance of payment and amount of payment has reduced for FHCI groups, although evidence also consistently shows that a small minority of those in FHCI groups are still paying for health care. The attribution of any of these changes to the FHCI is not possible. Much of the analysis of household expenditure here and elsewhere (e.g. in the NHA and Edoka et al.'s studies) relies on data from the SLIHS, which is problematic for a number of reasons.

The community research we undertook supports the finding that free care at the point of use for the target groups is not always applied as intended, especially in Western Area and in towns. Moreover, this finding is also reinforced by the household life history interviews conducted by ReBUILD (Amara et al., 2016).

Even though FGD participants were all aware that services under the FHCI were meant to be free for children under five, pregnant women and lactating mothers, about half of them across the four districts mentioned that FHCI beneficiaries continue to pay for health services or provide other non-monetary items to some health care professionals. Such views regarding payments and non-monetary 'gifts' were more prevalent among participants from Western Area.

Participants shared that even though payments may not be required for the direct services, they were being charged other fees for registration cards and entrance fees:

> *"For me the only free services are ITNs and malaria drugs. I bought a registration card for SLL 2,000. When I gave birth, I paid SLL 5,000 for the nurses to see me. I received free ITN and malaria treatment"* (Adult female, Bo).

Participants from Bo, Kono and Koinadugu were more likely than those in Western Area to mention FHCI beneficiaries receiving free health services, and were also less likely to report experiences of paying for services or providing non-monetary 'gifts' to health professionals. However, even in these provincial districts, participants also believed that the FHCI gives priority health care services to children at no cost more so than for pregnant and lactating women, who are sometimes charged direct or indirect fees.

Most participants, especially in Koinadugu, Bo and Kono, confirmed the availability of FHCI services in their communities. The services mostly associated with the FHCI were malaria treatment, including the distribution of ITNs at no cost, immunisation for children, and sometimes supply of food items such as corn flour and plumpy nuts. These all benefit from vertical programme support, which may explain why they are more reliably supplied.

While participants across the districts and groups overwhelmingly noted that there are costs/fees associated with FHCI services, they also strongly emphasised that their overall expenditure on medical services had greatly reduced following the introduction of the FHCI. The majority of the participants mentioned that their personal health care spending was higher before the introduction of the FHCI. Similarly, most of the participants believed that the high cost of medical supplies, which was previously a huge challenge, had improved since the FHCI began. Men from all four districts were particularly very appreciative of the FHCI, as they felt that its existence had substantially saved them from spending more on the health of the pregnant women and young children in their families.

On the other hand, however, a few participants mentioned that health service expenditures had increased for them since 2011. They mentioned that even though they were not directly paying for

the services received, the sum total of the all the other little payments, including those made to nurses, increased their overall expenditures. This was more a perception in the large towns:

> *"The free treatment is just for villagers – in big towns we now spend more money"* (Adult male, Bo).

The majority of the participants cited that it was a common practice for nurses to say that certain services and supplies, especially drugs, are not available, when in actuality they have plans to sell them to beneficiaries:

> *"Services are not always available because the nurses will tell you to go to the pharmacy, and when that occurs, another nurse will call you into a corner and tell you that she has that particular medicine for sale, which is in fact supposed to be free"* (Adult female, Western Area).

The issue of being asked to pay for services was persistent across each district, even for the beneficiaries. A premium was asked by nurses even for child delivery and the amount was based on the sex of the child. Not just limited to birth, payments were also demanded from lactating mothers and children under five for routine problem visits, such as malaria and fever. Failure to pay such charges resulted in no treatment or, in some cases, delivery of half the required medication doses with a prescription given for purchase of the remainder of drugs at a pharmacy:

> *"Before, when a pregnant woman gave birth, we paid SLL 60,000 for boys and SLL 40,000 for girls. It is still the same presently"* (Adult female, Kono).

Likewise, a female participant in Bo reported that when her delivery date was almost due she went to the health centre but the nurses refused to attend to her. They asked her to pay even though she was in critical condition and had no money. For that reason, she returned home and asked a TBA to help her instead.

In addition, participants in KIIs pointed out that the unavailability of drugs at health centres was a major contributor to the FHCI not working well. Most highlighted that even when the drugs are available at the health centres, the nurses would most times split the tablets and distribute them to their intended beneficiaries. As such patients end up buying extra drugs since the 'broken-up' tablets given to them are perceived as insufficient to cure them. Even more disheartening for participants was the fact that some of the drugs they had to buy at the health centre were labelled 'Free Health Care'.

Nearly half of the FGD participants in the four districts mentioned that the cost of the services hindered them occasionally when seeking health care services under the FHCI. Sometimes participants felt that they would not be attended to if they did not give money at the health centres. Likewise, they thought money was significant if they wanted proper treatment.

Similarly, a few participants in the Western Area mentioned that pregnant women faced difficulties due to the cost they paid for their registration card and for medicines at the health centre. These participants said that after paying for such costs they became penniless and stranded at the health centre with no money for transportation to return home:

> *"The officials only go on air and talk a lot about how the FHCI is available but when a pregnant woman goes to a health clinic they will keep asking you for money until you are broke to the extent that you cannot pay for transportation to go back home"* (Adult female, Western Area).

6.3.2 Access

Geographic inaccessibility, distance, lack of transport and socio-cultural factors (e.g. household decision-making, perceptions and beliefs) have been shown to be an effective deterrent to care-seeking behaviour even when service-related financial barriers have been removed in Sierra Leone, as elsewhere (Treacy and Sagbakken, 2015). Remoteness and difficult terrain are not just barriers on the demand side but also affect service delivery and quality of care, with difficulty posting staff and ensuring supplies and supervision (Wurie et al., 2016).

The FHCI did not focus on expanding infrastructure, but did aim to upgrade existing infrastructure and so should have some impact on improving access. Analysis of changing coverage of services by rural/urban area (see Section 5.1) does indicate a closing of the gaps for some essential services, although inequities still exist, particularly for skilled attendance at delivery. Socio-cultural factors are discussed in the following section, but here we examine evidence on changes to transport and the referral system in particular, which may be helping or hindering factors behind the changing outputs and outcomes seen to date. They highlight that physical access, transport and a well-functioning referral system remain important barriers for women and children in Sierra Leone, especially in remote areas like Koinadugu and riverine areas like Bonthe.

In the NPSS 2011 report, 67% of respondents in rural areas reported having a health facility within one hour. This is a substantial increase from 2005, when only 48% had a health facility within one hour. However, it appears that most of the increase came before the introduction of the FHCI (see Table 32).

Table 32: Access to government health facilities

Table IA2.4: Access to Government Health Facilities
Question: *How long does it take to get there (to clinic usually used)??*

	Percent of households			
	2005 N=4051	2007 N=3996	2008 N=3972	2011 N=3977
Within 15 minutes	18	18	23	24
15 to 30 minutes	12	16	17	22
30 to 60 minutes	18	19	23	21
1 to 2 hours	18	24	23	21
Greater than 2 hours	32	21	14	12
Don't know	1	2	1	1
Total	100	100	100	100

Note: Percentages may not total 100 due to rounding

Source: NPSS 2011

It may be that the decline was driven by improved roads and transport, more than changes in facilities. According to the NPSS 2011, in 2007 only 20% of rural villages had a PHU in the community. This was still the case in 2011 (see Table 33 below).

Table 33: Villages with clinics in the local community

Table IA2.5: Villages with Clinics in Local Community
Question: ***Is this PHU/Hospital in this village/town/city?***

	Percent of households		
	2007 N=5618	2008 N=6252	2011 N=5213
Kailahun District	23	29	26
Kenema District	26	30	26
Kono District	20	22	5 -
Bombali District	9	8	9
Kambia District	15	27	26
Koinadugu District	18	26	25
Port Loko District	23	22	18
Tonkolili District	27	27	27
Bo District	17	28	22
Bonthe District	21	16	14
Moyamba District	11	10	14
Pujehun District	7	7	15
Western Area Rural	80	53	41
National	20	22	20

Note: Figures marked with +/- represent a statistically significant increase or decrease over 2008. Significance at the 95% level.

Source: NPSS, 2011

This finding is corroborated by our FGD participants, who felt that distance may not really be a problem but rather it is the means of transportation is the biggest problem. This is particularly the case in areas like Koinadugu, Kono, and Bo because motorbikes are mostly used to seek health care services there, even when people are in a critical condition.

Some young people in Koinadugu explained that the authorities would not allow pregnant women to be transported on motorbike, which they also felt worsened the situation, especially when there are no other vehicles available. These participants really stressed that the means of transportation is a serious problem, especially in such rough terrain. Some said that the Ebola epidemic made transportation to the health centre more difficult – after Ebola even a motorbike could not be found.

Some TBAs mentioned that they still delivered babies because of the poor road network to the health centre. Likewise, a few participants thought that they would not want to travel a long distance in very rough terrain just to receive a small amount of medicine or delayed treatment. They preferred to buy medicine at the pharmacy instead or seek alternative care, which they thought saved them trouble.

6.3.2.1 Referral system

The FHCI policy states that a transport and communication system would be put in place in order to provide a suitable referral system (GoSL, 2009a). Referral can only be justified if the referral facility provides a reasonable level of quality of care, giving access to people with the skills to manage potentially life-threatening complications. In addition, there needs to be awareness of complications and danger signs at the community level and locally available resources for emergency transport and communication.

One study of quality of care for pregnancy complications in Freetown (Bull, 2012) concluded that a significant increase in the cases referred from other health facilities shows increased access, and

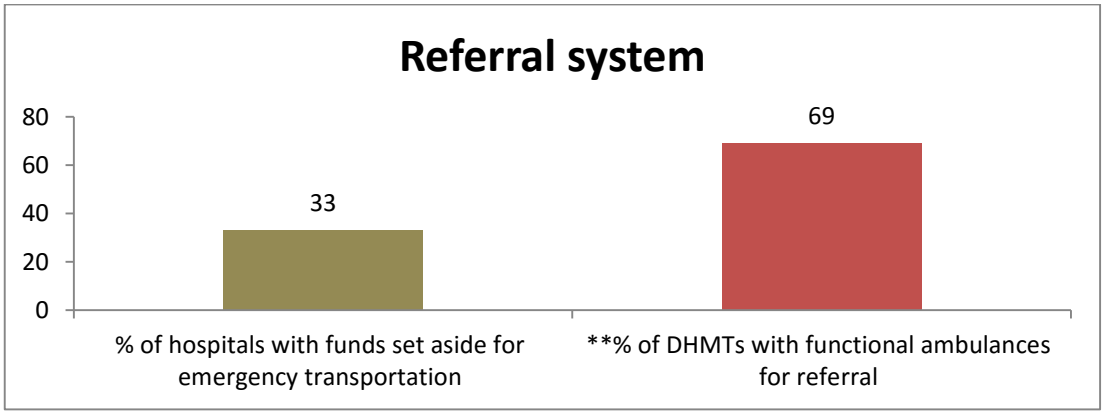
suggested that this was possibly linked to the FHCI as well as to increased knowledge on the importance of early referrals and improved referral services.

However, challenges with the ambulance services were documented after the FHCI across almost all of the 14 districts. According to a study in 2013, most had one or two functioning ambulances, while some districts had more than two but were unable to maintain and fuel them. There was a shortage of drivers and communities sometimes refused to give their support when there are breakdowns during a referral. In referral cases, patients were mostly transported on motorbikes. Koinadugu was the only district with four functioning ambulances, which is achieved with support from an NGO (Save the Children UK, 2013).

> *"We have a real problem with ambulances: before the FHCI we didn't have any ambulances, then we got two at the start of the FHCI, at some point there was a donation of another one – now all three ambulances have been grounded since 2014. All ambulances today in the system are focused on Ebola and they can't be used for anything else – so there is no ambulance for MNCH"* (District KII, Western Area).

According to a nationwide monitoring exercise in 2014 (Save the Children and Health Alert, 2014), there was some improvement: 96% of the hospitals had a mechanism 'to support emergency obstetric care services'. This monitoring visit was conducted in April 2014 and covered all public hospitals (all district hospitals and national referral hospitals) (see Figure 65 below).

Figure 64: Review of referral situation in 2014



**There were 12 functional ambulances in all 13 DHMTs with no functional ambulances in Pujehun, Kenema, Tonkolili and Kambia DHMTs at the time of the visit.

This problem is ongoing. A more recent survey of Moyamba district, post-Ebola, by Medecins du Monde found that outreach activities were severely hampered by difficult terrain and lack of transport, which also prevents patients from attending clinics. The referral system is largely not functional for the same reason and only two (non-Ebola) ambulances serve the district. The majority of health staff surveyed agreed that lack of transportation was the single most important reason for maternal mortality.

Figure 65: On the way to a health facility in Koinadugu

Source: OPM consultants, 2015

FGD participants also mentioned that there was a big problem with referrals. The ambulance services worked well in most communities but mainly for Ebola-related cases. In some communities, patients had to buy fuel for the ambulance or pay some amount of money to the ambulance team to expedite the process. Some participants expressed frustration due to lack of proper coordination between the health care workers (nurses) and TBAs; they shared that health care workers exhibited no desire to cooperate when they are called upon by a TBAs to help with deliveries.

> *"Most of the time when somebody in the interior requests an ambulance and they don't have money for fuel, it will take a whole lot of time. This occurs because the ambulances are not monitored properly and maybe there is no proper logistical arrangement for these ambulances"* (Adult male, Koinadugu).

A few participants mentioned that they contributed money as a community in order to get fuel for the vehicle that would transport patients. Community support was rare in such a case.

> *"We help by contributing money to buy fuel for the vehicle that will carry the pregnant woman or sick person to the hospital"* (Community leader, Kono).

Improvements to the availability of infrastructure and the transportation system (principally ambulances) was one of the FGD participants' major requests to the government and partners. This was broadly echoed in district-level KIIs. Ambulances were the most frequently mentioned aspect of the referral system and they are often insufficient in number or poorly placed to maximise their usage. However, the fact that they are now free since the FHCI is much appreciated. The distances to a referral centre and the state of the transport network remain major constraints to timely referral, according to KIIs.

6.3.3 Awareness of the FHCI

Awareness of the FHCI and awareness of entitlements under it are important determinants of the likelihood of households and communities changing their behaviour and accessing services. We therefore explore here the extent to which awareness was successfully extended.

One year after the FHCI was launched, HFAC surveyed 100 people in each district to assess the public and stakeholder perception of the initiative (HFAC, 2011). Over 95% of those interviewed were aware of the initiative. The lowest levels of knowledge were in Kono (18%) and Port Loko (11%). Everyone surveyed in Pujehun and Western Area Rural had heard of the initiative. However, the number of people who could correctly identify the groups eligible to receive free health care was lower (82%). For example, 11% of respondents thought that it was only pregnant and lactating mothers that were eligible. Again, correct knowledge of beneficiary groups was highest in Pujehun and Western Area Rural and lowest in Kono, although respondents from Tonkolili and Western Area Urban also showed low levels of more specific knowledge. One particularly concerning finding was that only 4% of those interviewed knew that the initiative did not have an end date. The vast majority of respondents did not know or could not recall when the end date was, and a large number thought that it was due to end in 2015.

The NPSS survey in 2011 also found high levels of awareness: the vast majority of respondents reported that they had heard of the FHCI, with awareness being lowest in Bombali and Koinadugu districts and highest in Koidu and Makeni towns. In that survey, 97% of respondents were able to identify at least one FHCI target group, 90% were able to identify at least two FHCI target groups and 69% were able to identify all three FHCI target groups (NPSS, 2011).

Awareness not only affects changes to utilisation and health outcomes but also perceptions of public services and thus more intangible aspects, such as perceptions of fairness and confidence in public services. Misperceptions can also be damaging, for example when users expect free care erroneously and then feel cheated. This can erode relationships between clients and staff, as illustrated by our district KIIs:

> *"At the start it was not clear to the beneficiaries exactly what services would be provided free. This led to a lot of wrong expectations. For example, many patients expected free ambulance transport to the health facility, food for sick people at health facilities and unrealistic quantities and types of drugs"* (District KII, Bo).
>
> *"Expectation management is an issue; both for FHCI groups, who want all costs to be covered such as transport and are upset when drugs are not available, and non-target groups, who feel entitled to free care as well"* (District KII, Kono).
>
> *"Patients initially misunderstood the FHCI. They thought it was free for all"* (District KII, Bo).
>
> *"At the start communities did not grasp what was to be provided free. This can still be a problem. However, awareness of the FHCI among the community is high"* (District KII, Bo).
>
> *"There was much misunderstanding at the beginning. Many thought it was free for all people. On the launch day itself there was a queue of more than 200 people (compared to around 40 on a normal day). Staff worked 7am to 7pm without a break on that day"* (District KII, Bo).

In general, however, in the FGDs communities showed understanding that the FHCI is meant to provide essential health services to pregnant women, lactating mothers and under-five children:

> *"The FHCI provides free treatment for the three categories of people: pregnant women, lactating mothers and under-fives. These people suffer most and we believe they deserve it"* (Youth, Bo District).

Nonetheless, there were still some misconceptions voiced in the FGDs that the FHCI covers everyone, including men and anyone who is poor. Such misconceptions were consistent across all four districts – mostly among men and young people. For instance, men sometimes thought that GoSL instituted the FHCI to assist teenage mothers, especially those in a situation where there is no father for the unborn child who is culturally expected take up financial responsibilities for the pregnancy and welfare of the woman and child:

> *"Yes I think government choose pregnant women because most of the pregnant women, especially teenagers, don't have a husband to answer for the pregnancy and that is why the government has taken up the responsibility to take care of them"* (Adult male, Western Area).

The following services/benefits were most frequently cited as covered under the FHCI by all participants: provision of drugs/medications, immunisation services, and ANC.[90] The female participants had better awareness about the specific beneficiary groups under FHCI as compared to men, young people and community leaders.

Most participants – especially in Koinadugu, Bo and Kono – expressed a strong belief that the FHCI was operational in their community. However, some participants in the Western Area had a different view, and were more likely to express dissatisfaction with the initiative as compared to those from the provinces. It should also be noted that participants from Western Area were also more likely to hold misconceptions regarding 'who' and 'what' is covered under FHCI. There were many instances where some men perceived that their wives and all women are automatically covered under FHCI even when not pregnant or lactating.

Participants in all groups and regions expressed widespread understanding of the FHCI through radio listening, health centres/health workers and health campaigns. Radio emerged as the most cited source of information regarding the initiative across all districts and categories of participants. The ReBUILD household life history interviews (Amara et al., 2016) also confirmed high awareness of the FHCI, with 23 out of 28 participants informed about it, roughly equally spread across the four districts (Western Area, Bonthe, Kenema and Koinadugu).

6.3.4 Awareness of complications and danger signs

It is essential that the household and community decision-makers are able to recognise the point at which an individual needs to be taken to a health provider and how to manage subsequent symptoms. Community-based formal and informal providers, such as TBAs and CHWs, can assist in raising awareness and in helping to link communities to providers. In the wake of the FHCI launch, campaigns were undertaken to raise community awareness of danger signs by NGOs and local and national actors. The FHCI may also have triggered changing relationships between providers close to communities and health services that help or hinder such awareness-raising.

There are a variety of sources of information on the general public's understanding of health risks, danger signs, responses and preventions strategies in Sierra Leone, particularly in regard to child

[90] This is interesting inasmuch as two of these three elements were already meant to be free before the FHCI – immunisation, for example, has been free since the early 1970s when the EPI programme was launched.

health. In terms of the large surveys, there are two in particular with relevant questions – the DHS and the MICS.

As a means of estimating knowledge of health-related issues the DHS asks about knowledge of ORT for treatment of diarrhoea. In 2008, 91% of mothers had heard of ORT. This was slightly lower in the Northern Region (86%) than the other regions (94–97%). Even though only 47% of children with diarrhoea were taken to a facility, 86% were treated with some form of ORT or increased fluids and 68% were treated using a packet of ORS. By 2013, the proportion of children with diarrhoea that were treated with some form of ORT or increased fluids remained around 90%, but now 85% were treated with a packet of ORS. Moreover, while care was sought in only 65% of cases overall, it was much more likely when the diarrhoea was bloody than not, and knowledge of ORS packets had increased further to 98% with little variation across the regions.

The MICS also asks extensive questions on use of ORT and gets similar results. It estimates that in 2005 60% of the children who had experienced diarrhoea in the previous two weeks received one or more of the recommended home treatments and that by 2010 this had risen to 78%. However, in 2005 only 23% received ORT and maintained feeding, as is the recommendation, and in 2010 this was still only 55%.

In addition to this, the MICS asked about mothers' knowledge of ARI danger signs. It estimates that in 2005 only 14% of mothers could identify the two key danger signs of pneumonia, with the lowest levels of knowledge in the Northern and Eastern regions. By 2010 this had dropped to 8% of mothers. In both surveys the most common reason for taking a child to a health facility was that they had developed a fever, which was identified by around 90% of mothers. Again, knowledge was lowest in the Eastern Region.

These two sets of surveys do not tell us much about how knowledge of danger signs has changed since the implementation of the FHCI but they do give a sense of the level of knowledge and how it was changing in the run-up to 2010. Things such as ORT for diarrhoea were well known and widely practised, but that a child should also maintain feeding at the same time was not well understood. Knowledge of ARI danger signs was very low, and was getting worse between 2005 and 2010. Knowledge that fever is a danger sign was high, and was the main reason to take a child to a facility. Knowledge of HIV/AIDS was growing, in some areas more than others. Knowledge of the syndrome, prevention strategies (including prevention of mother-to-child transmission) and where to get tested were growing far more rapidly than knowledge of common misconceptions, which remains below 25%.

One peer-reviewed publication specifically assesses the knowledge and reported practices of women in relation to MCH in rural Sierra Leone after the implementation of the FHCI (Kanu et al., 2014). The authors interviewed 244 women with at least one child under five in villages throughout Bombali during March 2012. They asked questions related to health knowledge and practice. Respondents were mainly farmers and traders and more than half had never attended school. From direct observations, the authors could see that nearly 90% of respondents had ITNs under which their child usually slept, but that nearly 95% had no form of well-defined place to wash hands. Only six did not have a latrine facility, while nearly 60% had a main source of drinking water from a tap.

Respondents had on average 3.8 total pregnancies, 1.7 in the last five years, and three children in total. Also, 42% of deliveries were attended by a TBA, 41% by a nurse or midwife, 7% by a doctor and 8% by relatives and friends. Over 64% of respondents could not identify any danger sign that necessitates institutional delivery and less than 44% knew that a child with diarrhoea needs to be given more fluids to drink that usual. While 99% of mothers knew of ORS, only 19% could correctly

explain how to prepare it. Similarly, 26% could not give any correct ways to prevent diarrhoea and only 12% could give four correct ways; only 18% knew that a baby with diarrhoea should be given breast milk followed by ORS if necessary.

Knowledge regarding fever was better, with 86% knowing that a child with fever should be dressed lightly and cooled with a damp cloth. However, regarding malaria specifically knowledge was again poor. While everyone had heard of malaria and 93% know that it could be caught through a mosquito bite, only one mother could identify four ways of preventing it and 7% could not give any prevention strategy. While 91% of the respondents had heard of pneumonia, 33% could not give any correct signs and only 13% could give three. In addition, 45% knew that antibiotics are used to treat pneumonia. The authors conclude that the sample of mothers' knowledge on diarrhoea was poor, and while knowledge of malaria and pneumonia were high, more detailed knowledge on prevention was too low. Using simple linear regression, the authors find that people with higher education had better health knowledge. They also find that number of pregnancies influences knowledge, but to a lesser extent, and that the role of the husband did not have a statistically significant impact. While interesting, these findings, once again, do not tell us much about how knowledge has changed, as there is no pre-FHCI comparator. Further research therefore needs to be done on how knowledge of health-related practices is changing over time.

Increased attendance at health centres has led to an increased knowledge of health rights and health messages, and an increase adherence to immunisation campaigns, according to HFAC/SC (2011).

In our FGDs, it was clear that the majority of participants across the four districts understood danger signs for pregnant women, newly delivered women and young children; interestingly, the majority of the men, including community leaders, also understood these danger signs. They were able to mention important danger signs such as 'bleeding' and 'swollen feet.' They stated that their knowledge about danger signs and MCH has improved recently due to the fact that they are taught about these things on radio, through health campaigns and at the health centre, as well as from participants' direct experiences with relatives and family members.

6.3.5 Attitudes to health care seeking

The DHS asks about health-seeking behaviour for children with ARI, fever and diarrhoeal disease. Mothers were asked if their children had experienced symptoms associated with any of these disease categories, and what their responses had been. In 2008, 46% of children with ARI symptoms, 44% of children with a fever and 47% of children with diarrhoea were taken to a health facility or provider. In 2013, 72% of children with ARI symptoms, 66% of children with a fever and 65% of children with diarrhoea were taken to a facility. This suggests that health-seeking behaviour, at least in relation to young children, has increased since the implementation of the FHCI.

There is also a growing body of smaller-scale literature looking at health-seeking behaviour in Sierra Leone. In 2005, due to a severe lack of HRH and a high child mortality rate, NGOs were allowed to deliver community case management with community health volunteers in rural areas. The objective was specifically to increase coverage of treatment for malaria, pneumonia and diarrhoea for children. In 2010 this was expanded to include two further districts and an extra treatment for diarrhoea (zinc). In order to plan for the expansion of this programme alongside the FHCI one academic study attempted to evaluate how such an intervention can be implemented in the context of a removal of user fees (Diaz et al., 2013). The authors conducted a baseline survey in the two additional districts (Kambia and Pujehun) plus two similar comparators (Kailahun and Tonkolili) between April and July 2010. This was prior to the expansion of the community case

management programme, but just as the implementation of the FHCI was starting. The authors assess health-seeking behaviour and treatment received for malaria, pneumonia and diarrhoea among children under five with danger signs in poor and rural areas within the districts.

They found that the parents of 87%, 86% and 90% of children currently with symptoms of diarrhoea, fever and malaria respectively had sought health care for their children. Moreover, 75% of these children had been taken to a facility, regardless of their illness type, and 60% were treated by facility-based professionals. This is higher than was estimated by any of the national household surveys, and is suggested by the authors to be evidence that the FHCI was encouraging people to visit facilities. It highlights that this is corroborated by the MICS 2010, which finds that 74% of children with pneumonia danger symptoms were taken to a facility and, as we have outlined, the claim that health-seeking behaviour had increased before and after the implementation of the FHCI went on to be corroborated by the DHS 2013 (albeit to a lesser extent). However, it is also found that many of the children did not receive the recommended treatment, and that there was a high correlation between those that received some form of traditional treatments at home and those that were not brought to a government facility.

A second publication compares health status and access to health care services between disabled and non-disabled men and women in urban and peri-urban areas of Sierra Leone, paying particular attention to reproductive and maternal health care for disabled women (Trani et al., 2011). According to the 2004 National Census, 2.4% of the Sierra Leone population is disabled. Of this, 21% have limited function of legs, 19% have visual impairments and 7% are blind (2004 Census; quoted in Trani et al., 2011). However, other studies have found a much higher prevalence of disability – suggesting that up to 23% of children are disabled and that prevalence varies widely across different areas, from 14% in the Western Area to 37% in the Southern Region (MICS 2005; quoted in Trani et al., 2011).

The authors conducted a cross-sectional study in Freetown, Western Area Rural, Koinadugu, Bombali, Bo and Kono in 2009. Households were randomly selected, disabled respondents were interviewed and their answers compared to answers of a control group of randomly selected non-disabled respondents. This study finds a disability prevalence of 17% (12% mild and 5% severe) and that 73% of households have at least one disabled person. Disabled people were more likely to be younger than 30, single, live in an urban area, and slightly more likely to have never gone to school. A disabled person was found to be more likely than a non-disabled person to belong to the lowest asset index group.

Seventy-three percent of severely disabled respondents, compared to 89% of non-disabled respondents, described themselves as being in good health. Similarly, disabled people were found to be less likely to be fully immunised, have access to a managed water supply or be highly satisfied with their health care (although satisfaction is still high – 80% compared to 94% for non-disabled respondents). In addition, 70% of disabled people, compared to 85% of non-disabled people, reported that they could access a hospital in the event of an accident, injury or health problem. People with a disability were also found to be more likely to use medicine from drug peddlers or from religious curers and prayers. Health expenses as a proportion of household income are higher for a disabled person than otherwise. While 92% of the non-disabled respondents reported being sexually active, 60% of those with severe disabilities and 70% of those with mild disabilities reported it. Interestingly, access to maternal care for disabled mothers was slightly higher than for non-disabled mothers. Access to ANC, an SBA, a facility for delivery, use of condoms and emergency obstetric care were all roughly equally accessible. However, knowledge about sex was lower among severely disabled respondents: 39% of people with severe disabilities reported that they had never received basic sexual health information, compared to 28% of non-disabled respondents. Disabled people were more likely to get such information from a family

member or a teacher than non-disabled people. Mildly disabled mothers were the most likely to have large families (four or more), but 24% of severely disabled mothers had more than four children, 63% had at least one child, and 56% of all disabled women wanted another child.

A second vulnerable group are the youth. Despite anticipated extra demand, young people are not using reproductive health care as much as expected (Restless Development, 2012). In order to investigate why this might be the case, Restless Development collected data in 2012 from quantitative questionnaires, FGDs and KIIs. They found that, on the whole, most young people had some general knowledge about contraception, STI transmission and HIV/AIDS, but that this was only superficial and was not translating into good healthy behaviour. While 89% had heard of modern contraception and, on average, could name two different methods and 96% had heard of HIV/AIDS, only 31% used a modern method of contraception during their last sexual experience.

The NGO suggests that this is for a number of reasons beyond the usually mentioned cost, distance and quality. First is a lack of information – only 57% of young people interviewed had received sexual and reproductive health education at school, and 40% could not identify a common misconception about contraception. One reason young people were not searching out more information is that many were concerned about confidentiality if they asked certain questions, fearing that it would be revealed to their family members that they were sexually active if they did so. Another explanation of poor sexual health practices is suggested to be accepted sexual exploitation through power structures. There is economic pressure to have transactional sex. Much of the time the older family members condone this or turn a blind eye as it may be for the immediate good of the family. Moreover, young and poorly educated women sometimes consider transactional sex their best option to get someone to care for them and, especially if they have children, look after them as they grow older. With all this, those interviewed expressed a frustration that there are limited forums for young people to advocate for their rights, and that this is exacerbated for a young woman who becomes pregnant out of wedlock who is then socially marginalised even further.

The Performance Audit Report on Anti-Malaria Interventions (based on data from February to August 2010) noted there was a lack of awareness on the use of SP among pregnant women and little community-level education on issues pertinent to the efficient delivery of IPTp, with some pregnant women not returning for the second dose of SP. There was also a shortage of SP at health facilities, with some having not received their supply of SP for months. The supply of artemisinin-based combination therapy (ACT) (used in the treatment of *P. falciparum* malaria) to health facilities was frequently irregular and inadequate. Effective treatment of severe malaria was hampered by the lack of microscopes, a poorly functioning referral system and inconsistent guidelines. The distribution of ITNs was often late and national guidelines were interpreted differently in different parts of the country. There was a lack of awareness of the need for preventive malaria methods among the population.

Barriers to accessing care include traditional beliefs about illness, such as the belief that convulsions are caused by spirits, but also about health care. For example, some reports suggest that before the FHCI providers would give injections but these are not covered by FHCI, and so the community use ‘quacks’ instead. People strongly believe that injections are the most effective type of drug, and that a health worker will not ‘waste’ an injection on a child who is going to die.

Another widely held belief in rural areas pre-FHCI (Amnesty International, 2009) was that obstructed labour was caused by a woman’s infidelity. This dangerous misconception values a women’s chastity more highly than her health or her life. Often, time and energy were wasted in trying to obtain a confession instead of ensuring that the woman, who was in agony as the baby failed to emerge, had access to the necessary emergency obstetric care. Female genital mutilation was also very common, which, according to WHO, greatly increases the risks for women during childbirth. The 2013 DHS

indicated that 89.6% of women surveyed had undergone female genital mutilation, a slight decline from 91.3% in the 2008 SLDHS.

The factors which influence decisions about health care providers include proximity, associated costs, tradition, perceived effectiveness, and the way users are treated by providers. These factors are mediated by power relations within the household, which are also influenced by paternal grandmothers, who often live with their sons (ODI, 2014). It is often these women who encourage traditional remedies for illness that they used for their own children, when PHU facilities were scarcer and not free. However, some report that an interesting bi-product of the FHCI is that the increased attendance at health centres has led to an increased knowledge of health rights and health messages, and an increase adherence to immunisation campaigns (HFAC/SC, 2011).

In summary, it is not possible to isolate the contribution of the FHCI but many of the socio-cultural barriers that are recognised as very important in influencing health and health care-seeking behaviour in Sierra Leone appeared to be improving over this period of study and the FHCI may have played a role by increasing the contact between users and services, as well as coverage with health education messages. The importance of social norms – such as trust and traditional practices – as well as the perceived risks and costs of services are crucial to its success, as was reinforced during the Ebola epidemic, when much of the progress was eroded. To rebuild that trust involves not just tackling traditional beliefs but also providing health care which reshapes and meets expectations, as well as being attractive and welcoming.

6.3.6 Accountability

Community engagement with services is an important link in the results chain, which is expected to increase user uptake and satisfaction, as well as ensuring that services are acceptable and effective. However, these are typically weak in fragile and post-conflict countries such as Sierra Leone. There is some fragmented evidence of interesting innovations in this respect under the FHCI, but these need more systematic development as the health system rebuilds post-Ebola.

One of the innovations of the FHCI was to set up a network of community monitors, coordinated by HFAC, which provided regular monitoring information upwards and downwards, at least early on in the FHCI process. In addition, Evidence 4 Action reported that local communities in Sierra Leone were being encouraged to rate their clinics and demand more from their health care services,[91] although it is not clear the extent to which this was carried through. Reports from 2013 also noted that some district councils, like Koinadugu, had initiated dialogues with communities and service providers, creating a platform for service providers (DHMTs and INGOs) to present their health interventions to community members and provide an opportunity for people to ask their questions and comment on issues relevant to them (Save the Children/Health Alert, 2013).

The ReBUILD household interviews also provide some evidence of local accountability mechanisms being used (Amara et al., 2016). One participant, who was chairman of his local community committee, was very active in disseminating the FHCI message and helping to support local people who are entitled to exemption. There was a robust drug process in place, whereby participants were summoned to witness and sign for each drug delivery, along with a nurse and the drug deliverer.

In the FGDs, community members were eager to be involved in the monitoring and supervision of the FHCI because they deemed it necessary to minimise the theft rate and ensure that FHCI

[91] See www.theguardian.com/global-development/2013/jul/12/sierra-leone-maternal-health

supplies meant for targeted beneficiaries would be equitably distributed. This suggests a low level of engagement in the health system as it is presently organised and an appetite for more.

6.3.7 Summary

In this section we have examined five barriers to health care utilisation and health gain – the 5 ‘A’s of affordability, access, awareness (of the policy and of danger signs for mothers and children), attitudes (to health seeking) and accountability. All show improvements over the period, though some are modest and the data that are available make it hard to link changes to the FHCI (for example, for the reductions in OOP spending overall and for the FHCI groups). Awareness of the policy is high among all population groups and there is evidence that the FHCI contributed to increased awareness of danger signs by the community, greater willingness to seek health care for children and, to a small extent, greater accountability of services. All of these barriers need continued focus and improvement as we move ahead.

7 Unpacking effects – outcomes

7.1 Has the FHCI contributed to saving lives in target groups?

7.1.1 Maternal mortality

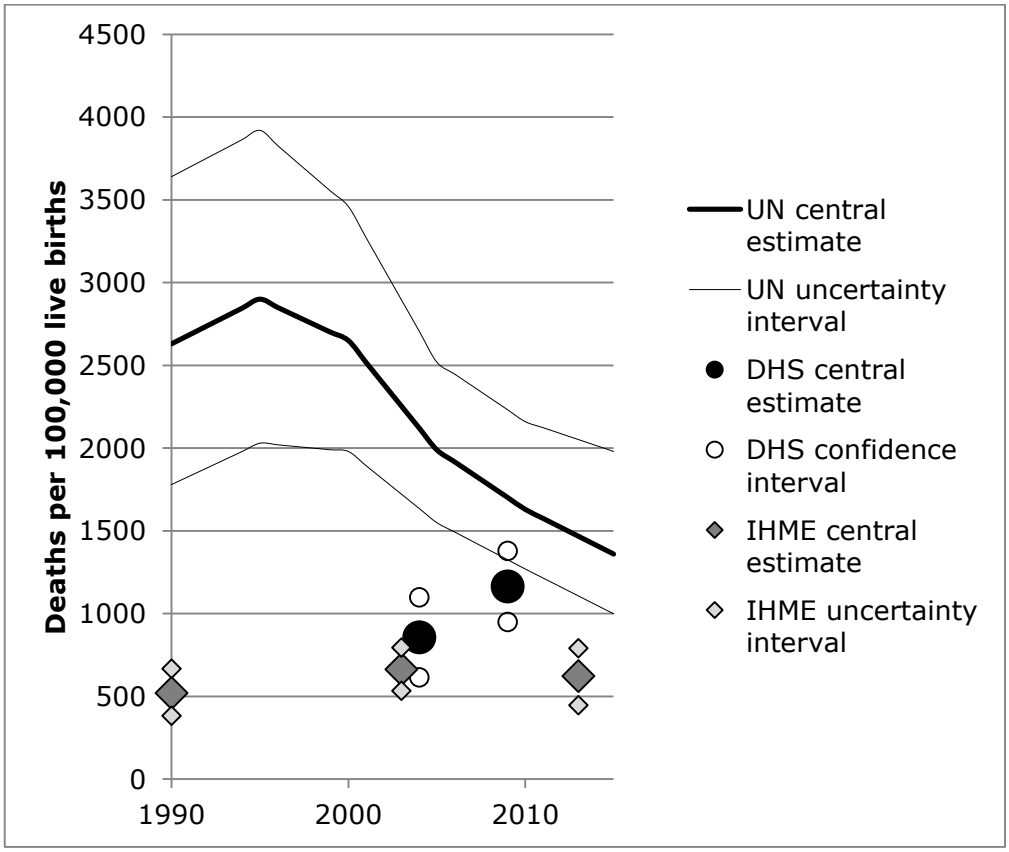
Maternal mortality levels are extremely difficult to measure accurately in many developing countries because these countries tend to lack the vital registration systems that can accurately record births, deaths and the causes of death.

It is also difficult to measure maternal mortality through surveys. Even in countries where maternal mortality levels are high, the number of maternal deaths that will be recorded in a survey such as the DHS will be relatively small, even with large sample sizes. This means there is a great deal of uncertainty about the estimates produced.

In addition to trying to measure maternal mortality itself, there are often a number of attempts to model maternal mortality levels. These use available variables that are thought to be related to maternal mortality such as place and attendance at birth, fertility levels, GDP and other factors.

For Sierra Leone, Figure 67 shows three series of estimates for the MMR. The DHS aims to measure maternal mortality itself (indirectly using the sisterhood approach). The UN inter-agency group on maternal mortality produces regularly updated modelled estimates for all countries including Sierra Leone, while the Institute for Health Metrics and Evaluation (IHME) also produces modelled estimates at the country level.

Figure 66: Maternal mortality ratio



Two overall conclusions can be drawn from the information in the chart. First, Sierra Leone has had and still has extremely high levels of maternal mortality. For example, the UN estimate shows an MMR figure of 1,360 maternal deaths per 100,000 live births in 2015 – the highest ratio in the world.

Second, the exact level and trend of maternal mortality levels in Sierra Leone is very difficult to measure with any certainty. Each of the series comes with wide margins of uncertainty and the mortality levels and the direction and shape of the trends are different between the three sources. As the IHME report (2010) notes, 'The differences between global modelling efforts, which are at times substantial, emphasise the influence of each of the analytical steps used to estimates maternal mortality.'

DHS estimates

The DHS asks women aged 15 to 49 about their siblings who have died, including when they died, and, for sisters, whether they were pregnant or had recently been pregnant at the time of death. Deaths to sisters who were pregnant or within two months of the birth or termination of a pregnancy are included in the estimates of maternal mortality.

As the numbers of maternal deaths recorded in the surveys are small, the estimates relate to a period of seven years before each of the surveys. Thus, the chart shows the estimate centred at 2009 for the 2013 DHS as it relates to the period 2006 to 2013 – and likewise for the 2008 survey.

The estimates show MMRs of 857 from the 2008 survey and 1,165 from the 2013 DHS. However, because of the wide confidence intervals for both these estimates we are not able to say with certainty whether these estimates are different. They do not provide evidence that levels of maternal mortality have changed between the two periods.

UN inter-agency group estimates

The UN estimates are modelled and the explanatory variables include the following: GDP (rising since the end of the civil war); general fertility rate (declining slowly); skilled birth attendance levels (increasing slowly); and the measures of MMR from the DHSs.

The central estimate shows a falling trend for MMR from 1,990 in 2005 to 1,360 in 2015. However, the uncertainty intervals are so wide that it is not possible to draw conclusions about the true direction of the trend over the last 10 years with any certainty.

IHME estimates

The IHME estimates were produced after testing a wider range of covariates. In addition to those used by the UN, IHME tested the inclusion of the following in their model: HIV death rates for women aged 15 to 49 years; neonatal death rates; coverage of four or more ANC appointments; and malnutrition in children under five. Not all covariates were retained in the models for each country.

IHME produces the lowest figures for MMR of the three sources. However, the trend for the central estimate is gently rising from 521 in 1990 to 623 in 2013. As with the DHS and UN figures, the uncertainty intervals are so wide that we cannot draw conclusions about the size and direction of any change in MMR.

7.1.2 Child mortality

Mortality in relation to children under five years is easier to measure than maternal mortality. Estimates are shown in Table 34 from the 2013 DHS, while Figure 68 compares the UN inter-agency group estimates with those from the 2013 DHS.

Table 34 shows the trends in neonatal, infant and under-five mortality over the last 15 years from the 2013 DHS. Mortality rates for all three indicators are falling, although the declines in neonatal mortality (i.e. deaths in the first month of life) are relatively small. For under-five mortality, rates fell by one-third between 1999 to 2003 and 2009 to 2013.

Early neonatal deaths (within the first week) represented 81% of all neonatal deaths in the 2013 DHS and this was unchanged from the 2008 survey. The perinatal mortality rate (which includes both stillbirths and early neonatal deaths) was 39 per 1,000 pregnancies in 2013 compared with 34 in 2008.

Table 34: Neonatal, infant and under-five mortality rates

	Years		
	1999 to 2003	**2004 to 2008**	**2009 to 2013**
Neonatal mortality*	48	46	39
Infant mortality**	152	127	92
Under-five mortality***	227	194	156

* Deaths under the age of one month per 1,000 live births.

** Deaths under the age of 12 months per 1,000 live births.

*** Deaths under the age of five years per 1,000 live births.

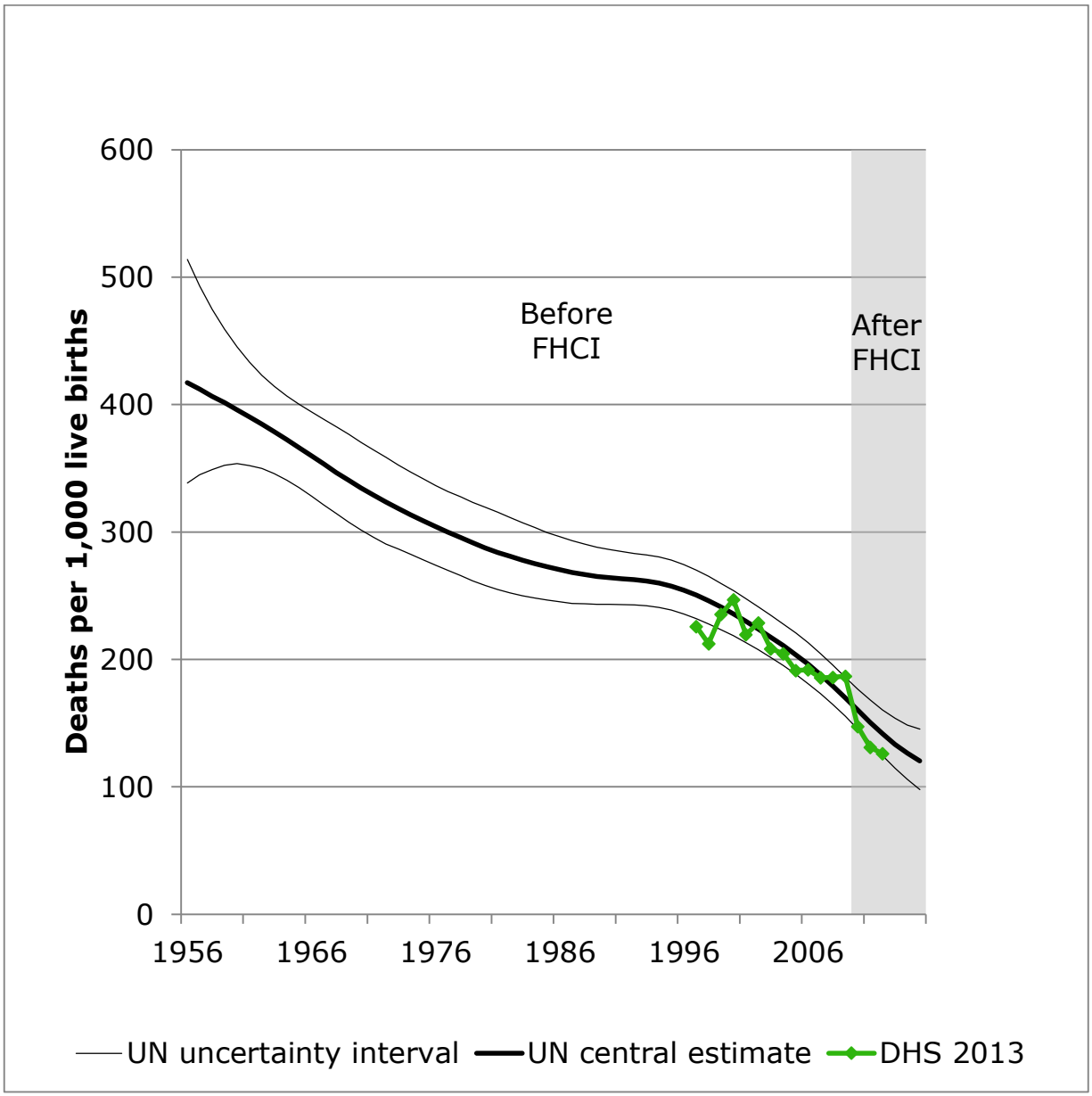
Source: DHS 2013

As for the estimates for maternal mortality, the UN inter-agency group uses additional variables to model under-five mortality including, in particular, mortality estimates from the MICS – the latest of which was conducted in 2010. The UN has also incorporated their own annual disaggregations of the 2013 DHS under-five mortality data into their model. Figure 68 shows both the modelled figures going back to the 1950s and the disaggregated DHS data for the years between 1997 and 2012.

The modelled data show that under-five mortality has clearly been declining gradually, from very high rates, for many years. This decline appears to have accelerated slightly from around 2000 onwards.

The annual estimates of under-five mortality from the 2013 DHS show a gradual decline from 1997 to 2009. However, there is then a very sharp decline from 187 deaths per 1,000 live births in 2009 to 147 in 2010. This coincides closely with the launch of the FHCI. The following years also saw continued declines to reach 126 deaths per 1,000 live births in 2012.

Figure 67: Under-five mortality



7.1.3 Summary

The picture on changes in mortality following the introduction of the FHCI is mixed. This is partly due to the difficulty in measuring maternal mortality in the absence of a robust vital registration system.

The latest UN estimates of maternal mortality put the levels in Sierra Leone at the highest in the world. Their central estimates do show declining levels but these are accompanied by wide uncertainly intervals that make it difficult to draw firm conclusions on the trend. It is not possible to say from the figures how, if at all, maternal mortality has changed as a result of the FHCI.

The situation for child mortality is more positive. The UN-modelled estimates show a declining trend. The UN has also produced annual estimates of under-five mortality using the 2013 DHS. These show a sharp reduction in rates immediately after the start of the FHCI. The levels fell from 187 deaths per 1,000 live births in 2009 to 147 in 2010. The level continued to fall in the following two years reaching 126 per 1,000 live births in 2012.

However, levels of neonatal mortality, especially early neonatal mortality, have not declined as rapidly. Neonatal mortality is often a more difficult problem to address, being affected by quality of care offered in the health system at primary and secondary levels. We have international evidence on what works in relation to saving newborn lives[92] but less evidence on the extent to which these practices are present or have changed over time and with the start of the FHCI in Sierra Leone.

7.2 Has the FHCI contributed to reducing morbidity in target groups?

Information is available in the DHS for prevalence rates of ARI, fever and diarrhoea for children under the age of five. Overall, there was little change in the prevalence of these symptoms in under-fives comparing before and after the FHCI. In contrast, the nutrition indicators for these children did show large improvements, with the proportion of underweight children falling sharply.

ARI symptoms are considered a proxy for pneumonia and it is one of the leading causes of childhood morbidity and mortality throughout the world. Between 2009 and 2013 the proportion of children with symptoms in the two weeks preceding the survey remained constant at 5% (see Table 35). There was little change in the rates at a regional level, except for Southern Region where prevalence fell from 7% to 2% (see Table 36).

Table 35: Prevalence of symptoms for under-fives*

	Before FHCI	After FHCI
	2009	**2013**
ARI**	5	5
Fever	22	25
Diarrhoea	11	11

* Percentage of children under five with symptoms of each condition in the two weeks preceding the survey.

** ARI symptoms (cough accompanied by short, rapid breathing which was chest-related or difficult breathing which was chest-related) are considered a proxy for pneumonia.

Sources: DHSBS 2009 and DHS 2013

[92] For example, evidence suggests that corticosteroids for pre-term labour decrease neonatal mortality by 40%, the detection and management of breech (caesarean section) may reduce perinatal/neonatal deaths by 71%, labour surveillance (including partograph) by 40% and clean delivery practices by as much as 58 to 78%. Clean delivery practices may also reduce the incidence of neonatal tetanus by 55 to 99% and antibiotics for pre-term premature rupture of membranes may reduce the incidence of infections by 32% (Darmstadt et al., 2005).

Table 36: Prevalence of symptoms for under-fives: Equity issues

	Prevalence* of ARI symptoms**		Prevalence* of fever		Prevalence* of diarrhoea	
	2008	2013	2008	2013	2008	2013
Residence						
Urban	4	4	25	27	11	12
Rural	7	5	24	25	14	11
Region						
Eastern	5	3	23	24	11	9
Northern	8	8	24	27	16	14
Southern	7	2	24	25	10	8
Western	3	4	29	25	11	13
Wealth quintile						
Lowest	7	5	24	25	13	11
Second	7	5	24	25	15	12
Middle	8	6	24	25	14	11
Fourth	6	5	25	27	13	11
Highest	4	3	28	27	9	11

* Percentage of children under five with the stated symptoms in the two weeks preceding the survey.

** ARI symptoms (cough accompanied by short, rapid breathing which was chest-related or difficult breathing which was chest-related) are considered a proxy for pneumonia.

Source: DHS 2008 and 2013

Fever is a major symptom of malaria and other acute infections in children. There was little change in the rates of fever in children under five measured by the surveys, with 22% of children reporting a fever in the two weeks preceding the survey in 2009 and 25% in 2013 (see Table 35). This reasonably consistent pattern was evident across all areas and wealth groups.

Levels of diarrhoea among children were also unchanged: 11% of children under five had diarrhoea in the two weeks preceding the survey in both 2009 and in 2013 (see Table 35). Most areas and quintile groups showed little change. However, for rural areas as a whole prevalence fell slightly from 14% to 11%.

In contrast to these indicators of morbidity, the nutrition indicators for children under five did show a general improvement between 2009 and 2013. This is what we might expect after the introduction of the FHCI, with higher immunisation rates, improved treatment for malaria and other conditions and better access to health care for under-fives all leading to overall improvements in health.

The proportions of underweight and wasted children fell by around 40% during this period, while prevalence of stunting fell by a quarter (see Table 37). The administrative data from HMIS also tell a similar story, revealing a gradual reduction in the percentage of under-fives that were severely underweight from above 7% before the FHCI to below 5% by 2014 (see Figure 69).

Table 37: Nutrition indicators for under-fives*

	Before FHCI	After FHCI
	2009	**2013**
Underweight**	25	16
Stunted***	46	38
Wasted****	14	9

* Percentage of children under five who were two or more standard deviations below the WHO standards for each indicator.

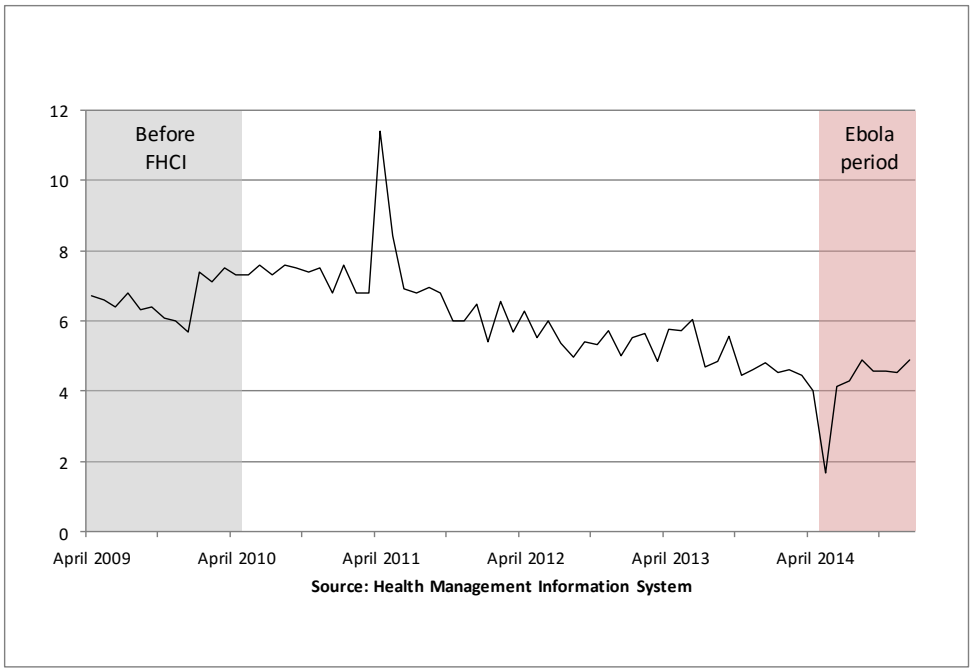
** Low weight for age.

*** Low height for age.

**** Low weight for height.

Sources: DHSBS 2009 and DHS 2013

Figure 68: Percentage of under-fives that are severely underweight each month



Source: HMIS

7.3 Has the FHCI contributed to reductions in impoverishment?

Although the FHCI ToC speculated that the FHCI might reduce poverty, it has to be acknowledged that this was an optimistic assumption, given the complexity of the relationship between spending on fees and drugs for one target group and this much larger goal. We do not have the data to examine this relationship directly. However, ReBUILD did study the effects of the FHCI on catastrophic health care expenditure at the household level, which by definition has implications for poverty levels of the household, either now or in the future. Although apparently quite a small reduction, Edoka et al. (2015) shows that the reduction in real OOP expenditure between 2003 and 2013 makes a significant difference to the incidence of catastrophic health expenditure, defined as OOP expenditure in excess of 10% of household total expenditure. They find that it decreased

from 50% in 2003/04 to 32% in 2011. This is mostly due to a decrease in the incidence and effect of ill health.

A catastrophic health expenditure incidence of 32%, while better than it was, still suggests that the living standards of many households are still being compromised due to the financial risk of unexpected health care costs. It also leaves open the question of interest to the evaluation team: did the FHCI contribute to the reduction from 50% to 32%? It is also not clear what our expectation of this policy reform should be in relation to the degree of reduction in catastrophic health expenditure to be expected from it.

7.4 To what extent has the FHCI contributed to strengthening social cohesion (perceptions of policy fairness)?

Social cohesion in this framework is interpreted in a very limited way as relating to the perceptions of fairness of the policy by the target groups and wider community. This will relate not only to agreement on the design (whether the target groups are indeed a social priority) but also the modalities of implementation, with poor implementation and perceived abuses causing a possible erosion of confidence in the public authorities.

From the NPSS surveys, it appears as though satisfaction with health care in government facilities has increased significantly between 2008 and 2011 (see Table 38 below).

Table 38: Satisfaction with health care at government facilities by local council

Table IA2.17: Satisfaction with Health Care at Government Facilities by Local Council

	Percent of households				
	2005	2007	2008	2011	
Kailahun District	53	93	89	95	+
Kenema District	85	86	72	92	+
Kono District	79	88	79	93	+
Bombali District	92	93	82	94	+
Kambia District	93	92	76	96	+
Koinadugu District	91	92	92	98	+
Port Loko District	73	97	83	98	+
Tonkolili District	82	87	83	92	+
Bo District	82	94	87	92	
Bonthe District	79	89	75	90	+
Moyamba District	91	90	77	87	+
Pujehun District	88	90	75	91	+
Western Area Rural	83	93	95	98	
Freetown	85	95	98	97	
Kenema Town	73	76	85	95	+
Koidu Town	67	93	90	84	
Makeni Town	92	90	90	100	
Bo Town	81	75	94	95	
Bonthe Town	88	100	83	100	+
National	81	91	84	94	+

Note: Figures marked with +/- represent a statistically significant increase or decrease over 2008. Significance at the 95% level.

An HFAC report one year after the FHCI launch found that 71.5% of respondents who had attended a government facility were satisfied with their service, with the remaining 28.5%

unsatisfied. It is hard to know what this statistic was before the FHCI, or what it is now, but it is in line with a ball park 70% of people using government clinics as their usual provider as found by the NPSS. In total 21% felt the services they received were very good, 49% good, 22% fair, 7% bad and 1% very bad (HFAC, 2011). The report raises the concern that individuals are not actually aware of their rights, and so their satisfaction is misleading. The HFAC finds that 238 people had to pay for their free health care services, and that of these 203 rated their care as very good (51), good (78) or fair (72), and 121 were satisfied with the services they received. If they were aware of their right to free health care they should not have been satisfied with having to pay.

In 2013, a survey on the topic was completed, this time focusing only on women who were known to have used free health care services and parents of children who received vaccinations in 2012. It was conducted as part of the external verification of the country's PBF scheme for primary health care. Roughly 20% of facilities were randomly selected for verification, and eight recipients of free health care from each of these facilities were randomly selected, traced and asked about their experience (Cordaid, 2014). In total 1,233 people were interviewed, spread across all districts. The average satisfaction score was 7.3 out of 10. It was lowest in Koidu New Sembehun City (4.1) and highest in Port Loko (9.9). The survey found that higher satisfaction was correlated with kind attitudes on the part of staff, short waiting times and availability of medicines. Cordaid also found that patient satisfaction was generally higher for care received at lower-level facilities.

Most FGD participants in the provinces generally expressed satisfaction with the existence of the FHCI, mainly due to the following factors: free ITNs, free food supply, free delivery for pregnant women, free medication for malaria and other treatment, and regular vaccination of under-five children. The majority reported that they had benefitted directly from the FHCI or their family members had benefitted in some way. Generally, the perceived benefits from most of the participants included reduced death and sickness rates among women and children, improvement in some of the services, spending less for health services under the FHCI, and increased use of health and medical services. They mentioned that, before the introduction of the FHCI, many more women died due to complications during delivery as they were not managed properly by the TBAs. In addition, they reported that many more children died due to common childhood diseases and malnutrition.

Support for the government was also expressed by one ReBUILD household interview participant:

> *"I am very glad for what the Pa [the President] has done for them. I am glad because during those times, my own time, I did strain, but now many are able to give birth because the free health has come, so the Pa has really, really done well for them"* (Western Area 103, female, > 50 years old) (Amara et al., 2016).

However, there were other FGD participants – especially in Western Area – who expressed varying levels of dissatisfaction with the FHCI. They reported that they were very unhappy with how they were treated by health workers at the health facilities. Most of them complained about the long waiting time to access the services, limited space to accommodate patients, poor sanitary conditions of the facilities, and the unfriendliness of health workers. There were also concerns and dissatisfaction with the food supply. Participants were particularly dissatisfied with 'hidden costs' such as the payment for registration or entrance to the health facility:

> *"I am not too satisfied because it can never be free when we are still paying for registration"* (Adult female, Western Area).

Though most FGD participants across all groups and in all the districts expressed some disappointment that the FHCI does not target the entire population, they generally agreed with the FHCI's mandate to specifically target the three categories of beneficiaries.

However, some participants, especially the youth, were very unhappy with their exclusion from the FHCI. A few other participants like the elderly and people with disabilities also voiced their frustration about not being included. A few participants in the Western Area expressed the view that people in the provinces had benefitted more than them from the FHCI, the reason being that health care workers held beliefs that people residing the city were financially better off than those in smaller towns and villages and as such requested they pay for services that are meant to be free.

A few participants believed that the FHCI was not working mainly because of corruption:

> *"If things are not working well at the hospitals it is because the community leaders are supporting the corrupt practices of the hospital officials. This is my observation"* (Adult male, Bo).

In summary, the reaction to the FHCI is complex, depending on where in the country people live and what group they are part of. There is a general consensus that it targets a priority group, but naturally gives rise to heightened expectations from other population groups. At the same time, implementation failures undermine positive experiences and social perceptions.

8 Unintended effects

With a complex reform like the FHCI it is clearly to be expected that some unintended consequences might ensue. The OPM team developed hypotheses about such consequences at the start of our evaluation and we have sought evidence to substantiate or refute them, which is presented briefly here.

One concern expressed by informants was that the policy would contribute to a *rise in teenage pregnancies*, presumably because of falling costs in relation to delivery. An underlying concern is that teenagers may have less access to information and less power to negotiate sexual relationships (Restless Development, 2010). However, the DHS data do not back this up. Fertility rates for 15–19-year-olds fell from 146 per 1,000 women in 2008 to 125 in 2013. All other age groups showed much smaller reductions in fertility. The uptake of family planning is the same for 15–19-year-olds as for all women, with 21% currently using a modern method of contraception.

A second concern, and one which was expressed in some early reports on the FHCI, was that it had contributed to a *drop in preventive services* (through diversion of resources to curative care). This is something for which there is some evidence in other countries (Wilkinson et al., 2001). However, analysis of the DHS data suggests that this has not been sustained. It is possible that during the first months of the FHCI there was a reduction in attention to outreach and preventive care, but that is not supported as a longer-term problem by the 2013 DHS, as reported in Section 6.1.

It is also reasonable to monitor trends in *utilisation of public services by non-targeted groups* such as general adult outpatient visits and those for older children. However, while there might be some risk of providers focussing on target groups, it seems more likely that general utilisation is driven by demand-side factors, and here the FHCI might have positive effects too, if funds are liberated to pay for non-target group members (as the household data hints). The lack of HMIS data before April 2011 has made it difficult to assess this issue completely and we do not know how relative utilisation rates changed in the year after the start of the initiative. However the trends from 2011 to 2013 appear to show that the number of outpatient consultations has been rising for both FHCI and non-FHCI groups. For children under five, outpatient visits in the year from April 2013 were 50% higher than for the year starting in April 2011. This is the same percentage increase as for children aged 5 to 14 year olds. And, although the total number of visits for men is much lower than for children, the rate of increase for males aged 15 and over was faster at 75% during this period.

On the positive side, it is possible that the FHCI could have a positive impact in terms of *women's empowerment*. Women in Sierra Leone face discrimination in virtually every aspect of their lives, with unequal access to education, economic opportunities and health care. Given their low status and lack of economic independence, women were rarely able to decide for themselves to go to a health care facility, whether for family planning, ANC, deliveries or emergency services, as such a decision was normally in the hands of the husband and often dependent on his assessment of whether they had or could raise sufficient money.

In the FGDs, the theme of 'men as decision-makers' was discussed within the context of power imbalance in health-seeking decisions. The majority of the participants across all groups strongly expressed the view that health care-seeking decisions are always or mostly done by the head of the family – who are mostly men:

> "*The care taker or the head of the family [makes the decision], for example as we are here now the chief is the head of the house; if somebody falls sick in this house, he makes the decision on that*" (Youth, Koinadugu).

This appears not to have changed with the FHCI, and remains a cause of delays in seeking care. However, a few participants mentioned that in the absence of the head of the house, the decision can be made by other respected members of the household such as wives or neighbours:

> "*For me, in some cases, when the husband is dead. When someone is sick, the relatives will decide to take the child to the hospital"* (Community leader, Bo).

Overall, we have no evidence that a strong shift in gender roles has occurred.

Other *changes to the health care market* might be expected to result from the FHCI. For example, private and faith-based facilities will have had to respond to changing prices in the public sector, although this is mediated through perceptions of quality and convenience. There is qualitative evidence that the private sector continues to be important for health seeking, especially in the Western Area. In the DHS, there is virtually no change between 2008 and 2013 in terms of private sector use for delivery care: just over 2% of births take place in a non-government health facility.

In the informal sector, TBAs can no longer make the living they used to, although there is clear evidence from a number of sources that TBAs have been given the new role of linking communities and facilities, in part funded through the PBF funds at facility level. This is potentially a positive unintended consequence, as it follows a wider global pattern of changes to the role of TBAs. Participants in our FGDs expressed confidence in the skills of TBAs and also reported using alternative services like 'traditional healers' because, according to them, they are cheap and the medication they provide works effectively. It seems overall, therefore, that other sectors remain resilient.

A number of potential unintended financial consequences were also explored. One was that there might be a *crowding out of other budget lines* in the MoHS budget by the increase in salaries awarded in 2010, which was linked to the FHCI. Looking at a breakdown of MoHS expenditure, there were significant decreases in HR management, secondary and tertiary expenditure in 2011, which was the first budget to include FHCI expenditure. This may reflect a declining non-payroll recurrent budget (with significant increases in the payroll budget). As noted in the section on sustainability, this is a risk that requires careful management, as expectations of continuing salary increases are easily established.

Another concern was whether *other programmatic areas were squeezed* by the allocation of funding to the FHCI. There were large increases in funding to MCH in the 2011 budget, the first that included the FHCI. Although there was the potential for displacement of funding to vertical programmes through funding the FHCI, this does not seem to have materialised, and in any case may have been minimised by some of this funding being off-budget and subject to existing donor programmes. MCH expenditure increased from 8% of non-salary recurrent MoHS expenditure in 2008 to 28% in 2014. Government prioritisation within the budget for drugs and medical supplies also increased greatly.

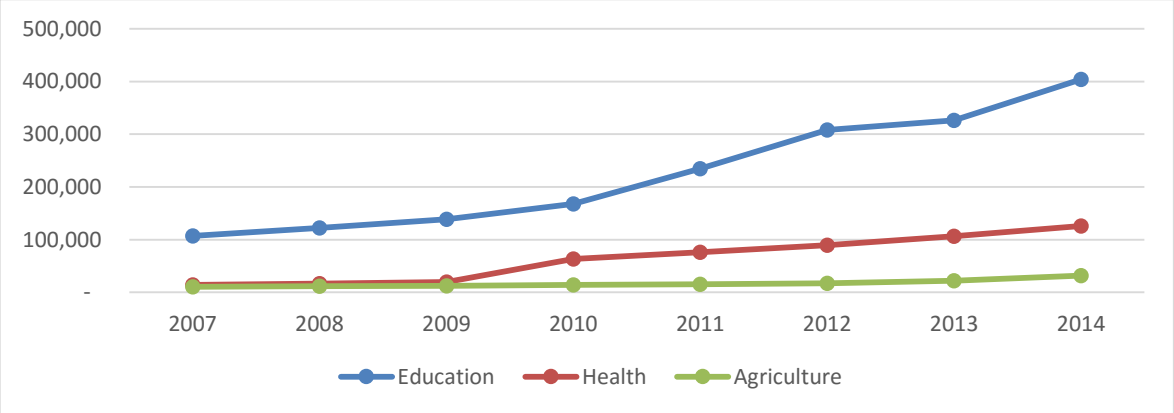
Analysing NHA data by type of expenditure shows that there were significant expenditure increases in public health programmes in 2010 (even in real terms). This was most notably with respect to MCH, consistent with the FHCI, but also occurred in relation to malaria prevention. This latter finding is perhaps important giving the potential displacement effect of the FHCI on other health programmes. Inpatient expenditures have also reduced, potentially suggesting better first-line treatment.

A third financial concern related to the increasing salaries of health workers was that other public servants would demand similar increases (*wage increase contagion to other sectors*). While it is extremely hard to link the causes of salary decisions, aggregate data suggest that there may be some cause for concern here. Wages have increased significantly in Sierra Leone since 2010, making up a growing share of the economy, from around 5% of GDP in 2009 to a projected 7% of GDP in 2015 (see Figure 70). Furthermore, the main change in education, by far the largest wage sector, occurred the year after the FHCI increases had been approved (see Figure 71). However, analysis of reports at this time (2011) of the potential teachers strike over wages did not link the issue to the FHCI-related increases. Later increases in the wage bill were driven by across-the-board increases in the minimum wage, brought in in 2014, which appeared to be driven by factors other than relative wages in the health sector.

Figure 69: Wages in Sierra Leone, 2007–2015

Source: IMF data

Figure 70: Wages by sector, Sierra Leone, 2007–2015



Source: MoFED

A final possible unintended consequence that was posited in advance as a risk was *opportunistic responses by facility managers* to the FHCI, which would include changing the prices for other services to cope with lower or more irregular funds for FHCI target groups. This was examined in the district KIIs, and no evidence was found to support its occurrence. The PBF funds have acted to buffer the losses from the FHCI; it they were to diminish or become more irregular, this risk would be likely to become more real again.

In summary, we examined ten possible unintended consequences of the FHCI on the health system and society but only found evidence to support one of them, which was a squeeze on non-

salary expenditure within the MoHS budget. This is discussed further in the section on the sustainability of the policy.

9 Other contributory factors

Tracking the effects of the FHCI on the main outcome measures of interest has involved analysing available evidence on trends in these MCH outcomes, looking for discontinuities in these trends that coincide with the FHCI's start, and analysing changes to processes and outputs that provide corroborating or uncorroborating evidence, based on our ToC. However, it is clear that other factors will also influence the health outcomes of the Sierra Leonean population across these years. In this section we describe some of the main other influences in order to inform our judgements about the plausible role of the FHCI. These include:

- Other epidemiological factors, including the Ebola epidemic;
- Social determinants of health, including education, water and sanitation, and fertility;
- Independent projects and investments (investments which relate to clearly distinct components of the health system or which would have occurred in the absence of the FHCI); and
- The evolution of the Sierra Leonean economy and poverty trends, which will have an impact on health-seeking behaviour and outcomes directly and indirectly.

9.1 Ebola and other epidemiological factors

According to the Health Sector Recovery Plan 2015–2020 (MoHS, 2015), Sierra Leone's first cases of Ebola occurred in the Eastern part of the country in May 2014 and afterwards cases increased in number and distribution, affecting all 14 districts and outpacing morbidity and mortality in neighbouring Guinea and Liberia. By March 2015, there were more than 8,400 confirmed cases and 3,600 reported deaths, making it the worst affected country in the West African region and in the world.

Several assessments conducted by GoSL and/or its partners revealed that the health sector was disproportionally affected by the Ebola outbreak (MoHS, 2015). At the sector level, the epidemic had direct and disproportional effects on the health sector, eroding recent progress toward the MDGs. As first responders, health workers became infected through the provision of routine care and support to sick patients. Poor early recognition of Ebola accompanied by inadequate Infection Prevention and Control (IPC) standards combined to fuel transmission in health facilities. The result was an erosion of community confidence in the sector and a reduction in the delivery of critical MCH services. In the case of nutrition, quarantine restrictions affecting food production and distribution coupled with a deepening of household poverty likely exacerbated acute and chronic undernutrition.

There were a total of 296 Ebola infections among health care workers with 221 deaths, including 11 specialised physicians (MoHS, 2015). The aforementioned reduction in community confidence in the health sector negatively affected utilisation – with a 23% drop in institutional deliveries, 39% drop in children treated for malaria and 21% drop in children receiving basic immunisation (penta3). The outbreak also led to the delayed implementation of key health programmes – including critical child health campaigns – as the country's priorities shifted to focus mainly on the Ebola response. Essential health programme management staff were reassigned to help control the outbreak, campaign-based delivery of essential interventions was halted and routine health management and coordination meetings ceased. When services are constrained, there is a high risk of concurrent health vulnerabilities that must be immediately addressed. These include possible outbreaks of vaccine-preventable diseases (particularly measles), a surge in malaria cases and deaths, acute malnutrition, and maternal and newborn deaths due to a rise in home deliveries. Estimates suggest that, post-Ebola, the levels of under-five mortality returned to 1990's levels. Moreover, although 96% of PHUs remained operational throughout the crisis, the outbreak

led to a marked decline in the utilisation of health care facilities for non-Ebola-related health needs, particularly in urban areas such as Freetown, with a much lower proportion of women reporting pregnancy-related care and as much as a 90% drop in family planning visits (GoSL, 2014).

As the survey data we rely on for the FHCI evaluation tend to date from 2013, the losses reported above for Ebola are not visible there. However, we have reflected the interaction between the health system and Ebola in our assessment of the core interventions and analysis of HMIS data and other data sources for 2014/15. Our FGDs also reflect the ongoing legacy of Ebola. Almost all FGD participants from all groups and districts expressed concerns regarding Ebola and the safety of health facilities and health workers. They mentioned regular washing of hands and not touching and caring for the sick and dead as preventative ways they have been practising even as the Ebola epidemic was coming to an end. Most participants felt that the GoSL should continue sensitising people on Ebola safety measures in the communities to ensure people are not complacent about the disease.

The other main disease outbreak during the 2010–2015 period was cholera. Sierra Leone is periodically subject to cholera outbreaks, which often occur during the rainy season (from May to October) and are related to heavy rains that cause flooding and contamination of water sources. During the period of study, there was a major outbreak in 2012, when Sierra Leone reported 22,885 cases with 298 deaths (CFR=1.30) that reached 12 out of 13 districts. Western Area accounted for the majority of the cases (11,805 – 52% of all cases). This outbreak was linked to one in Guinea (WHO, 2013).

9.2 Social determinants of health

9.2.1 Education

Analysis of the 2010 MICS shows a clear link between higher education levels and better health indicators and outcomes. It also finds links between education and reduced poverty, which in turn is known to lead to better health outcomes. The Education Country Status Report states:

> *'The net impact of education on human development is noteworthy. Many fertility and maternal and child health indicators improve with education: the average age at first childbirth rises, women have fewer children and the probability of at least one child dying drops. Gains are greater in urban areas, regardless of the availability of local health services. The probability of poverty also drops considerably. In spite of these positive impacts Sierra Leone ranks just 28th out of 37 SSA countries in terms of the impact of primary education on human development, which may be related to the comparatively low quality of education'*.

In terms of links with fertility indicators, the analysis found that women who had completed upper secondary school or tertiary-level education were more likely to use contraception, had their first child at an older age, and had fewer children. The average age at first birth for those with no education or only primary education was less than 19 years, compared to 21 years for those with secondary or higher education.

Women with tertiary education were more than four times more likely to use contraception (40%) compared to those with no education (9%). The higher levels of education were also linked to smaller family sizes: 4.5 children for those with tertiary level, compared to more than six children for those without education.

MCH indicators also improved with increasing levels of education. Pregnant women with higher levels of education were more likely to receive components of antenatal care such as tetanus toxoid vaccinations and antimalarial preventative treatment. They were also more likely to deliver in a health facility.

The probability of losing at least one child was almost double for uneducated women compared with the most educated: two-thirds of mothers without primary education had lost at least one child, whereas for those with the highest levels of education the proportion was just over one-third.

As with the information for health, there are many weaknesses with Sierra Leone's education data. The Education Management Information System provided no reliable data from 2005 to 2010. In addition, the 2010 information was found by UNESCO to be overestimated by 18% for primary school data and 12% for secondary schools, before being subsequently adjusted. UNESCO also used a range of surveys in their analysis, although the different sources of data are not always consistent with each other.

Resources for education in Sierra Leone have been rising slowly. In relative terms, education spending rose from 3.3% of GDP in 2004 to 3.5% in 2011. However, these levels remain below the average of 3.9% for other low-income countries.

Participation in education has risen dramatically since the end of the civil war. In 2002, the government removed fees for primary school and this led to a doubling of numbers from 650,000 children in 2000 to 1,280,000 in 2004. However, since then numbers have remained broadly constant, with around 1,200,000 children in primary school in 2010.

There have also been large increases at secondary level. Numbers in junior secondary school rose by a factor of four from 60,000 in 2000 to 244,000 in 2010. The relative rise for senior secondary school was even higher, with numbers moving from 23,000 to 108,000 in the same period.

Despite these large increases in numbers, a significant percentage of children remain out of school. In 2003, 25% of children aged six to 14 were out of school and the figure was still 22% in 2010. The overwhelming majority of these out-of-school children – more than 90% – had never been to school.

Education outcomes for children in Sierra Leone are low. An Early Reading Assessment Survey was conducted among primary children in 2011. It found that more than half of children could not write their names after the first year of primary school. It also found that after three years of school the great majority had not yet mastered the alphabet and how it works. Reading and comprehension levels were also low for primary school-aged children. Other studies have also shown that there are weak education outcomes through both primary and secondary levels.

In terms of adult literacy, Sierra Leone has low levels. Rates have risen from 35% in 2004 to 44% in 2012, but this is far lower than the average of 66% for sub-Saharan Africa. The gap between literacy rates for men (56% in 2012) and women (34%) has also not closed over this period.

The picture for younger adults is better. For those aged 15 to 24 years, overall literacy rates were 63% in 2012 and this represents a faster increase than for adults as a whole. Rates for young women are increasing faster than for young men: literacy rates for women aged 15 to 24 were up 17 percentage points in the eight years to 2012 compared to only 12 percentage points for young men. However, although the gap is closing young men remain more literate than young women.

In summary, education participation improved through the 2000s, albeit from very low levels and with serious constraints apparent to the quality of education. We have limited evidence from after

the FHCI with which to assess both how education contributed to better health outcomes and the reverse.

9.2.2 Water and sanitation

Access to clean water and adequate sanitation is another significant driver of better health for adults and children (Prüss-Üstün et al., 2008). Households in Sierra Leone have poor levels of access to improved water sources and sanitation (see Table 39). Access to an improved source of drinking water has been steadily increasing over the last two decades but at a very slow rate of about one percentage point a year. In 2010, 57% of households had access and this rose further to 63% in 2015. Rates were much higher in urban areas compared to rural: 85% compared to 48% respectively in 2015.

The situation is worse for sanitation. In 2015, only 44% of households had access to sanitation that hygienically separated human waste from human contact (68% in urban areas; 28% in rural areas). The rate of improvement has also been extremely slow, with access typically increasing by only half a percentage point each year since 1990.

Progress in access to clean water and sanitation is likely to have contributed to the gains noted in health, although given the slow rate of progress, especially in rural areas, it is unlikely to have been a major factor.

Table 39: Trends in water and sanitation, 1990–2015

Water and sanitation				
	1990	2000	2010	2015
Improved drinking water[1]	37	47	57	63
Improved or shared sanitation[2]	33	37	42	44

1. Percentage of households that have an improved source of drinking water. An improved source is one that is protected from contamination either through its construction or by active intervention.
2. Percentage of households that have improved or shared sanitation. Improved sanitation hygienically separates human excreta from human contact and is used by only one household. Shared sanitation is where the facilities are used by more than one household but otherwise meet the standards of improved sanitation.
Source: WHO and UNICEF Joint Monitoring Programme for water and sanitation

9.2.3 Fertility trends

As with education, fertility is both influenced by changing health indicators and is itself a determent of health. Fertility rates in Sierra Leone have been declining, but also very slowly. The total fertility rate (TFR) shown by the 2013 DHS was 4.9 compared to 5.1 in the 2008 DHS.

Rates were much higher in rural areas at 5.7 compared to 3.5 in urban. Northern, Eastern and Southern regions all had high rates above 5, compared to Western at 3.2.

Women with higher education had lower fertility rates; those with at least secondary education had a TFR of 3.0, while for those without education it was 5.6.

There was also a strong gradient by wealth quintile. The bottom three wealth quintiles all had rates above 5.5 compared to those in the highest wealth quintile who had a TFR of 3.0.

9.3 Other investments in RMNCH

It is important to recognise the role of other investments in the health sector that were independent of the FHCI or were likely to have occurred in its absence. In the health financing section (Section 4.1), various approaches are taken to isolate FHCI from non-FHCI health expenditure. On the impact side, it is also important to assess the likely influence of other programmes or projects. Where known, these are mentioned in the relevant sections of the report.

There was some impetus to improve quality of care in the lead up to the FHCI with the presidential endorsement in February 2008 of a RCH Strategic Plan to address MDGs 4 and 5 – to reduce maternal, under-five and infant mortality rates by 30% between 2005 and 2015. Other investments to strengthen the health system were also ongoing but were slow in implementation, in part due to delays in disbursement of funds.

Important investments that contributed to outcomes are likely to have included the GAVI support for vaccines and the Global Fund support for malaria prevention and control, as well as the AfDB support for health infrastructure (see Annex G). Within the RMNCH field, DFID-supported programmes such as the Making it Happen project, UNFPA, UNICEF and the World Bank all invested directly in improving RMNCH outcomes over the period. Some part of these would undoubtedly have occurred in the absence of the FHCI. It is not easy to assess either what proportion would have been invested in the absence of the FHCI, nor the impact of that hypothetical proportion. All we can conclude is that they played a role in the outcomes documented. In general, the FHCI was seen by all study participants as having given a boost and coherence to the focus on RMNCH.

9.4 The macroeconomic environment and poverty rates

The economy influences health through resource availability but also by affecting all of the other drivers discussed above. It also affects poverty, which is of course a key factor in understanding changing household access and health seeking. It is therefore worth understanding the economic context of the period, although isolating influences on health is beyond the scope of this study. The context also affects health financing sustainability going forward.

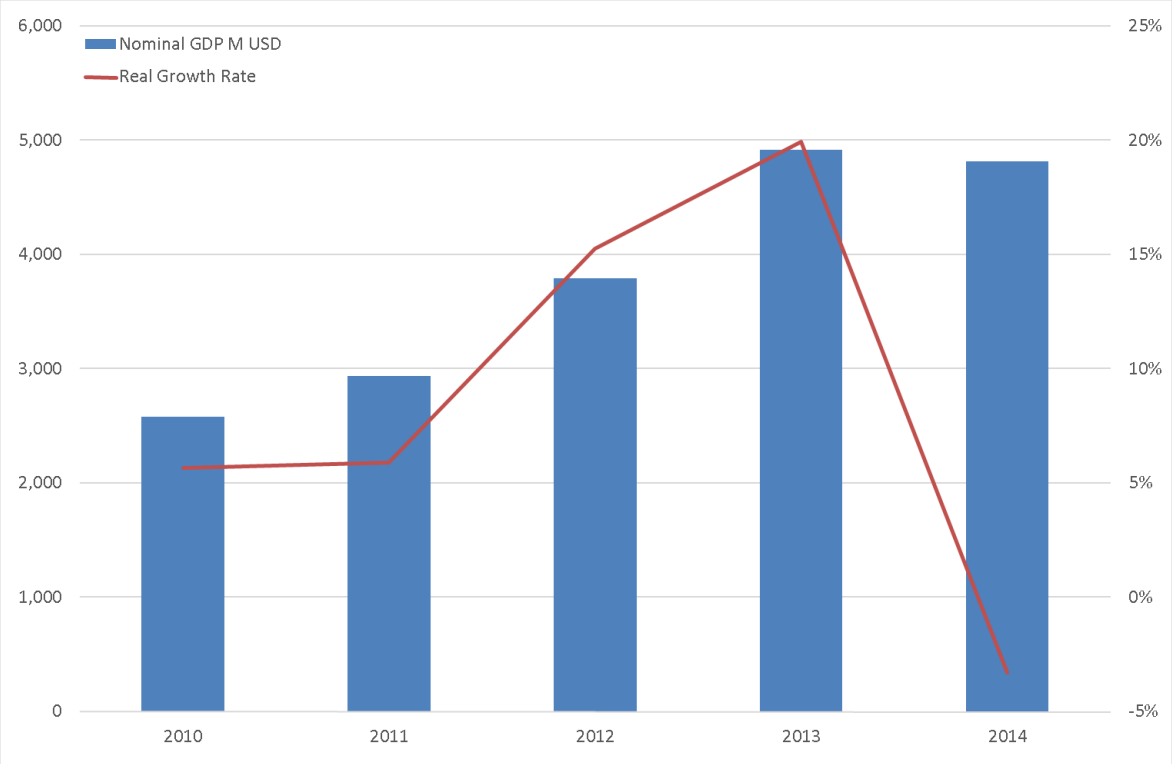
Sierra Leone has experienced sharp real growth over the past five years, averaging 8.7% per annum from 2010 to 2014. Despite recent double digit growth and the per capita income rising from US$ 450 in 2010 to around US$ 800 in 2013, Sierra Leone remains a low-income country with a declining per capita income in 2014. As Figure 71 shows, economic growth rose to 20% in 2013 before dropped sharply to -3.3% in 2014. This sharp fall was a result of the Ebola outbreak and the drop in international mineral prices, especially iron ore.[93] Moreover, these twin shocks are estimated to have reduced economic growth by even greater degrees in 2015.

Economic activity is projected to rebound in 2016 as the Ebola epidemic is overcome. However, this will be limited as the mineral and mining sector in Sierra Leone has serious production

[93] IMF Article IV November 2015.

constraints.[94] Iron ore mines have been closed (as low international prices make production unprofitable) and all other mining exports have declined due to slowing international demand and prices (diamonds, bauxite and rutile being the other main mineral exports).

Figure 71: Economic growth (nominal GDP US$ millions and real growth rate)



Source: IMF

The sector has a wider impact on the economy and raises particular difficulties for government revenues (thus compounding the problems caused by the Ebola epidemic). Tax revenues have declined directly through falling mining royalties (which are based on export values), and some mining companies are also struggling to pay income taxes. Indeed, the tax-to-GDP ratio – as shown in Figure 72 – had been rising from 9% in 2010 to 11% in 2012 but returned to 9% by 2014. Estimates for 2015 shown the ratio to remain at around 9% of GDP.[95] The rate of domestic tax collection in Sierra Leone is low compared to other low-income countries, which averaged 12% of GDP in 2011.[96]

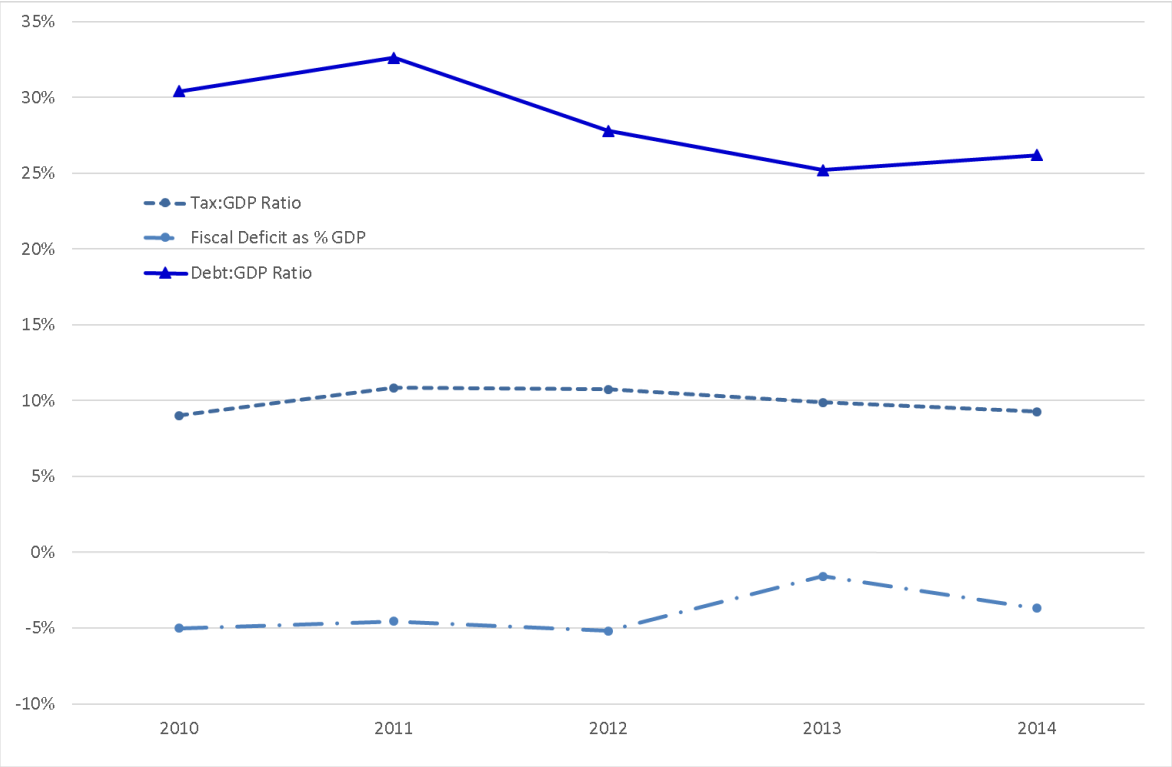
The GoSL's fiscal situation has therefore been constrained through declining revenues from mining and increased expenditures due to the Ebola crisis. The weak economic performance has added pressure to the fiscal deficit in 2014 – which was previously improving prior to the twin shocks – and this is expected to widen further in 2015 and 2016.

This macroeconomic environment is expected to be further complicated by rising inflation, which had been brought down to single digit levels but will continue over the next few years. In sum, the GoSL has a challenging fiscal position to contend with. Fiscal space will be tight and much required tax reforms are being undertaken to mobilise domestic tax revenues for the rebuilding of

[94] Mining information comes from meeting with Bank of Sierra Leone, and IMF Article IV text.
[95] IMF Article IV Nov 2015.
[96] World Bank Development Indicators.

the economy.[97] However, these systemic changes may take many years to bring in the increased incomes required.

Figure 72: Macroeconomic indicators as proportion of GDP



Source: IMF

Health will be seen as a budget priority throughout the near and medium term due to strong political support in Sierra Leone. There are short-term measures being put in place at present to help fund this, including a specific tax for health that is being proposed in the 2016 Finance Act. This is currently being read in Parliament and states that '*A national health insurance levy shall be imposed at a rate of 0.5% on the value of all contracts relating to the supply of goods and services in support of the Free Health Care Programme*'.[98] How much revenue this will bring to the health sector and how it will be spent is discussed below in the fiscal space analysis.

9.4.1 Poverty trends

Sierra Leone's most recent Poverty Profile (published in 2013) is based on the SLIHS surveys conducted in 2003/04 and 2011. In 2011, households were classified as below the poverty line if they reported adult equivalent consumption below SLL 1,625,568 per year, and in 2003/04 below SLL 750,326 – reflecting the monetary value of a minimum set of food and non-food items to fulfil basic needs. Overall, it is suggested that the incidence of poverty and inequality fell over the period, largely as a result of increasing poverty in the Western Area and growth in urban areas outside Freetown. Rural poverty rates were still much higher than urban rates, and falling more slowly (SSL, 2013). Key descriptive measures of 2011 including of poverty incidence and inequality are presented in Table 40 below.

[97] From meeting with National Revenue Authority.
[98] No 38 of the Finance Act 2016.

Table 40: Poverty profile indicators in 2011 by district

	Poverty headcount (%)	Gini coefficient	Rural households (%)	Net primary enrolment by district (%)	Agriculture as main livelihood (%)
Bo	50.7	0.33	55.1	77.6	49.4
Bombali	57.9	0.42	67.7	70	60.5
Bonthe	51.4	0.3	78.6	70	73.9
Kailahun	60.9	0.25	87.5	67.9	89.4
Kambia	53.9	0.23	77.5	52	78.4
Kenema	61.6	0.28	59.1	60.5	46.5
Koinadugu	54.3	0.28	91	55.5	84.2
Kono	61.3	0.27	66.8	57.3	29.3
Moyamba	70.8	0.25	92.2	64.3	70.7
Port Loko	59.9	0.29	89	57.5	80.5
Pujehun	54.1	0.4	87.1	60.7	79.3
Tonkolili	76.4	0.21	84.2	60.3	76.4
Western Area (Urban)	20.7	0.27	0	83.3	2.6
Western Area (Rural)	57.1	0.28	54.1	66.1	26.2

Source: SSL (2013)

The proportion of households living below the poverty line was highest in Tonkolili and Moyamba, and lowest in Western Area Urban. Beyond these three districts, poverty incidence ranged between 50% and 62%. Inequality was highest in Bombali and Pujehun, and lowest in Tonkolili. The most rural districts were Moyamba and Koinadugu. The lowest education levels were in Koinadugu and Kambia, with the highest in Western Area Urban and Bo. Agriculture is the most significant source of income in Kailahun, and the least in the urban and rural Western Areas.

9.5 Summary

Ebola has clearly had a major impact on health outcomes, although this is masked in our evaluation by the fact that the main data sources analysed for health outcomes predate Ebola, unlike the qualitative tools that do capture part of the Ebola and post-Ebola story. Social determinants of health are all an important part of the picture too, though in general they have improved only slowly over the period and so are not likely to be major explanatory factors behind any health improvements seen. External investments have played a part, especially support to infrastructure and the major disease programmes such as malaria and vaccination. There have been some improvements in poverty rates and the overall economy, although subject to recent shocks. In addition to these areas there are no doubt other important influences, such as national road-building programmes that may have increased access to health care, for example. All these are part of the contribution story.

10 Value for money

The assessment of VfM includes summative measures, which is why we have placed it at the end of this report. This section analyses the VfM of the FHCI by assessing the economy, efficiency and cost-effectiveness of the initiative. Our final section provides additional analysis in relation to equity, which build on the equity analyses of changing outputs and outcomes in sections 5 and 6.

10.1 Economy

Economy is taken to mean the extent to which inputs have been purchased at appropriate prices, and this is generally assessed by benchmarking costs against reasonable comparators. This section focuses assessment on the economy of two key inputs to the FHCI – HR and pharmaceuticals.

Assessing the economy of HR is generally a complicated task. Job descriptions are not uniform, some cadres of the workforce are not internationally tradable, and it can be hard to compare the relative value of salaries in different countries on an annual basis. However, there is a growing body of research into HRH, with a significant component focusing on West Africa, and Sierra Leone specifically, including through the ReBUILD research. This research has explored the remuneration of health workers in a number of countries, and is used in this analysis. The relative cost of the public sector's HRH, as well as its HR for other key sectors such as the military, the police and education, is also presented.

Assessing the economy of drugs is simpler. Drugs are standard across the world, and are internationally tradable. This report uses the International Drug Price Indicator Guide, which has been published by Management Sciences for Health (MSH) annually since 1986 and in collaboration with WHO since 2000. It documents a range of prices from non-profit drug suppliers and commercial procurement agencies, using current catalogues and price lists (MSH, 2015). This report attempts to compare the unit costs of drugs procured for the FHCI with the low, median and high costs documented for the same drugs in the International Drug Price Indicator Guide.

10.1.1 HRH

In a recent attempt to compare health sector staff remuneration across five countries (Ghana, Nepal, Sierra Leone, Zambia and Zimbabwe), researchers identified a series of methodological challenges (McPake et al., 2013). First, health professionals are not always defined in consistent ways. For example, it can be hard to distinguish between junior specialists, general doctors in primary care and specialists working in tertiary institutions. Sometimes enrolled and registered nurses are considered separate categories, and sometimes not. Sometimes midwives are considered their own category, and sometimes not. Some categories of staff perform certain roles in some countries, but would not be considered qualified for the same tasks in other countries. Two key considerations for international comparisons of health worker remuneration from Sierra Leone's perspective are that enrolled and registered nurses are considered separate categories, and that MCH aides do not meet WHO's definition of a SBA but are nevertheless expected to fulfil this role.

Second, ideally the value of salaries would be assessed relative to other salaries within their economies. However, good-quality data on income distributions are rare (including in Sierra Leone), so it is hard to get a sense of how health worker salaries fare relative to other salaries in the economy. McPake et al. (2013) attempt to negotiate this by expressing the salaries in relation to national income or national product per capita, but this does not capture anything to do with

inequality. This report faces the same problem and expresses salaries in terms of a national poverty line and GDP per capita, but is not able to comment on the income decile health workers fall into.

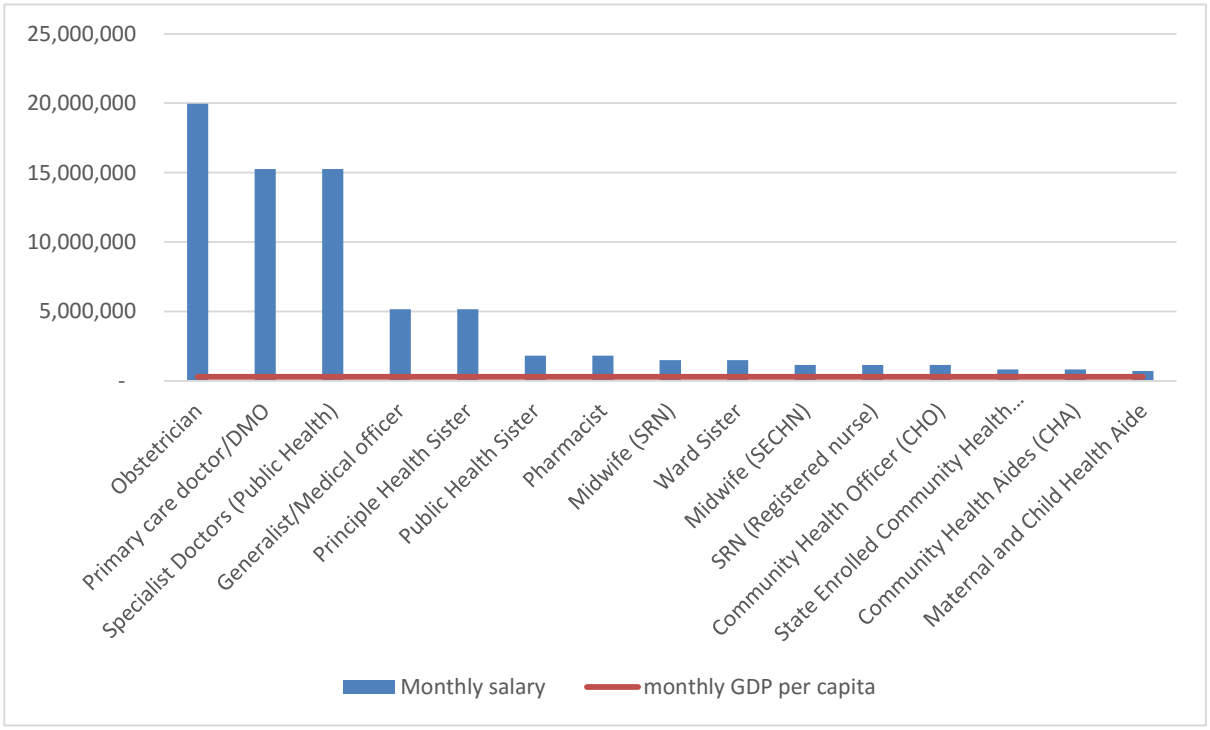
This report thus proceeds by presenting the salaries of staff working in reproductive health and family planning in Sierra Leone by cadre and compares them to national income per capita and a national poverty line. It then looks at the total cost of the public sector's health workers as a proportion of general government health expenditure and general government expenditure, as well as in relation to the total cost of other categories of public sector worker. Finally, it highlights that total remuneration of a health worker includes income from many streams (not just payroll), and compares estimates of this higher total remuneration across countries. Where possible, changes in these indicators are assessed, although the data do not always permit this.

Further issues that have been highlighted in the HRH section (Section 4.3) and which are relevant to the economy and efficiency of HRH include changes to absenteeism, attrition and the difference between distribution and need for health workers (Witter et al., 2015).

10.1.1.1 Health worker salaries

In 2013, the salary for an obstetrician was SLL 19,958,400 per month, which is 68 times larger than the country's average income (measured as GDP per capita). Primary care doctors/DMOs and specialist doctors (public health) received closer to SLL 15million, or 52 times the average, and generalist/medical officers and public health sisters received close to SLL 5 million, which is 18 times the average. However, 78% of health workers providing reproductive or contraceptive services were either state enrolled community health nurses or MCH aides. They received between SLL 700,000 and 800,000 per month, between 2.4 and 2.8 times the average income (see Figure 74 below).

Figure 73: Health worker salaries in 2013, Sierra Leone



Sources: MoHS, GoSL for health worker salaries. IMF World Economic Outlook, October 2015 for GDP

Sierra Leone's Poverty Profile uses the 2003/04 and 2011 SLIHSs to measure consumption expenditure. They estimate that households with an adult equivalent consumption below SLL 1,625,568 per year in 2011 fell below the poverty line (SSL, 2013). This is equivalent to SLL 135,464 consumption per month. All relevant health workers earned between five and 150 times this.

Based on these comparisons then, health workers are a relatively well-paid segment of the Sierra Leonean economy, earning well above average national income levels. Those that are particularly well paid (Obstetricians, DMOs and public health specialists) are clearly in a social elite, earning extremely large amounts of money. A similar analysis of health worker salaries in Ghana in 2005 estimated that doctors earned 38.5 times the GNI per capita after supplementary sources of income were accounted for. It also found that a nurse received 12.09 times the GNI per capita (Witter et al., 2007). A direct comparison between Ghana in 2005 and Sierra Leone in 2013 shows that the relative wages in comparison to average national income were more spread out in Sierra Leone, with doctors receiving much more and nurses receiving much less in Sierra Leone than Ghana.

It is also worth noting, however, that while extremely high within the context of Sierra Leone, the salary of an obstetrician was just below £3,000 per month, or £36,000 per year. A Gap Medics blog in 2013 reported that the average annual salary for an obstetrician or gynaecologist in the UK was £90,000.[99] The UK's National Health Service currently advertises that the basic salary of a specialist doctor is between £37,000 and £70,000.[100] The scarcity of specialist doctors willing to work in Sierra Leone in combination with the financial opportunities doctors have throughout the world mean that relatively high salaries may be a necessity for keeping them in the country.

10.1.1.2 Government total health sector wage bill

In 2013, 60% of GGEH was spent on health worker remuneration – up from 35% in 2008. This also meant a growth from 5–10% of total government expenditure on wages and salaries, from 2–4% of general government expenditure (GGE) and from 0.2–0.5% of GDP (see Table 41). The health workforce is now the government's second most expensive sector workforce (see Table 41). Since 2002 the health sector has been in the top four spenders on government employees. With the introduction of the FHCI, and the pay reforms this came with, the health sector jumped over the military and the police. Only the public education sector workforce, which includes all the country's teachers, is more expensive.

In relation to this report's estimates of the total cost of the FHCI (including non-government sourced funds), however, the wage bill shrunk from 20.0 to 18.9% of the total cost of the FHCI between 2010 and 2013.[101]

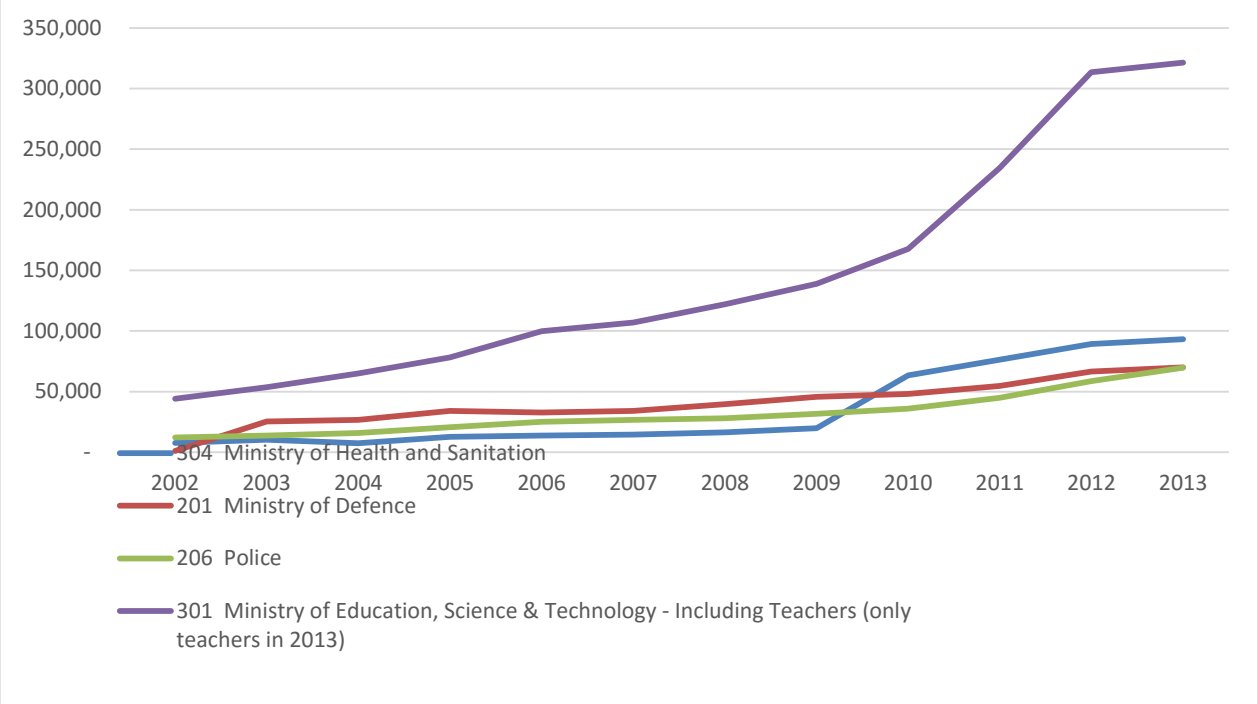
[99] See www.gapmedics.co.uk/blog/2013/12/30/obstetrics-and-gynaecology-career-guide-training-job-description-career-prospects/
[100] See www.healthcareers.nhs.uk/about/careers-medicine/pay-doctors
[101] This total includes both GoSL and donor sources of health worker salaries

Table 41: MoHS payroll in the wider context

	2008	2009	2010	2011	2012	2013
MoHS personnel as % of GGEH	35%	26%	49%	46%	51%	60%
MoHS personnel as % of GGE	2%	2%	3%	3%	3%	4%
MoHS personnel as % of total wages and salaries	5%	5%	12%	11%	10%	10%
MoHS personnel as % of GDP	0.2%	0.2%	0.6%	0.6%	0.5%	0.5%
MoHS personnel as % of FHCI expenditure			20.0%	19.3%	19.7%	18.9%

Source: Authors' calculations from MoFED, GoSL documents

Figure 74: Public sector payrolls, 2002–2013 actuals



Source: MoFED, GoSL documents

10.1.1.3 Other income streams

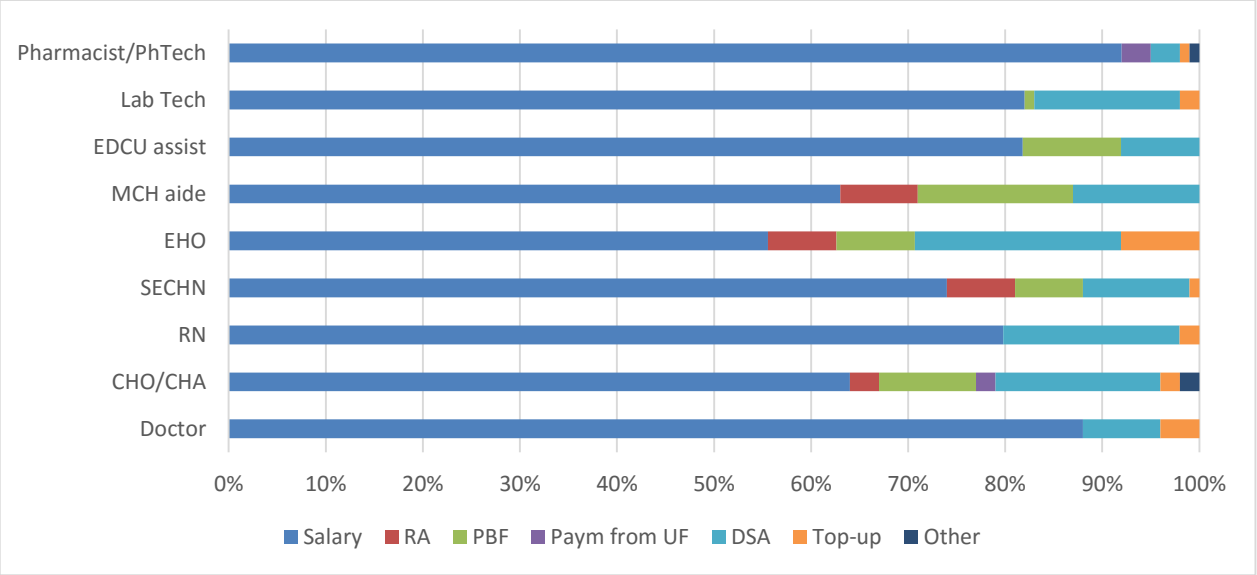
Toward the end of 2012 researchers interviewed 312 health sector staff from the Western Area, Kenema, Bonthe and Koinadugu districts (12% of the total workforce in those areas). The idea was to get a sense of the working patterns, sources of remuneration and motivational factors for Sierra Leonean health workers (Witter et al., 2015). The study included questions on workload, working hours and different streams of income.

An important finding was that health workers receive significant income in addition to their salaries. Figure 76 below shows average self-reported breakdowns of total income, disaggregated by type of health worker. Other than pharmacists, pharmacy technicians and doctors, all professions have their salaries topped up by at least 25% through non-salary sources of income. The amounts reported here are still related to the FHCI. All professions receive significant income through daily subsistence allowances and many also get income through PBF and rural allowances. The researchers also asked about incomes from non-FHCI-related activities (e.g. private practice and non-health sector activities), which are in addition to figures presented here. The importance of this is that basic health worker salaries (as discussed above) are an underestimate of the actual cost of health workers.

This finding has also been observed elsewhere. The above-mentioned 2005 survey of health workers in Ghana found that doctors received only 34% of their income from their basic salary, with the remainder coming from allowances/benefits and a small amount from user fees and private practice (Witter et al., 2007). A similar survey to that carried out in Sierra Leone was conducted in Mali, Benin, Burkina Faso and Morocco in 2012 (Witter et al., Forthcoming). Basic salaries accounted for less than 50% of total income for doctors, midwives and nurses in Burkina Faso, between 40% and 60% in Mali, between 55% and 75% in Benin and between 65% and 90% in Morocco.[102] The remainder came from sources such as government allowances, daily subsistence allowances, bonuses and private practice activities.

A more general attempt to investigate the pay structures of public sector health workers in sub-Saharan Africa found an overall lack of quality data about salaries and incomes. However, where data did exist, they revealed significant variation across countries, with a generally high level of complexity (i.e. health workers generally receive multiple streams of income) (McCoy et al., 2008). The authors suggest such complex pay structures are administratively expensive and generate inconsistencies, feelings of unfairness and mistrust in the system, in turn dampening motivation.

Figure 75: Breakdown of health worker total incomes by source (%)



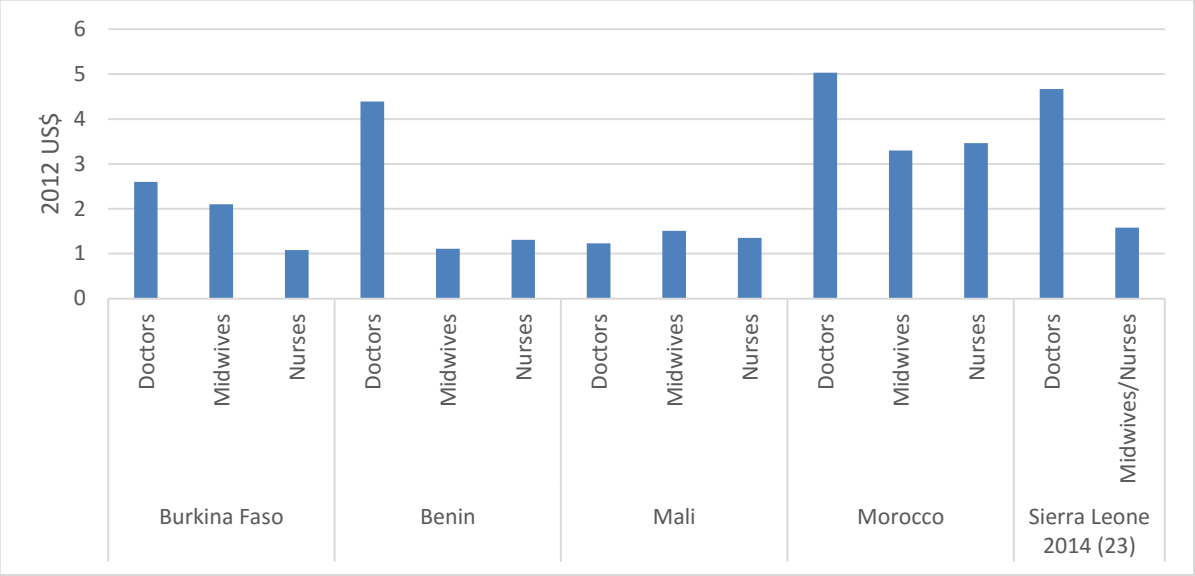
Source: Witter et al. (2015)

Once all sources of income are taken into account, it is possible to benchmark the total cost of health workers in different countries. According to self-reported total incomes and hours worked, Sierra Leonean midwives and nurses received US$ 1.58 per hour at 2012 rates. This was lower than Morocco (US$ 3.30 to US$ 3.46), higher than Benin (US$ 1.11 to US$ 1.31) and Mali (US$ 1.35 to US$ 1.51) and between the rates for midwives (US$ 2.1) and nurses (US$ 1.08) in Burkina Faso. Doctors in Sierra Leone received US$ 4.76 per hour. This was very competitive – closely in between Morocco (US$ 5.03) and Benin (US$ 4.39) and far higher than Mali (US$ 1.23) and Burkina Faso (US$ 2.60) (see Figure 77) (Witter et al., Forthcoming).

Overall then, Sierra Leonean doctors are extremely well paid and the other health cadres receive a good salary. It is important, however, to provide the circumstances in which doctors will want to work in Sierra Leone. This will be a difficult trade-off moving forward.

[102] Note that allowances and salaries were not disaggregated in Morocco in Witter et al. (Forthcoming).

Figure 76: Benchmarking health worker pay/hour across five countries (2012)



Source: Witter et al. (Forthcoming)

10.1.2 Pharmaceuticals

Comparing the price that you have paid for a pharmaceutical with those other prices available on the international market is the clearest indicator for assessing your pharmaceutical procurement economy (MSH, 2015). This report uses the MSH International Drug Price Indicator Guide to assess the economy of the FHCI procurement of drugs by comparing unit costs.[103] DFID allocations to UNICEF for the procurement of FHCI drugs and medical consumables grew from SLL 32 million in 2010 to SLL 53 million in 2013. As a proportion of total expenditure on the FHCI, this started at 10.2%, fell to 8.3% in 2012, then rose again to 9.4% in 2013. The total pharmaceuticals bill was approximately 50% of the wage bill each year between 2010 and 2013.

Section 4.4 has already outlined a number of significant concerns with the logistical management of pharmaceutical procurement and supply throughout Sierra Leone. Whatever the direct unit costs of the pharmaceuticals themselves, if they are not managed well and they are lost, spoiled or expire then money is wasted. When drugs do not make it to the patients or excessive money is spent getting them through the port, the effective unit costs increases. The missing and expired drugs alone suggest that nearly 40% more pharmaceuticals could have been delivered to patients without any extra expenditure on pharmaceuticals if operational management had been improved (BDO, 2015).

10.1.2.1 Comparison of direct unit costs

CHANNEL data include the unit costs of 237 drugs and medical consumables procured for delivery of the FHCI. These are the 'buyer' (as opposed to supplier) price, including cost, insurance and freight. One-hundred and eight of these items are medical consumables, which are not included in the MSH Drug Price Indicator Guide. Of the remaining 129 items, the guide enabled price comparisons of 83 against at least one reference price and 71 against a number of different sources, such that a high, median and a low comparator benchmark were possible.[104] In the 12

[103] This can be accessed online at http://erc.msh.org/mainpage.cfm?file=1.0.htm&module=DMP&language=English
[104] 2014 prices were used. This is because the CHANNEL cost data available is unclear on the date for which it is relevant, but is most likely for a more recent date (up to and including prices paid in 2015). At the time of writing, 2014 prices were the most recent available from MSH.

instances where only one comparator price was possible, it is here recorded as a median benchmark along with the 71 drugs for which a range of comparator prices was available.

Thirty-eight (46% of the 83) of the drugs were procured at a higher cost than the median benchmark, 12 (17% of the 71) were procured at a higher cost than the high benchmark, and 54 (76% of the 71) were procured at a higher cost than the low benchmark. Our analysis reveals that 76% of the sampled drugs could have been bought at a lower unit cost from alternative suppliers, and 17% of the sampled drugs were bought at a higher unit cost than the highest cost found by MSH (see Table 42).

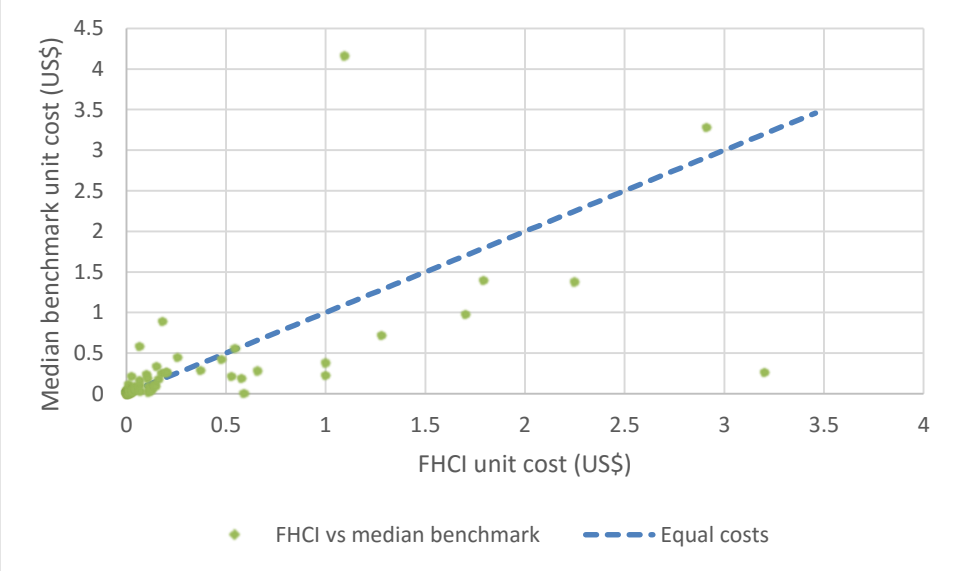
Figure 78 shows a comparison of the FHCI drug unit costs and the MSH drug median unit costs. The vast majority of drugs have unit costs below US$ 0.25. The most expensive in both categories is closer to US$ 4 – but they are not the same drug. The most expensive FHCI drug per unit was 1ml of injectable pethidine 50mg/ml, which is reported to have cost US$ 3.20. This needs to be verified, as the high benchmark for this drug was only US$ 0.41. However, the other drugs broadly become more expensive in line with each other.

Table 42: Benchmarking the unit costs of FHCI drugs

	FHCI lower than benchmark	FHCI higher than benchmark	% of drugs procured at a higher unit cost by the FHCI
High benchmark	59	12	17%
Median benchmark	45	38	46%
Low benchmark	17	54	76%

Source: Authors' calculations from CHANNEL data and MSH (2015)

Figure 77: FHCI drug unit costs vs. MSH drug median unit costs



Source: Authors' calculations from CHANNEL data and MSH (2015)

Without reliable quantities procured of these drugs it is impossible to estimate how much could be saved if drugs were procured from alternative suppliers.[105] However, these proportions suggest significant savings are possible. It is important to highlight that lower unit costs are not necessarily

[105] CHANNEL data on quantities was considered to be too unreliable following the issues discussed in Section 4.4. However, CHANNEL data on costs was considered probably more reliable, as the mechanism for it become inaccurate was less clear and there was no evidence to suggest it was inaccurate.

better. While medical compounds should be the same, lower costs may reflect a compromise in quality control or different packaging. Nonetheless, these comparators are probably of good quality, as MSH comparison prices are from vetted sources (MSH, 2015).

It is recommended that further work be done to validate the FHCI unit costs used in this analysis (in particular that drugs are recorded in their correct unit size), and to search further for data on medical consumables and reliable data on the quantities of drugs and medical consumables purchased. In addition, indicators such as the accuracy of needs estimation (i.e. were the correct drugs procured?), timeliness of drugs delivery and the quality of the drugs procured should also be assessed (MSH, 2014). At this stage, it appears that up to 76% of the drugs procured for the FHCI were available at a lower price elsewhere. Based on this, as well as the analysis presented in Section 4.4 suggesting poor management, storage and distribution of drugs, a significant expansion of the numbers of drugs and medical consumables available to the population is possible without increasing expenditure on pharmaceuticals.

10.2 Efficiency

Efficiency is taken to mean the overall relationship between inputs and outputs of the FHCI. The two particularly important inputs are the HR and pharmaceuticals, as analysed above and in Section 4.1. The main outputs for this analysis are the key services provided throughout the initiative: family planning, ANC, intrapartum care, PNC and preventative and curative services for children aged five and younger.

Including a step of analysis focusing on the relationship between inputs and outputs (rather than going straight to outcomes) enables a clearer assessment of the initiative's technical efficiency. Technical efficiency is concerned with the extent to which a chosen output is achieved to the maximum extent possible given an input, as opposed to allocative efficiency, which is concerned with the extent to which the optimal combination of outputs is achieved in order to attain the optimal outcomes (Smith, 2009). Given that the social and political decision has already been made to provide this specific set of services, it is important to understand how efficiently they are being implemented.

10.2.1 Inputs

Section 4.1 presents estimated total expenditure on the FHCI. This is disaggregated into expenditure on health workers, drugs and medical consumables, key activities for service delivery, PBF and other donor funds going to RCH. The total expenditure on the FHCI is estimated to have grown from SLL 316 billion in 2010 to SLL 563 billion in 2013. Of this, 20% was spent on HR and 10% on pharmaceuticals.

10.2.2 Outputs

Total utilisation of the FHCI at primary health facilities is estimated to have grown from 2.6 million visits in the last nine months of 2011 (assumed to be 3.5 million visits throughout 2011[106]) to 4.6 million throughout 2012 and 5.3 million throughout 2013 (see Table 43).

[106] 2011 figures have been multiplied by 4/3 to account for the DHIS not including the first three months of the year. HMIS data is missing from before the FHCI, as previously explained.

Table 43: Utilisation of services at PHUs, 2011–2013

Service	2011	2012	2013	% change 2011–2013
ANC (first visit)	250,625	263,505	264,267	5.44%
ANC (second visit)	220,779	223,292	225,325	2.06%
ANC (third visit)	173,712	185,534	193,342	11.30%
ANC (fourth visit)	141,255	183,327	197,321	39.69%
ANC (fifth visit or more)	64,140	86,035	92,964	44.94%
Intrapartum care (delivery)	153,579	166,723	181,956	18.48%
PNC (first visit)	242,873	279,559	328,157	35.11%
PNC (second visit)	196,931	248,541	293,454	49.01%
PNC (third visit)	198,764	250,673	301,630	51.75%
Clients on family planning	439,001	555,395	793,005	80.64%
Fully immunised children	179,711	194,620	214,864	19.56%
Child outpatient visit 0–28 days, female	48,537	62,993	70,290	44.82%
Child outpatient visit 0–28 days, male	47,681	57,221	63,257	32.67%
Child outpatient visit 1 month–59 months, female	569,581	931,685	1,048,502	84.08%
Child outpatient visit 1 month–59 months, male	571,341	907,144	1,015,696	77.77%
Total visits	3,498,511	4,596,247	5,284,030	51.04%

Source: Sierra Leone DHIS (2011 figures multiplied by 4/3 as they only include data from April onwards)

However, not all of these services take the same amount of time and resources to deliver. Intrapartum care (delivery) in particular is a much more demanding service to provide than any of the others. The WHO's One Health Tool has built into it estimated staff time necessary to provide each of these services. These are presented in Table 44.

Table 44: Staff time necessary to provide key health services

Intervention number (One Health)	Service	Minutes per measure of utilisation
01–11	Family planning	45
15	Complete ANC package	20
25	Labour and delivery management	390
35	Preventative PNC	20
50–60	Child outpatient visits	20
99–701	Immunisations (8)	16

Source: One Health (2013)

Using these weightings to estimate the amount of time spent providing services tells a slightly different story to that seen in Table 43. Child outpatient visits and clients on family planning do not demand significant time from health workers, and the quantity of these visits increased dramatically (by around 80%). Delivery takes a lot of time, but the quantity of health facility-based deliveries did not increase by as much (just over 18%). While the overall quantity of visits increased between 2011 and 2013 by over 51%, if the One Health Tool assumptions are

applicable then the amount of time spent by health workers providing services actually increased by 35% (see Table 45 below).

Applying the standards assumed by the One Health Tool also enables an analysis of the relative time assumed to be spent on each service. It would imply that in 2011 nearly 60% of health worker time was spent on delivery, followed by outpatient visits for children (14%) and clients on family planning (11%). By 2013 these proportions are different. The proportion of time spent on delivery decreases, as does the proportion of time on ANC and immunising children. The proportion of time spent on PNC increases slightly, but the real shifts in time are to more family planning and more child outpatient care (see Table 46).

Table 45: Total estimated minutes of service delivery, 2011–2013

Service	2011	2012	2013	% change, 2011–2013
ANC (first visit)	5,012,507	5,270,100	5,285,340	
ANC (second visit)	4,415,573	4,465,840	4,506,500	
ANC (third visit)	3,474,240	3,710,680	3,866,840	
ANC (fourth visit)	2,825,093	3,666,540	3,946,420	
ANC (fifth or more)	1,282,800	1,720,700	1,859,280	
Intrapartum care (delivery)	105,969,280	115,038,870	125,549,640	
PNC (first visit)	4,857,467	5,591,180	6,563,140	
PNC (second visit)	3,938,613	4,970,820	5,869,080	
PNC (third visit)	3,975,280	5,013,460	6,032,600	
Clients on family planning	19,755,060	24,992,775	35,685,225	
Fully immunised children	2,875,371	3,113,920	3,437,824	
Child outpatient visit 0–28 days, female	970,747	1,259,860	1,405,800	
Child outpatient visit 0–28 days, male	953,627	1,144,420	1,265,140	
Child outpatient visit 1 month–59 months, female	11,391,627	18,633,700	20,970,030	
Child outpatient visit 1 month–59 months, male	11,426,827	18,142,880	20,313,920	
Total minutes	**183,124,111**	**216,735,745**	**246,556,779**	**34.64%**

Source: Authors' calculations

Table 46: Relative time spent on key interventions, 2011–2013

	2011	2012	2013	Change 2011–2013
ANC (first visit)	2.74%	2.43%	2.14%	-0.59%
ANC (second visit)	2.41%	2.06%	1.83%	-0.58%
ANC (third visit)	1.90%	1.71%	1.57%	-0.33%
ANC (fourth visit)	1.54%	1.69%	1.60%	0.06%
ANC (fifth or more)	0.70%	0.79%	0.75%	0.05%
Intrapartum care (delivery)	57.87%	53.08%	50.92%	-6.95%
PNC (first visit)	2.65%	2.58%	2.66%	0.01%
PNC (second visit)	2.15%	2.29%	2.38%	0.23%
PNC (third visit)	2.17%	2.31%	2.45%	0.28%
Clients on family planning	10.79%	11.53%	14.47%	3.69%
Fully immunised children	1.57%	1.44%	1.39%	-0.18%
Child outpatient visit 0–28 days, female	0.53%	0.58%	0.57%	0.04%
Child outpatient visit 0–28 days, male	0.52%	0.53%	0.51%	-0.01%
Child outpatient visit 1 month–59 months, female	6.22%	8.60%	8.51%	2.28%
Child outpatient visit 1 month–59 months, male	6.24%	8.37%	8.24%	2.00%

Source: Authors' calculations

It is possible to compare the number of visits and the assumed time spent providing health services to the estimated expenditure on these services. Total expenditure on HR and pharmaceuticals is also highlighted in Table 47 below. Total expenditure on the FHCI per visit fell from SLL 151,164 to SLL 106,606. This was equivalent to a fall from £22 to £16 per visit. However, using the One Health Tool's assumed standards, expenditure per minute of care increased from SLL 2,166 to SLL 2,285 (£0.31 to £0.34). This is equivalent to an increase in expenditure from £18.90 to £20.50 per hour.

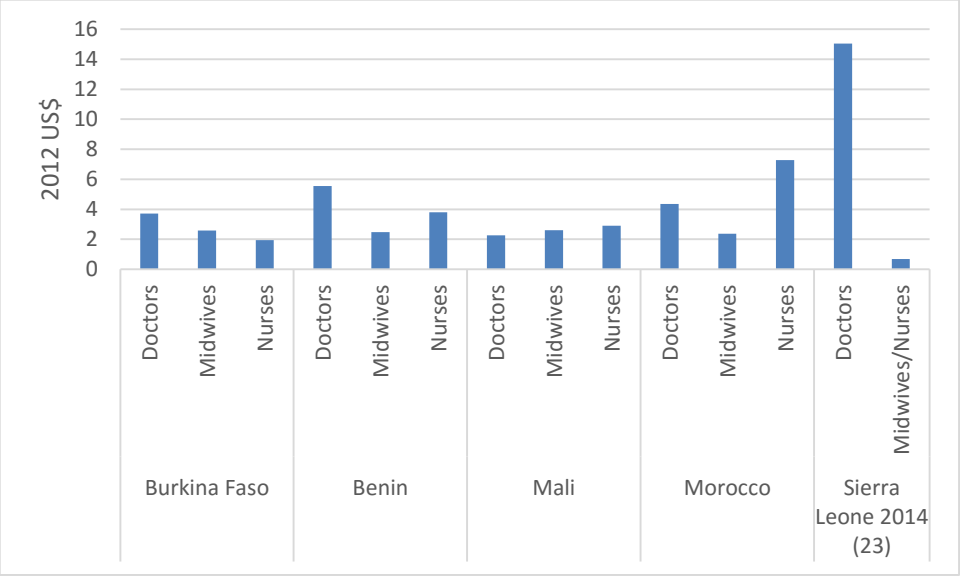
Table 47: Basic efficiency measures, 2011–2013

	2011	2012	2013
Total visits	2,623,883	4,596,247	5,284,030
Total minutes	183,124,111	216,735,745	246,556,779
HR cost (SLL millions)	76,376.00	89,361.14	106,217.56
Drugs cost (SLL millions)	37,909.57	37,682.40	52,822.65
TOTAL costs FHCI (SLL millions)	396,636.30	452,776.34	563,307.50
Expenditure on HR per visit (SLL)	29,108	19,442	20,102
Expenditure on drugs and medical consumables per visit (SLL)	14,448	8,199	9,997
Expenditure on HR and drugs and medical consumables per visit (SLL)	43,556	27,641	30,098
Expenditure on FHCI per visit (SLL)	151,164	98,510	106,606
Expenditure on HR per minute (SLL)	417	412	431
Expenditure on drugs and medical consumables per minute (SLL)	207	174	214
Expenditure on HR and drugs and medical consumables per minute (SLL)	624	586	645
Expenditure on FHCI per minute (SLL)	2,166	2,089	2,285
Expenditure on FHCI per visit (£)	21.98	14.43	15.93
Expenditure on FHCI per minute (£)	0.31	0.31	0.34
Expenditure on FHCI per hour (£)	18.90	18.36	20.48
SLL/£ exchange rate (using www.oanda.com)	6,877.31	6,825.26	6,692.58

Source: Section 4.1, HMIS and MSH (2015)

The surveys of health workers in Sierra Leone and other West African countries also attempted to address this question of efficiency. That similar surveys have been completed in a number of countries enables a comparison between them. As well as pay and hours worked (discussed in Section 9.1), health workers were asked about the number of patients they saw. It is estimated that midwives and nurses in Sierra Leone were paid US$ 0.68 (2012 rates) per patient they saw in 2012. This was significantly less than nurses and midwives in Burkina Faso (US$ 1.95–US$ 2.59), Benin (US$ 2.48–US$ 3.79), Mali (US$2.60–US$ 2.90) and Morocco (US$ 2.38–US$ 7.27). Sierra Leonean doctors, however, were paid much more per patient they saw, receiving US$ 15.04. This was nearly triple (or more) than that received by doctors in Burkina Faso (US$ 3.72), Benin (US$ 5.55), Mali (US$ 2.26) and Morocco (US$ 4.36) (see Figure 79) (Witter et al., Forthcoming).

Figure 78: Benchmarking health worker pay per patient seen across five countries



Source: Witter et al. (Forthcoming)

Overall, it is too early to comment on the relative efficiency of the FHCI; there are simply not enough data available to comprehensively compare it to something else, either over time within Sierra Leone or with other countries. A much higher-level analysis of total health sector efficiency comparing health expenditure and overall health outcomes globally ranks Sierra Leone as very inefficient (Zeng, 2014). However, this is taking into account the overall health system, not focusing on the delivery of the FHCI as we do. Future analysis should build the work presented here – tracking what happens to expenditure per visit and expenditure per estimated minute of care provided. What appears to have happened between 2011 and 2013 is that the number of visits increased slightly faster than expenditure, meaning that the cost per visit decreased. However, the type of visits also changed. Crucially, deliveries became a smaller proportion of total visits, and deliveries are the most resource-intensive service provided within the FHCI. On the other hand, family planning and child outpatient services grew as a proportion of total visits. Assuming One Health Tool standards, visits were converted into time providing services. Under these assumptions, expenditure increased faster than time spent delivering care – this means that a minute of care got more expensive. However, it should be underlined that this is not necessarily a bad thing. Whether it is US$ 0.60 to US$ 15 per patient seen or £20 per hour of services, expenditure on health is still very low. Increasing expenditure per minute of care may enable increases in quality. In order to monitor this, measures of quality need to be given more attention. It is also important to highlight that the One Health Tool's assumed standards have not been validated in the specific case of Sierra Leone, so actual time distributions may differ.

In summary, the health sector needs to be aware of the changing patterns of utilisation – delivery, ANC and immunisation of children represent decreasing proportions of total visits and time spent providing care while child outpatient visits, PNC and family planning are increasing their footprint. The cost per visit is decreasing, but at the same time the average visit may be shortening, if WHO time estimates apply in the Sierra Leonean context.

10.3 Cost-effectiveness

Effectiveness – the extent to which the FHCI generated the desired outputs and outcomes – has been investigated in sections 5 and 6 above. In health systems across the world, and in particular in developing countries, the allocation of health care resources across competing interventions

requires evidence of not only effectiveness but also more specifically cost-effectiveness. In the context of the FHCI, we are interested in determining whether the marginal costs and marginal health outcomes of the FHCI have been such that it represents a cost-effective scenario compared to the counterfactual scenario of the policy not being implemented. Have sufficient MCH gains been realised to justify the additional cost of the policy? This counterfactual is the obvious alternative; the option of investing in other services instead is not real as they are all core elements of the public health package.

The key cost-effectiveness metric resulting from our analysis is the **cost per life year gained of the FHCI.** This is obtained by converting modelled estimates of maternal, newborn and child lives saved through the implementation of the policy to life years gained using estimates of life expectancy in Sierra Leone and some standard assumptions. To assess whether this cost per life year gained means that the FHCI achieved cost-effectiveness, this key metric is then compared to commonly accepted cost-effectiveness thresholds. As a secondary analysis, we are also interested in determining whether the decision to fund the FHCI was a cost-effective one for DFID. For details on the methods used for CEA, see Annex F.

10.3.1 Marginal costs of the FHCI

For the marginal cost side of the equation, we use the estimates of the additional expenditure directly associated with the FHCI given in Table 11. There are two estimates of the increased funds going to FHCI target groups in 2010–2013 compared to previous years. Table 11 shows that there was an additional US$ 250 million expenditure directly associated with the FHCI over the period 2010–2013 if all donor financing to RCH is included and US$ 124 million if it is excluded. Donors have provided around 65% to 80% of this funding, depending on whether the financing to RCH is included or excluded. The CEA uses the first estimate to ensure that we are not excluding expenditure on the cost side that is contributing to better outcomes on the effects side.

10.3.2 Marginal effects of the FHCI

For the marginal effects side of the equation, we use data from sections 5 and 6 on increased coverage of key MCH interventions around the introduction of the FHCI as well as estimates of maternal and child mortality. We necessarily go further than those earlier sections in attempting to model the marginal effect of the FHCI; that is, what intervention coverage and mortality would have been without the policy. This is because CEA is a comparative analysis and requires a counterfactual scenario on both the cost and effects sides of the equation.

Our modelling uses the LiST, which is a software tool that uses country-specific coverage data combined with data on causes of death and secondary evidence on the effectiveness of interventions to model the impact of increased coverage on maternal and child mortality (Avenir Health, 2015). A key feature of LiST is that it allows for a package of interventions to be assessed together without double counting (Walker et al., 2013). LiST is therefore ideal for our analysis as it allows us to define the FHCI as a package of interventions and to model how increased coverage over the period 2010–2013 has translated into mortality reduction. An important caveat here is that LiST uses systematic review evidence to model the link between increased coverage and reduced mortality. It therefore assumes that quality of care is the same as in the studies included in the review evidence. The extent to which this assumption holds is questionable but unknown, given the lack of data on how quality of care in Sierra Leone has changed over the time period. Another important caveat is that these results should be interpreted within the context of the increased family planning coverage that Sierra Leone experienced over the time period; see Annex F for further explanation of these limitations.

10.3.2.1 Maternal and newborn health

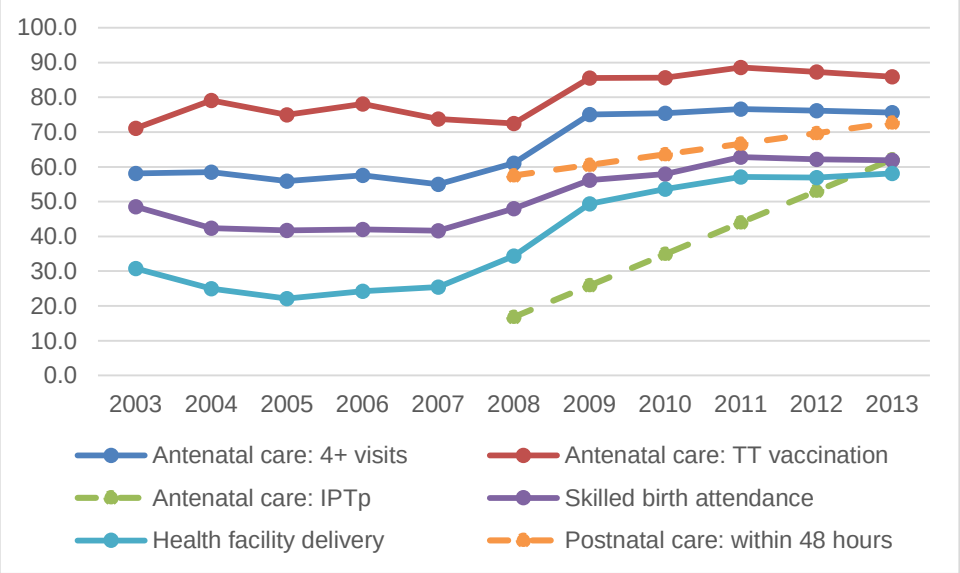
This section presents our results for how increased post-FHCI coverage is modelled to reduce maternal and newborn deaths compared to a counterfactual.

Coverage of maternal health interventions

As discussed further in Section 5, systematic review evidence suggests that a number of key antenatal, childbirth and postnatal interventions are effective in preventing or treating the leading causes of maternal death and thereby contributing to reductions in deaths of pregnant woman or those who have just given birth. Sierra Leone experienced positive changes in the coverage of some of these interventions in recent years.

Figure 80 shows the trends in key indicators from 2003 to 2013of comprehensive ANC, delivery in a health facility and by an SBA, and PNC within 48 hours of delivery. All interventions are directly related to the FHCI; that is, they are interventions for which user fees were charged before the introduction of the policy.

Figure 79: Coverage of key maternal health interventions



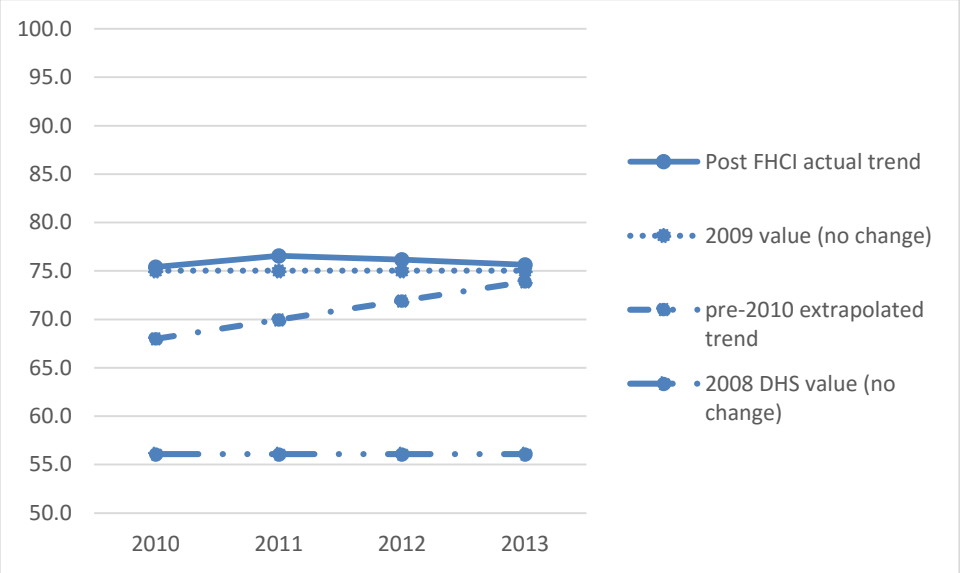
Source: 2008 and 2013 DHS data, disaggregated by year if possible. Only point estimates available for those indicators shown with a dashed line.

Figure 81 shows three possible counterfactuals for the percentage of pregnant women attending four or more ANC visits over the post-FHCI time period as an illustration of how we constructed the counterfactual for other indicators. The first is a simple, no change scenario of coverage remaining at its 2009 value. The second fits a trend line to the pre-2009 data and extrapolates this to the FHCI time period. The third is a no change from the 2008 DHS point estimate. From the three, the pre-2010 extrapolated trend is preferred in attempting to take into account improvements that were happening anyway and is therefore more conservative; however, the 2009 value counterfactual has the advantage of being simpler and using just data from the better quality 2013 DHS.

In the absence of a control group and acknowledging the data limitations discussed in Section 1.6, this gives us a range of counterfactuals to use in the analysis. Counterfactuals for the other maternal interventions are constructed similarly, except for IPTp and PNC indicators; for these two indicators it is not possible to disaggregate data and thus the 2008 DHS value is necessarily used. Because we are interested in isolating the effect of the interventions linked to the FHCI on

mortality, the coverage of all other interventions is assumed to be the same between the FHCI and counterfactual scenarios.

Figure 80: Post-FHCI actual trend in ANC4+ and three possible counterfactuals



Maternal deaths averted

Table 48 summarises the estimated number of maternal deaths averted between 2010 and 2013 due to coverage of key maternal health interventions being higher than it would have been if it had remained at 2009 values or if the pre-2009 trend line had continued. We estimate a likely marginal effect of between approximately 1,500 and 1,600 maternal deaths averted over this four-year period. Assuming no change from 2008 DHS coverage values is more generous and results in an estimate of 1,900 maternal deaths averted.

Table 48: Summary of maternal deaths averted, 2010–2013

	2010	2011	2012	2013	Total
FHCI compared to coverage remaining at 2009 values	323	374	377	396	1,470
FHCI compared to coverage at pre-2009 extrapolated trend	384	417	398	398	1,597
FHCI compared to coverage remaining at 2008 DHS values	436	490	495	516	1,937

Source: LiST modelling using DHS data

Table 49 shows which specific interventions are contributing most to the total maternal deaths averted. Most maternal lives are being saved through increased coverage of childbirth interventions, particularly labour and delivery management interventions. This shows that even the relatively modest increase in the percentage of women delivering in a health facility is modelled to translate into a substantial number of lives saved. ANC interventions are comparatively less important in this context because the differential between the actual trend and the counterfactual is minimal, reflecting the gains in ANC coverage that occurred before the introduction of the FHCI.

Table 49: Maternal deaths averted by intervention, 2010–2013

	N	%
Pregnancy-related interventions	60	4%
Tetanus toxoid vaccination	4	0%
IPTp	51	3%
Hypertensive disorder case management	3	0%
Malaria case management	0	0%
Management of pre-eclampsia	2	0%
Childbirth interventions	1536	96%
Clean birth practices	137	9%
Labour and delivery management	853	53%
Antibiotics for pPRoM (preterm premature rupture of the membranes)	61	4%
MgSO4 management of eclampsia	231	14%
Active management of third stage labour	254	16%
TOTAL	**1596**	**100%**

Source: LiST modelling using DHS data

Newborn deaths averted

Key maternal interventions such as delivery at a health facility by an SBA and postnatal care are also very important for chance of survival within the first month of life. Table 50 summarises the estimated number of newborn deaths averted between 2010 and 2013 due to coverage of key maternal and newborn health interventions being higher than it would have been if it had remained at 2009 values or if the pre-2009 trend line had continued. We estimate a likely marginal effect of between 6,300 and 7,600 newborn deaths averted over this four-year period. Assuming no change from 2008 DHS coverage values is much more generous, resulting in an estimate of 10,400 newborn deaths averted.

Table 50: Summary of newborn deaths averted, 2010–2013

	2010	2011	2012	2013	Total
FHCI compared to coverage remaining at 2009 values	1,263	1,638	1,632	1,730	6,263
FHCI compared to coverage at pre-2009 extrapolated trend	1,869	2,067	1,860	1,778	7,574
FHCI compared to coverage remaining at 2008 DHS values	2,405	2,405	2,801	2,815	10,426

Source: LiST modelling using DHS data

Table 51 shows which specific interventions are contributing most to the total newborn deaths averted. Most newborn lives are being saved through interventions that are available at health facilities, either during childbirth (44% of deaths averted) or after birth (39%). Interestingly, interventions during pregnancy are relatively more important for newborns (10% of deaths averted) than for pregnant women (4% of deaths averted).

Table 51: Newborn deaths averted by intervention, 2010–2013

	N	%
Pregnancyinterventions	753	10%
Tetanus toxoid vaccination	172	2%
IPTp	571	7%
Syphilis detection and treatment	10	0%
Childbirth interventions	3396	44%
Clean birth practices	240	3%
Immediate assessment and stimulation	142	2%
Labour and delivery management	2320	30%
Neonatal resuscitation	493	6%
Antibiotics for pPRoM	201	3%
Preventive	623	8%
Clean postnatal practices	623	8%
Curative after birth	3030	39%
Full supportive care for prematurity	1681	22%
Full supportive care for sepsis/pneumonia	1247	16%
ORS	102	1%
TOTAL	**7802**	**100%**

Source: LiST modelling using DHS data

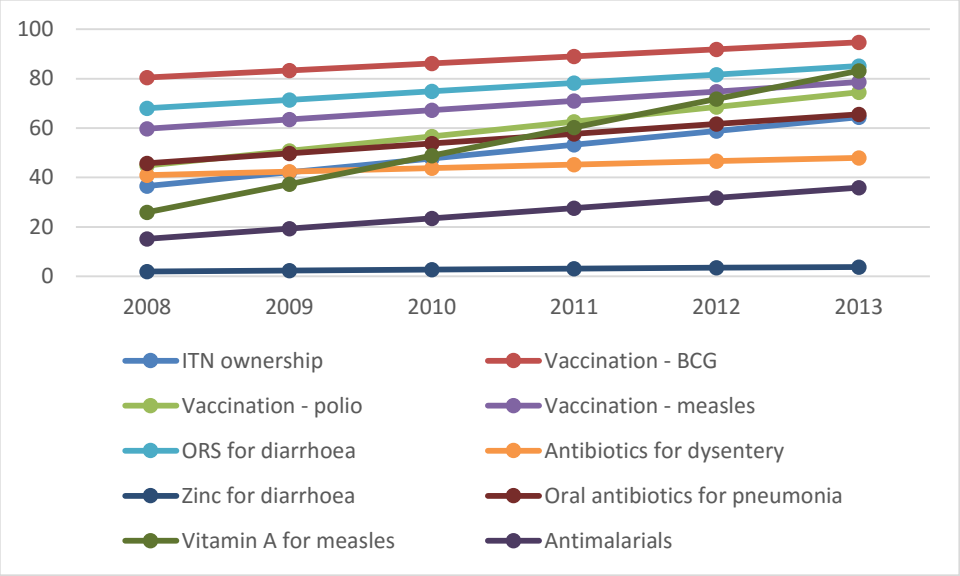
10.3.2.2 Child health

Coverage of child health interventions

As discussed further throughout Section 5, systematic review evidence suggests a key set of both preventative and curative interventions can be effective in reducing under-five mortality. Sierra Leone has also generally experienced positive changes in the coverage of these interventions in recent years. However, unlike many of the maternal and newborn health intervention indicators, the child health indicators cannot be disaggregated over the years preceding the survey because the recall periods are too short. This means that our child heath modelling is less nuanced than that for maternal and newborn health.

Figure 82 shows the trends in key indicators of preventative (ITN ownership, vaccinations) and curative (ORS and zinc for diarrhoea, antibiotics for dysentery, vitamin A for measles and antimalarials) interventions that can be directly or indirectly linked to the FHCI, assuming a linear trend between the 2008 and 2013 DHS surveys.

Figure 81: Coverage of key child health interventions



Although the surge in under-five consultations following the introduction of the FHCI arguably meant that more children were being vaccinated or receiving an ITN, these interventions were actually free before the introduction of the FHCI. We therefore model first the effect on those interventions for which user fees were previously charged (i.e. the curative interventions) on child mortality and then include these interventions more indirectly linked with the FHCI (i.e. the preventative interventions). The counterfactual is necessarily assumed to be simple, with no change from 2008 DHS coverage values.

Child deaths averted

Table 52 summarises the estimated number of child (1–59 months) deaths averted between 2010 and 2013 due to coverage of key MNCH interventions being higher than it would have been if it had remained at 2009 values or if the pre-2009 trend line had continued. We estimate a likely marginal effect of between 13,600 and 13,800 child deaths averted over this four-year period if only child interventions directly linked to the FHCI are included (i.e. curative interventions for which user fees were previously charged). The estimate is even higher at between 18,200 and 18,400 child deaths averted if ITN ownership and vaccinations are included (i.e. interventions that more under-fives receive because of increased health facility utilisation but that were actually already free).

Table 52: Summary of child (1–59 months) deaths averted

	2010	2011	2012	2013	Total
Curative interventions only (directly linked to FHCI)					
FHCI compared to coverage remaining at 2009 values	2,106	2,964	3,885	4,868	13,823
FHCI compared to coverage at pre-2009 extrapolated trend	2,044	2,902	3,831	4,830	13,607
FHCI compared to coverage remaining at 2008 DHS values	2,003	2,839	3,741	4,712	13,295
Curative interventions, ITN ownership and vaccinations					
FHCI compared to coverage remaining at 2009 values	2,806	3,976	5,185	6,442	18,409
FHCI compared to coverage at pre-2009 extrapolated trend	2,744	3,914	5,131	6,404	18,193
FHCI compared to coverage remaining at 2008 DHS values	2,703	3,851	5,041	6,286	17,881

Source: LiST modelling using DHS data

Table 53 shows which specific interventions are contributing most to the total child deaths averted. Curative interventions dominate; in particular, 38% of deaths averted are due to increased coverage of antimalarials and 35% to increased coverage of ORS for diarrhoea.

Table 53: Child deaths averted by intervention, 2010–2013

	N	%
Pregnancy interventions	62	0%
IPTp	58	0%
Promotion of breastfeeding	4	0%
Preventive	1544	10%
Vitamin A supplementation	1544	10%
Curative after birth	13207	89%
ORS	5113	35%
Antibiotics for treatment of dysentery	63	0%
Zinc for treatment of diarrhoea	52	0%
Oral antibiotics for pneumonia	1986	13%
Vitamin A for treatment of measles	393	3%
Antimalarials	5600	38%
TOTAL	**14813**	**100%**

Source: LiST modelling using DHS data

10.3.3 Life years saved

Our estimates of maternal, newborn and child deaths averted can be converted to a common metric – i.e. life years saved – using estimates of life expectancy in Sierra Leone and some standard assumptions (WHO, 2001; UN, 2015). The converse of life years saved – i.e. years of life lost (YLL) – is one part of the DALY calculation that combines YLL with years of life lived with disability (Fox-Rushby and Hanson, 2001). We cannot calculate full DALYs because the LiST tool only produces incidence estimates for a few diseases (Walker 2015: pers. comm., 17 November).

Table 54: Estimates of life years saved

	Newborn	Child	Maternal	Total
FHCI compared to coverage remaining at 2009 values	239,400	290,700	31,400	561,500
FHCI compared to coverage at pre-2009 extrapolated trend	270,100	288,300	35,800	594,200

Source: Modelling using WHO rapid spreadsheet-based tool for DALY calculation

As expected, the number of life years saved is much higher for the newborn and child categories; this is because there are more lives saved in these categories as well as the life expectancy of a newborn (or child) being longer than that of a woman of reproductive age.

10.3.4 Cost-effectiveness estimates

Finally, our estimates of marginal costs and marginal effects are combined to produce an estimate of cost-effectiveness. The actual calculation is straightforward: marginal costs are divided by marginal effects. Table 55 shows that the cost per life year saved of the FHCI is between US$ 420 and US$ 444. This estimate uses the marginal cost including the increase in all donor financing to RCH and the more conservative assumptions for the maternal and newborn intervention coverage counterfactuals.

Table 55: Cost per life year saved of the FHCI

	Marginal costs (millions, US$) (A)	Marginal effects (life years saved) (B)	Cost per life year saved (US$) (A/B)
FHCI compared to coverage remaining at 2009 values	249.56m	561,500	444
FHCI compared to coverage at pre-2009 extrapolated trend	249.56m	594,200	420

Source: Section 4.1, LiST modelling using DHS data and modelling using WHO rapid spreadsheet-based tool for DALY calculation

Though with acknowledged limitations, interventions are typically judged as cost-effective using standard thresholds. WHO uses those suggested by the Commission on Macroeconomics and Health: interventions that avert one DALY for less than average per capita income for a given country or region are considered very cost-effective; interventions that cost less than three times average per capita income per DALY averted are still considered cost-effective; and those that exceed this level are considered not cost-effective.

In 2013, the World Development Indicators suggested that GDP per capita in Sierra Leone was US$ 680. On these thresholds, our estimates of cost per life year saved indicate that the FHCI was a very cost-effective intervention.[107]

It is helpful to compare our modelled estimates of lives saved to the number of deaths a year implied by the maternal and child mortality estimates discussed in Section 6.

- **Maternal deaths:** The high LiST estimate of 1,900 maternal lives saved over four years – or an average of 475 a year – equates to around 16% of all maternal deaths being averted by the FHCI. This is based on a figure of around 3,000 maternal deaths a year in Sierra

[107] Cost per DALY is necessarily lower than cost per life year saved because it includes morbidity.

Leone, calculated from an estimate of 230,000 live births in 2010 and a UN central estimate for the MMR of 1,360 maternal deaths per 100,000 live births.

- **Newborn and child deaths:** Using the high estimates above, over a four-year period the LiST model indicates 10,400 newborn lives saved and 18,400 lives saved for children aged one month to five years. This is a total of 28,800 lives or an average of just over 7,000 a year.

  The under-five mortality rates in Figure 68 show a decline from 187 under-five deaths per 1,000 live births in 2009, to 147 in 2010, 131 in 2011 and 126 in 2012. So on average over this three-year period the fall in deaths is in the region of 50 under-five deaths per 1,000 live births. Using this combined with the estimate of 230,000 live births in 2010 indicates that under-five deaths reduced by around 11,500 a year.

Given the uncertainties attached to both estimates, the LiST figure of 7,000 under-five deaths averted a year compares well with that calculated from the DHS mortality rates of 11,500, particularly given that the LiST model is estimating the marginal improvement from the FHCI rather than the total reduction in under-five deaths. This gives us some confidence that our LiST figures are credible in terms of their level. It is harder to comment on the comparability of the maternal death figures, given the uncertainty around the maternal mortality rate estimates, although again the estimates appear to be of the right level and of a reasonable reduction in deaths averted.

As individual interventions and as part of a broader package of MNCH interventions, these interventions directly or indirectly linked to the FHCI have previously been found to be cost-effective interventions (e.g. Stenberg et al., 2014). In some sense it is therefore not surprising that the FHCI, in so far as it increased coverage of these acknowledged 'best buys', is cost-effective compared the counterfactuals of coverage remaining at its previous level or previous trends in coverage changes continuing. Furthermore, it should be remembered that the additional cost is only being compared to the additional effect in terms of life years gained—so not taking into account improvements in morbidity and other, less quantifiable improvements resulting from the FHCI. In that sense the estimate is a conservative estimate of the full value for money of the policy.

10.3.5 DFID contribution

DFID has been a main funder for the FHCI, with its contribution estimated at between 40% and 55% of new direct FHCI funding. These contributions are primarily to drugs (along with ECHO) and salaries (along with Global Fund). Taking a simple relative spend approach, in which the proportion that is contributed to costs is applied to the outcomes achieved, this would indicate that additional DFID funding of the FHCI has saved 40% to 55% of the estimated maternal, newborn and child lives saved. This is shown in Table 56.

Table 56: DFID contribution to lives saved, 2010–2013

	Lives saved FHCI	Lives saved FHCI from additional DFID funding	Lives saved from total DFID funding to MNCH
Maternal	1,500–1,900	600–1,000	1,400
Newborn (under 1 month)	6,300–10,400	2,500–5,700	5,400–6,000
Child (1 to 59 months)	13,300–18,400	5,300–10,100	20,900–21,600

Source: LiST modelling and Friberg et al. (2015). Note: Friberg et al estimates are for 2010–2015. The estimates are scaled to 2010–2013 for comparison purposes.

Our estimates of lives saved by additional DFID funding of the FHCI are lower than estimated in a recent analysis of lives saved by DFID programming globally, which conducted country-level estimates for all DFID focus countries including Sierra Leone (Friberg et al., 2015). These estimates, scaled to the time period 2010–2013 for comparison purposes, are also shown in Table 56. They are substantially higher, but the analysis asked a different question: suppose DFID had not funded any MNCH programmes in Sierra Leone? Our analysis looks at the additional effect of additional funding – overall and particularly for DFID – and so we would expect our estimates to be lower.

The relative spend approach has its advantages, primarily in being a straightforward and transparent way of attributing results in the absence of better quantitative data, but qualitative evidence does suggest that to some extent DFID had a catalytic role to play in the funding of and support for the FHCI. For example, DFID's strengthening of payroll systems meant that the Global Fund was more confident in channelling funds directly to GoSL. However, it should be acknowledged that the MoHS was talking to the Global Fund before DFID's intervention; the role was therefore more about where the money was spent than whether money was spent. Although impossible to quantify, such evidence suggests that DFID's contribution is perhaps somewhat higher than suggested by its straightforward relative spend.

10.4 Equity

In sections 5 and 6 we assessed changing coverage and health outcomes by quintile, region and rural/urban status. Equity considerations are also built into the assessment of implementation of core interventions (e.g. the distribution of staff across regions), as well as our assessment of changing barriers (Section 5.3). Here we are not reassessing those aspects but are adding on two equity dimensions:

- **Geographic equity**, by analysing both distribution of public expenditure and utilisation by district, and changes associated with the FHCI, where data permit.
- **Age and gender utilisation equity**. Lack of HMIS data pre-2010 means that assessing differential changes in utilisation due to the FHCI by age and gender was not possible. The available HMIS data (2011–2014) could, however, be disaggregated by age (0–28 days and 1–59 months) and gender for children's services.

As part of the ReBUILD project, Edoka et al. [2015] use the SLIHS to estimate the impact of the FHCI on OOP expenditure on children under five, pregnant women and lactating mothers by wealth quintile. Edoka et al. [2015] also analyse health service utilisation for the FHCI target groups by quintile. However, the sample sizes are quite small, rendering the results insignificant. Due to lack of HMIS data pre-2010, and therefore lack of comprehensive service utilisation data, we were not able to conduct a benefits incidence analysis to analyse the impact of the FHCI on who benefits from public expenditure on health care.

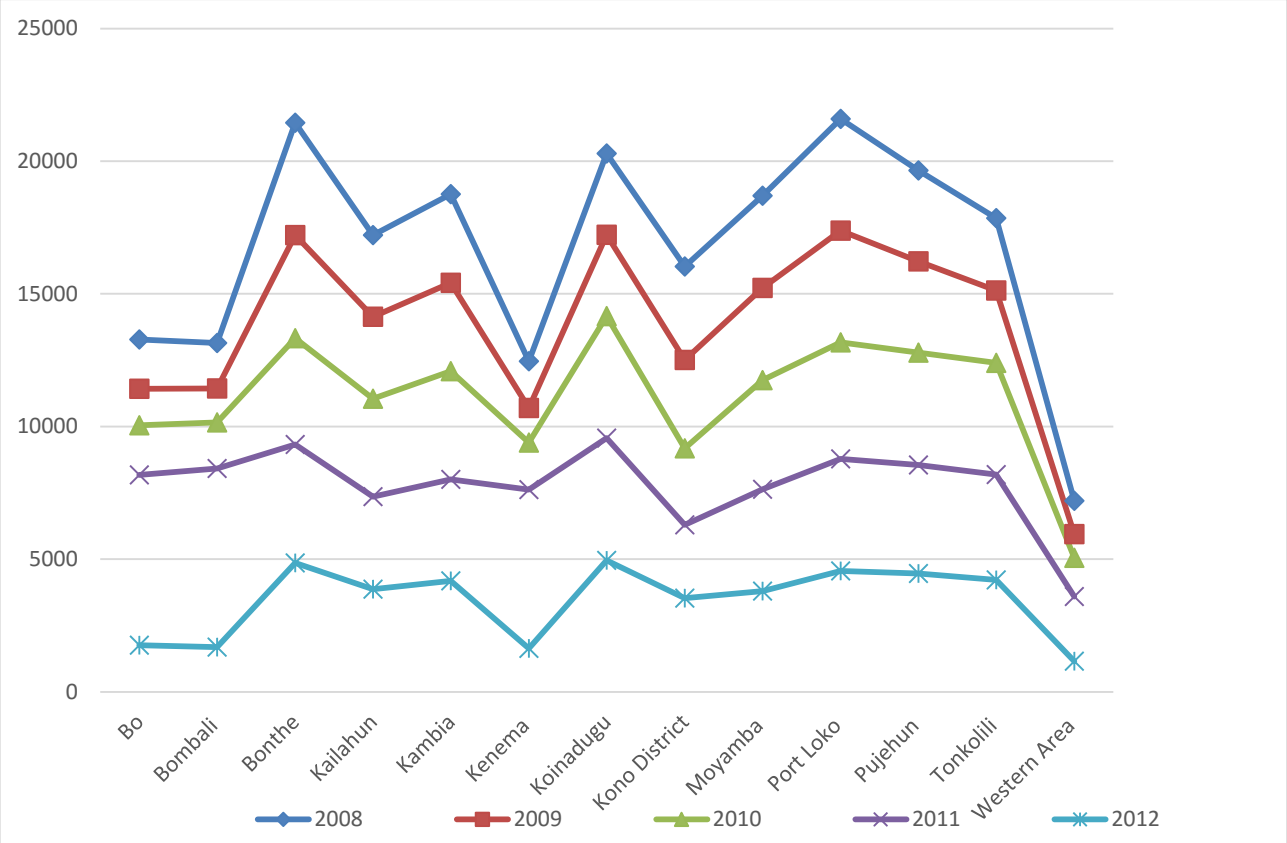
10.4.1 Distribution of public health spend by district

Notwithstanding data limitations,[108] equity of health spending to local councils shows a relatively equal distribution of expenditure with some outliers.[109] Figure 83 below shows expenditure by district per capita,[110] not including the major hospital expenditure in each district.[111]

Kenema seems to be consistently under-resourced with Koinadugu over-resourced.[112] More importantly for this evaluation, there does not appear to be a major change in the distribution of resources following the FHCI.

Figure 82: Per capita health expenditure through local councils by district

(excluding hospital expenditure)



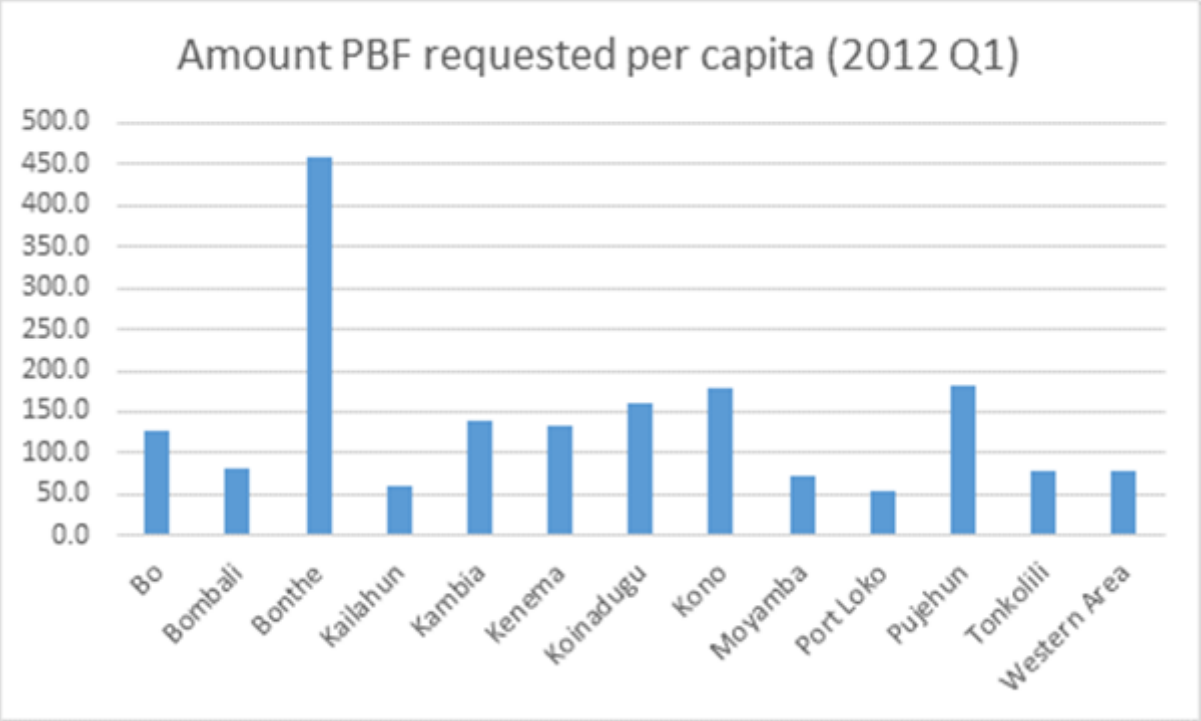
Source: MoHS actual estimates

The other main transfer that goes to districts to fund public health care is PBF. The figure below shows the PBF funds that were requested by MoHS for MoFED to pay PHUs in each district (converted to per capita amounts). This is not the amount that was actually transferred and there are some irregularities in that process but we do not have data for actual transfers. There are some anomalies (Bothe is very sparely populated), but overall the sums are relatively equal per capita. One study of staff remuneration in Sierra Leone (Bertone and Witter, 2015) found that

[108] Attribution of any reduction in inequalities in health spending across districts to the FHCI is even more complicated than the usual attribution issues because the allocation rules for government funding to districts changed at the same time as the introduction of the FHCI. This is also a fairly crude estimate with some public expenditure in hospitals (not included in this figure) also being used to treat FHCI target populations, as well as donor programmes operating (including RCHP, PBF and DSPS) at this level being excluded.
[109] It is not clear if this is a limitation with the data or evidence of changes.
[110] Including primary and secondary with tertiary expenditure at hospitals excluded.
[111] It is not clear if the outlier results in 2011 result from data issues or were caused by specific policy decisions.
[112] Likely a reflection of the size of the district, with low population density.

differential NGO support for the core RMNCH activities across districts drives differences in the PBF received (but that study focused on the individual health worker level).

Figure 83: PBF per capita, by district, 2012



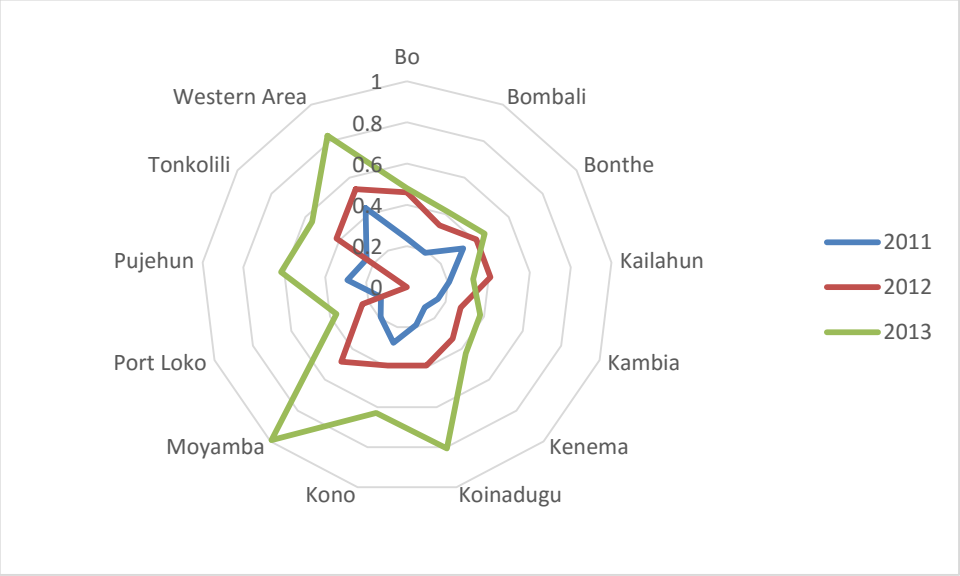
Source: Cordaid (2014)

Notwithstanding evidence of relatively equal financial transfers, we should bear in mind that other resources, such as staff, are far from equally distributed across the districts (see Section 4.3).

10.4.2 Service use by district

Using HMIS and census data, in 2011 between 20% and 40% of women of child-bearing age were registered users of family planning. National levels for this indicator have since grown significantly, but, as shown in Figure 85, this progress has not been uniform. Moyamba, Koinadugu and Western Area have reported the most significant increases in family planning uptake. However, by 2013, Bombali, Bonthe, Kailahun, Kambia, Kenema and Port Loko reported only minor improvements.

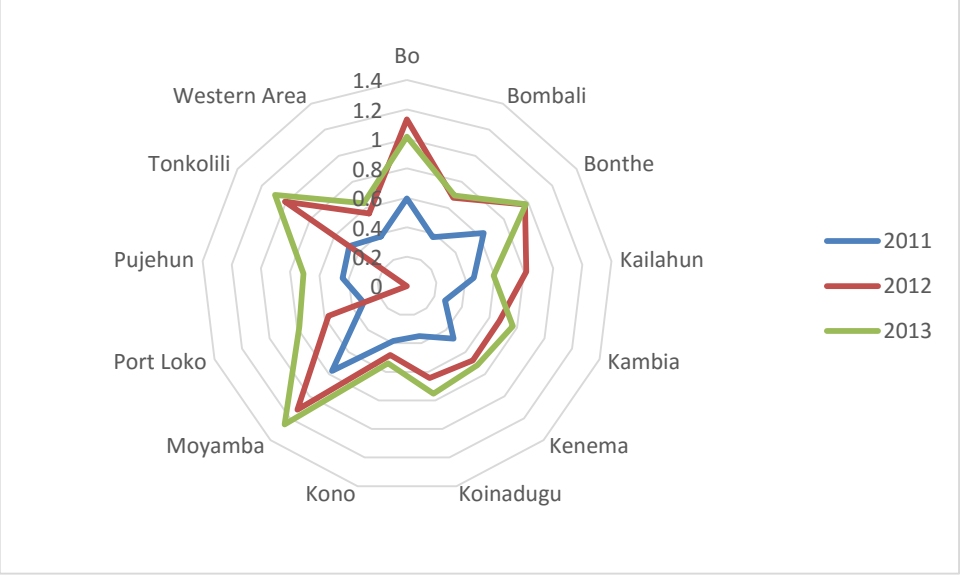
Figure 84: Number of women registered on family planning as a proportion of women of child-bearing age[113]



Source: Sierra Leone HMIS

Uptake in the proportion of pregnant women making four or more ANC visits has grown throughout the country, but still varies significantly (see Figure 86). Bombali, Kono and the Western Area show lower rates than other districts, with Bo, Tonkolili and Moyamba achieving the highest. In each of these three districts more than 120% of women are estimated to make four or more visits. This illustrates problems with the data, as the theoretical maximum, and optimistic target, is 100%. This may be due to problems with HMIS data and census projections but may also be a result of movement of people. If people have moved since the 2004 census the expected number of patients will be different.

Figure 85: Number of women reaching at least four ANC visits as a proportion of pregnant women

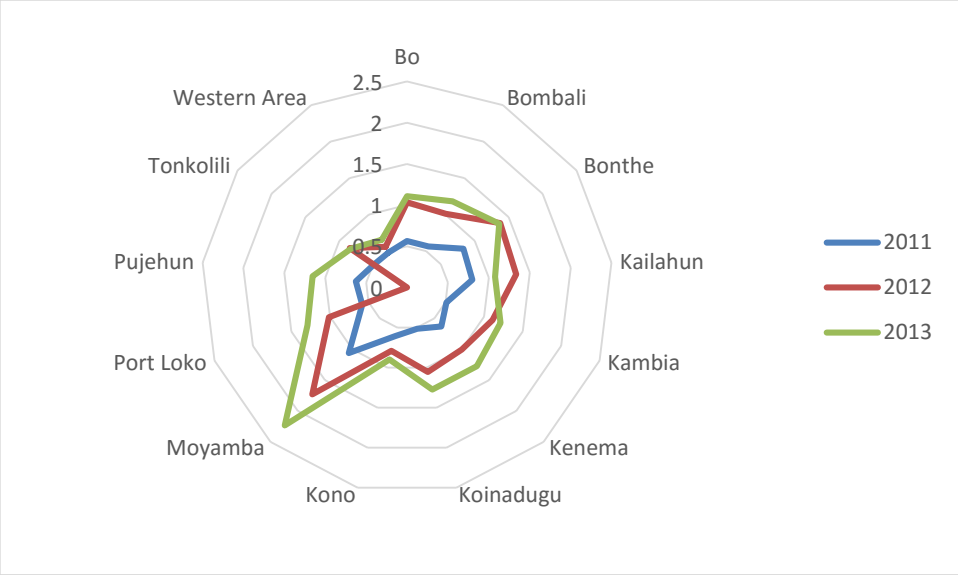


Source: Sierra Leone HMIS

[113] Maternal indicators are all empty for Pujehun in 2012 in the DHIS.

Facility deliveries as a proportion of expected deliveries is again highest in Moyamba, but this time lowest in the Western Area (see Figure 87). All districts have experienced improvements but utilisation remains unequal. Scepticism over the data should again be encouraged, as proportions approach 200%. As already mentioned, both HMIS and census projections should be treated with caution.

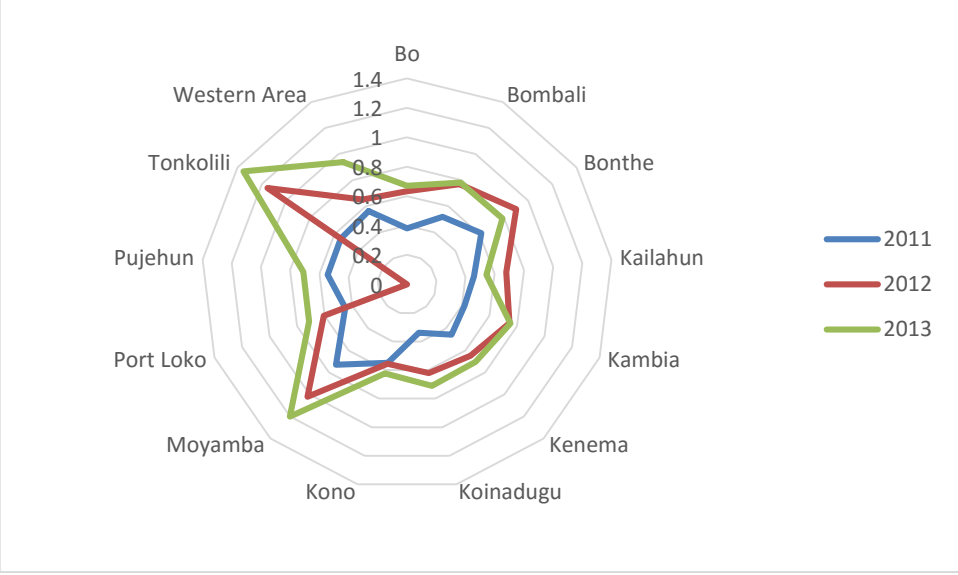
Figure 86: Number of facility deliveries as a proportion of pregnant women



Source: HMIS

The number of pregnant women who go on to make at least three PNC visits is largest in Moyamba and Tonkolili, but lowest in Kailahun (see Figure 88). Kono reports the smallest improvement over the three years, and improvement between 2012 and 2013 is generally small.

Figure 87: Number of women with at least three PNC visits as a proportion of pregnant women

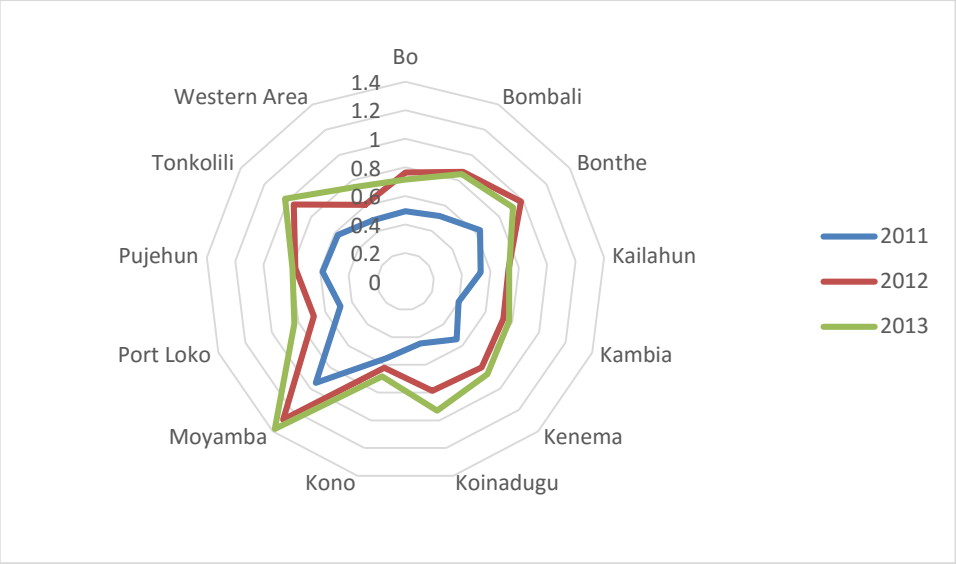


Source: HMIS

There has been general improvement in the proportion of children fully immunised before they turn one. Once again, Moyamba and Tonkolili show the highest utilisation and Kono shows the lowest

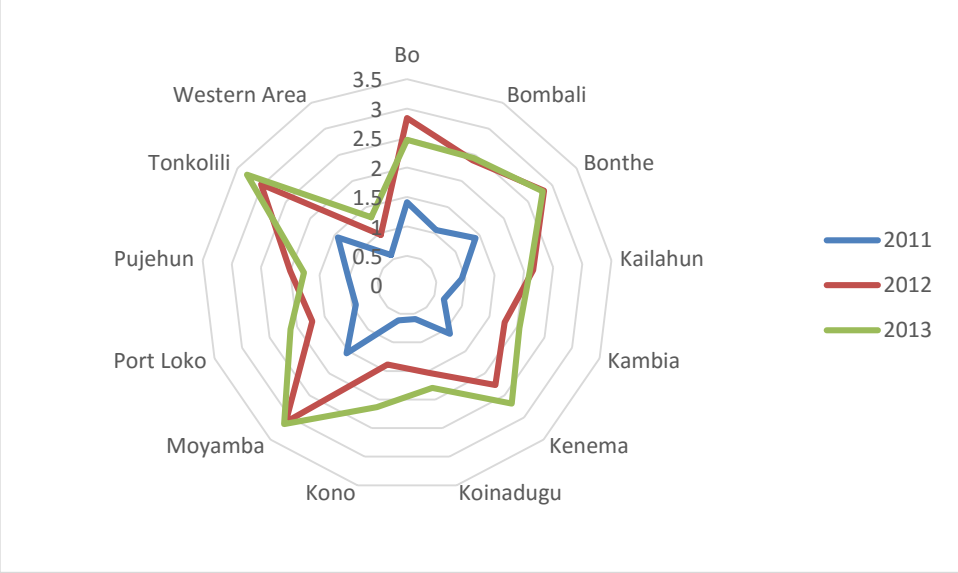
(see Figure 89). The same is true for the number of child outpatient visits per child under five, although the Western Area has made significantly less progress than the other districts (see Figure 90).

Figure 88: Children fully immunised under 11 months as a proportion of total population under one year



Source: HMIS

Figure 89: Under-five outpatient visits per child[114]



Source: HMIS

Combining analysis from the Poverty Profile with reported utilisation rates from the DHIS suggests interesting dynamics. In 2011, Moyamba was the second poorest district with one of the highest proportions of rural households. However, it is generally reporting the largest use of PHU services. This needs further investigation before it is concluded that the FHCI is well targeted. It is possible that data inaccuracies and movement of people are behind these numbers, particularly as some figures suggest greater than 100% coverage. However, the already discussed analysis of the DHS

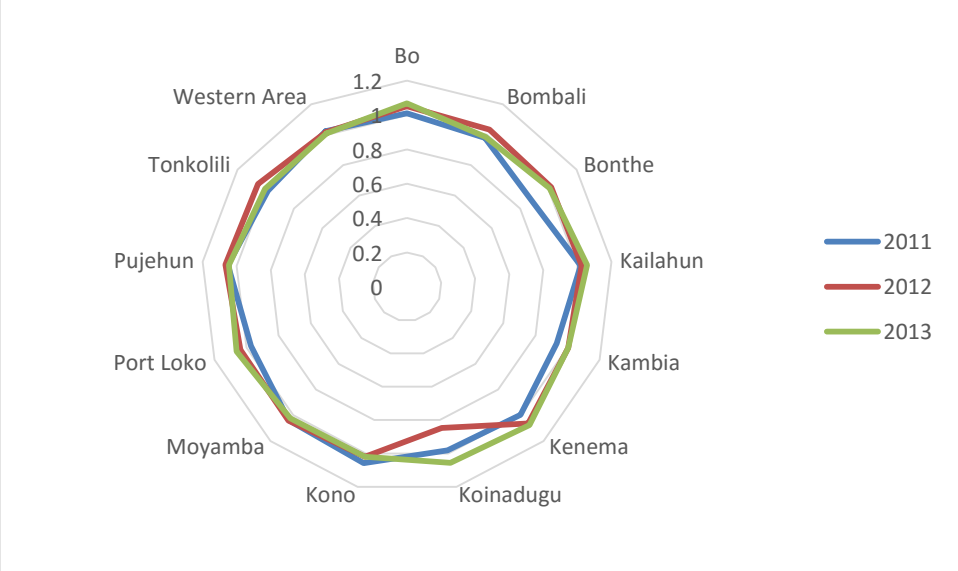
[114] The number of girls under five visiting a PHU in Tonkolili in 2013 is replaced with a number equal to the number of boys. The number in the DHIS is too large to be possible.

2013 and the SLIHS 2011 have suggested more significant improvements in MCH care utilisation in rural areas than urban ones (Edoka et al., 2015). The Western Area Urban shows the lowest level of poverty but, when combined with Western Area Rural, also some of the lowest levels of PHU service use – a finding corroborated by the FGDs, in which participants from Western Area express a feeling of not benefiting as much from the FHCI. In addition to poor data quality and the movement of people, this may be a result of the very high population (making high utilisation rates much harder), more focus on secondary than primary care in urban areas, and higher use of private clinics. Furthermore, the Princess Christian Maternity Hospital and Ola During Children's Hospital are both in these districts, and service use at these centres is not captured in the HMIS.

10.4.3 Child service use by gender

It is also possible to use HMIS data to look at the equality of utilisation by gender of child under five. Overall, the ratio of girls to boys visiting a PHU for outpatient care grew from 0.997:1 in 2011 to 1.03:1 in 2013. In 2011, girls in Bonthe visited facilities far less than boys (0.9:1) and in 2012 the same was true in Koinadugu (0.85:1). However, by 2013 more visits were by girls than boys in all districts other than Bombali (see Figure 91).

Figure 90: Outpatient visit to PHUs by children under five – ratio of girls to boys



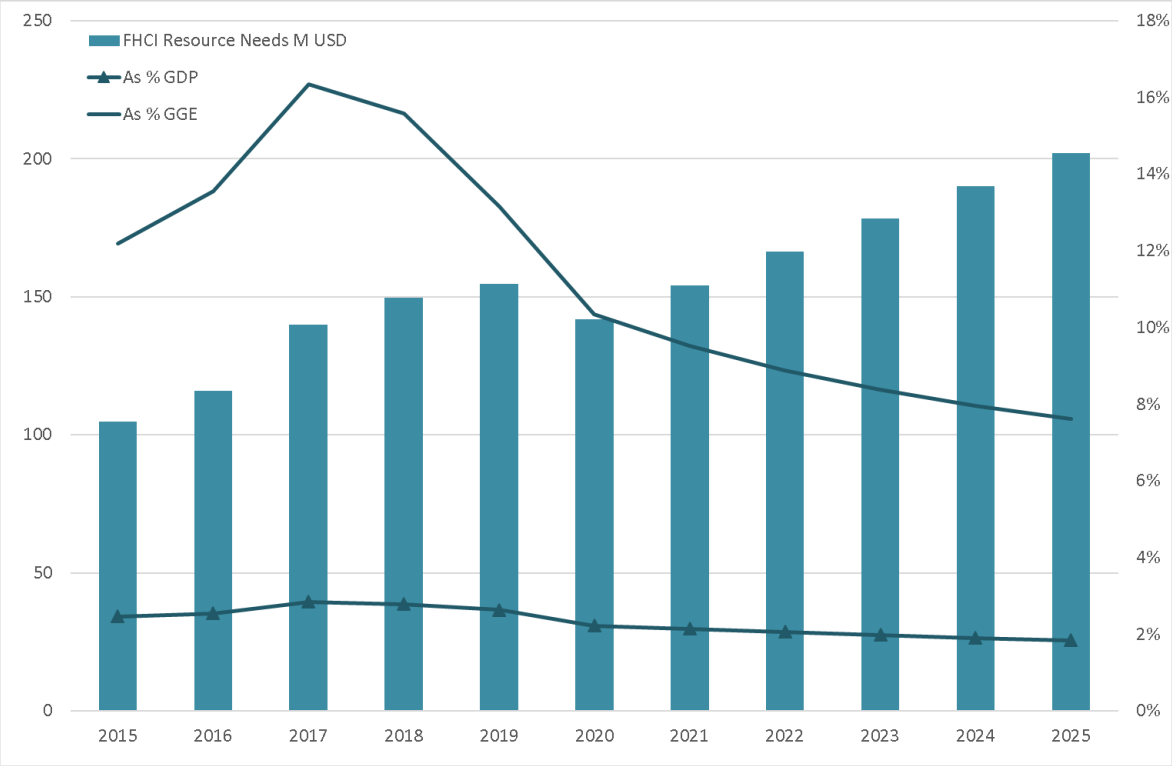
11 Sustainability

This section is more forward-facing, as it is focused on the need to sustain the FHCI in the future. It starts with a fiscal space analysis, which provides the projections for FHCI expenditures, resource needs and the resultant financial gap over the next 10 years (for more details of the methods and assumptions underpinning this component, see OPM, 2016b. It will then go on to discuss a number of domestic financing options to close the gap. Finally, we discuss more briefly the political and institutional requirements for sustainability.

11.1 FHCI resource needs

A normative costing exercise was carried out for Sierra Leone's FHCI using the WHO OneHealth Tool. Figure 92 provides the estimated resources required to deliver the FHCI in Sierra Leone. These average US$ 154 million a year over the 10 years, accounting for 2.3% of GDP and 11.2% of GGE. This would provide US$ 70 per FHCI beneficiary in 2015, rising to US$ 115 in 2025.

Figure 91: FHCI resource needs (US$ millions and as proportion of GDP and GGE)



Source: 2015–2020 – OneHealth Tool; 2021–2025 – Authors' calculations

11.2 Available expenditures for the FHCI

This is an area of particular importance in Sierra Leone as there is a lack of general comprehension of what FHCI expenditures are. For example, a meeting with MoFED provided the first row of data in Table 57, outlining their view of what constitutes actual government funding of the FHCI. This includes expenditures on drugs and medical supplies (FHCI drugs), supervision (M&E), and cost-recovery (for drugs). The second row provides an estimation of government spending on FHCI if staff salaries, Reproductive, Maternal and Child Health (RMCH) activities, and any indirect or overhead costs relating to running the FHCI are included. Comparing these shows that the MoFED calculations for the FHCI may be underrepresenting the actual expenditures on the FHCI by around US$ 10 million a year when salary rises and capital expenditures associated

with the FHCI are included. This equates to 1.5% of GGE – i.e. the total national budget – on average between 2010 and 2013.

Table 57: Government spending on the FHCI (US$ millions)

	2010	2011	2012	2013
MoFED quoted actual expenditures	1.3	1.6	1.4	3.2
Evaluation report estimated government expenditure	8.4	10.5	8.5	19.4

Source: MoFED; FHCI Evaluation Report

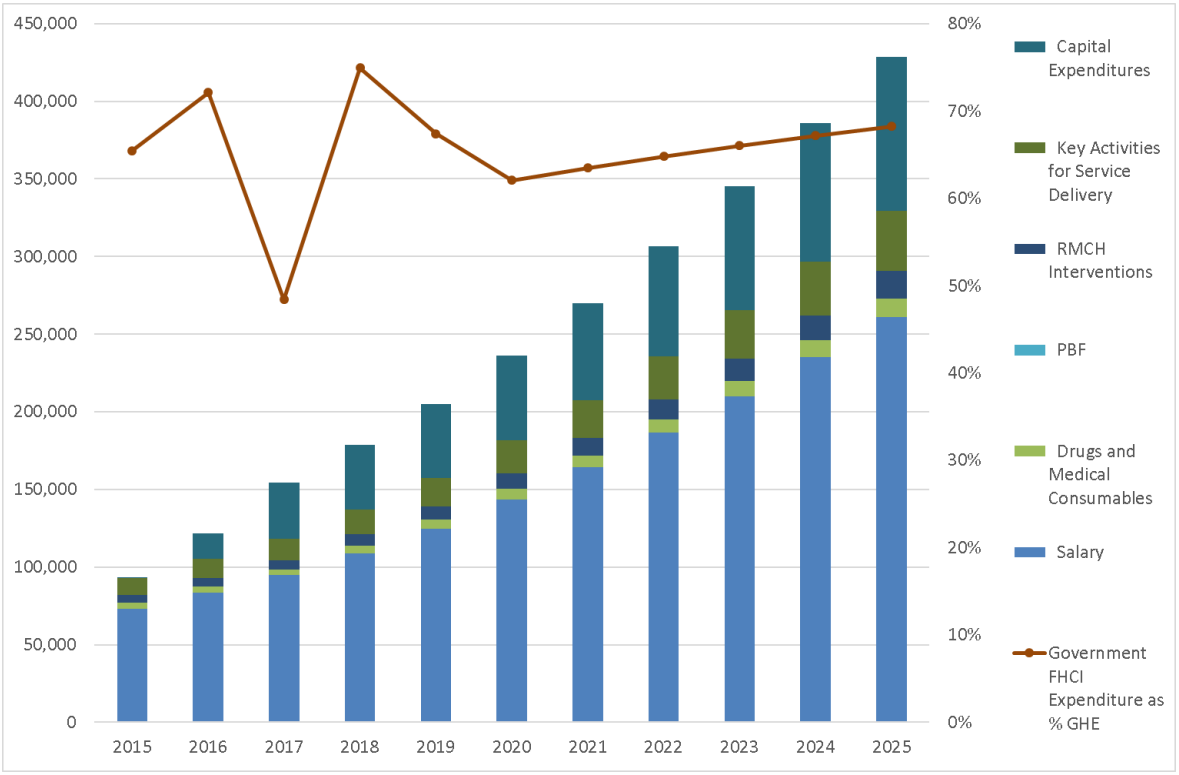
While it is difficult to isolate these costs – for example, how to divide medical staff time between lactating mothers and other patients, or the cost of electricity for different patients – there is a crucial budgeting and planning point to be made from this. Neither MoFED nor the MoHS seem to have a strong grasp on the financing of the FHCI. Not knowing what level of expenditures the initiative currently consumes – regardless of a benchmark resource need – has a direct impact on the ability to plan and implement services. In turn, this will adversely affect utilisation rates and so health outcomes. In essence, this implies a risk to financial sustainability.

Using the evaluation team estimates for the current expenditure on FHCI (see Section 4.1), we project official expenditure on the FHCI (public and donor spend, without taking OOP and private spend into account) ahead over 2015 to 2025. Our findings show that official FHCI expenditures are estimated at US$ 97 million in 2015 and projected to rise to US$ 136 million in 2025. The sector is heavily donor-dependent, with 80% of financing coming from external sources in 2015. The methodology assumes a slowdown in donor funds and rise in ability of the GoSL to pay for these services, which results in this dependency declining to 50% by 2025. Over the 10 years the official FHCI expenditures account for 1.8% of GDP and 9.1% of GGE.

Figure 93 and Figure 93 show the breakdown of the FHCI for GoSL and for external donors. Salaries account for the largest share in both, especially if PBF is included in the external funds. In total, the GoSL is projected to spend two-thirds of its GHE on the FHCI, while of total external funds to health around one-third goes to the FHCI. While keeping in trend with past donor support to FHCI vis-à-vis general health support, the model expects the government to increase its support to the FHCI from the current one-third of GHE.

It is estimated that of the US$ 63 spent per FHCI beneficiary in 2015, US$ 12 comes from GoSL and US$ 51 from external sources. By 2025 the total spend is projected to rise to US$ 77 with US$ 38 from GoSL and US$ 39 from donors. This is in line with the assumptions for rising GoSL financing and slowly declining international assistance in the FHCI.

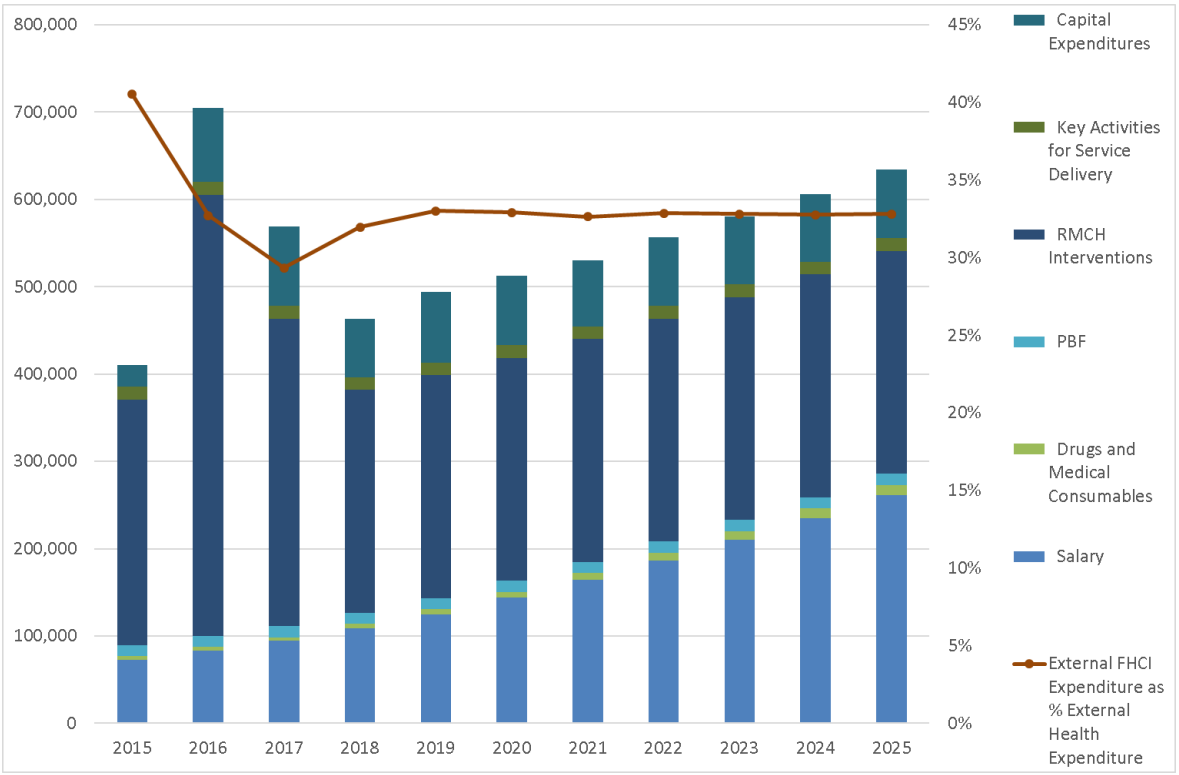
Figure 92: Government FHCI expenditures (SLL millions and as proportion of GHE)



Source: Authors' calculations

Note: The sharp dip in the proportion of funds to the FHCI compared to GHE in 2017 is due to a large rise in budgeted capital expenditure for non-FHCI investment. The above-trend expenditures are not projected to be sustained over the longer term.

Figure 93: Externally financed FHCI (SLL millions and as proportion of external health expenditure)

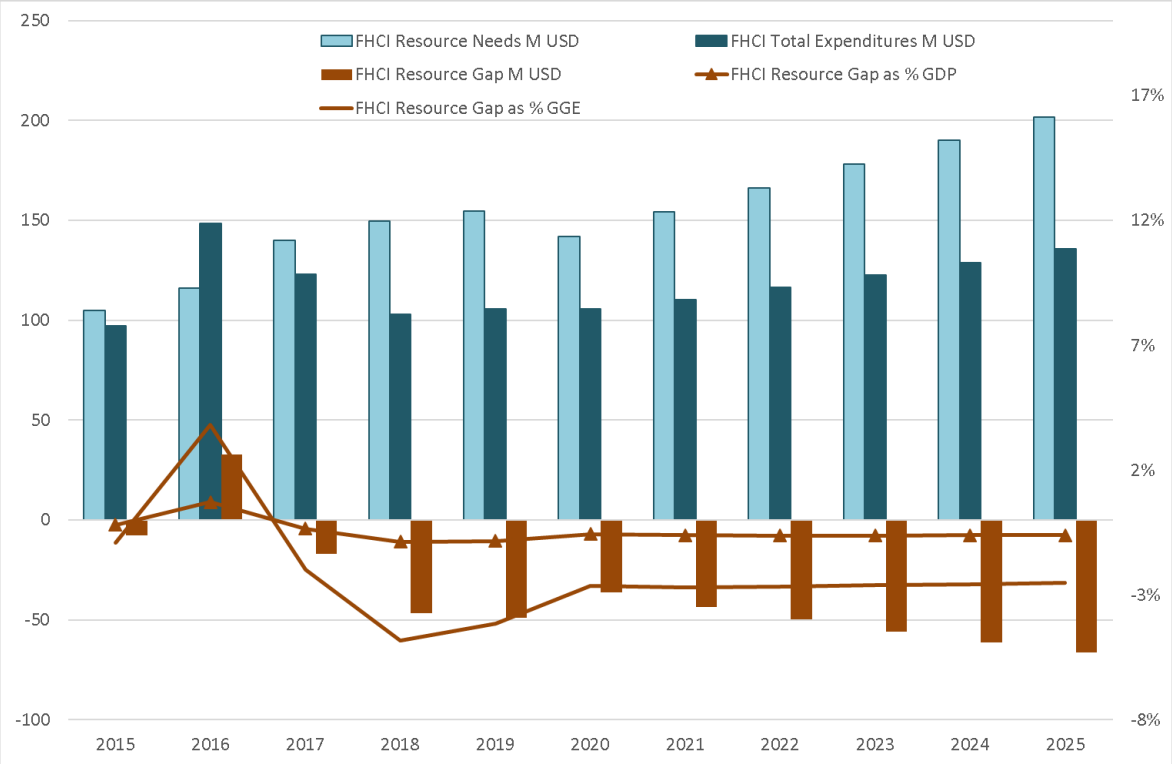


Source: Authors' calculations
Note: The sharp dip in the proportion of funds to the FHCI compared to donor funds in health for 2016 and 2017 is due to substantial rises in capital expenditures for non-FHCI health investments. Nominally there are higher than average FHCI capital expenditures funded by donors in 2016 and 2017, hence the rise in actual expenditure. Both of these above-trend expenditures are not projected to be sustained over the longer term.

11.3 FHCI 'business as usual' financing gap

Taking the FHCI's available expenditures and comparing them to the resource needs provides a projected financial gap for FHCI, which is shown in Figure 95. This shows a widening financial gap over the 10 years from US$ 8 million in 2015 to US$ 66 million in 2025. Per FHCI beneficiary this means an average of an additional US$ 22 is required each year. This gap equates to 0.5% of GDP on average each year, and 2.2% of GGE. In sum, these projections suggest that if the current FHCI financing were to continue there will be inadequate funds to meet FHCI beneficiary needs.

Figure 94: FHCI business as usual financing gap (US$ millions and as proportion of GDP and GGE)



Source: Authors' calculations

11.4 Maximising fiscal space for the FHCI

This section provides alternative options for closing the FHCI financing gap that has been projected above. A revised gap showing the potential impact of these policies will be aggregated into one combined resource gap for the FHCI.

11.4.1 Funding options

There are four sub-groups of domestic funding options: 1) official government revenues (budget and mandatory health insurance (MHI)); 2) earmarked taxes for health; 3) efficiency savings; and 4) borrowing. Each will be assessed in turn in the Sierra Leonean context. Private contributions by

households and firms are not included in this search for financing the FHCI. Inasmuch as household contributions are OOP, they are regressive and constitute a financial barrier to accessing health services; thus, while they may contribute to the financing of health services, they are at odds with the notion of free health care.

Option 1: Government funding: budgetary allocation and MHI

Public spending is the most important source of health – and so FHCI – funding from a sustainability perspective (in a predominantly tax-funded system). It is essentially a factor of the size of the economy (GDP) and the tax-to-GDP ratio (which provides the basis for government revenue). There are three main subcategories for public spending:

- Budget allocation from the treasury for FHCI sector expenditures at the central (or national) level.
- In a decentralised fiscal system where, in addition to central transfers, districts have authority to collect funding and allocate this according to specified mandates.
- The government's contribution to the upcoming MHI scheme, the Sierra Leone Social Health Insurance (SLeSHI).

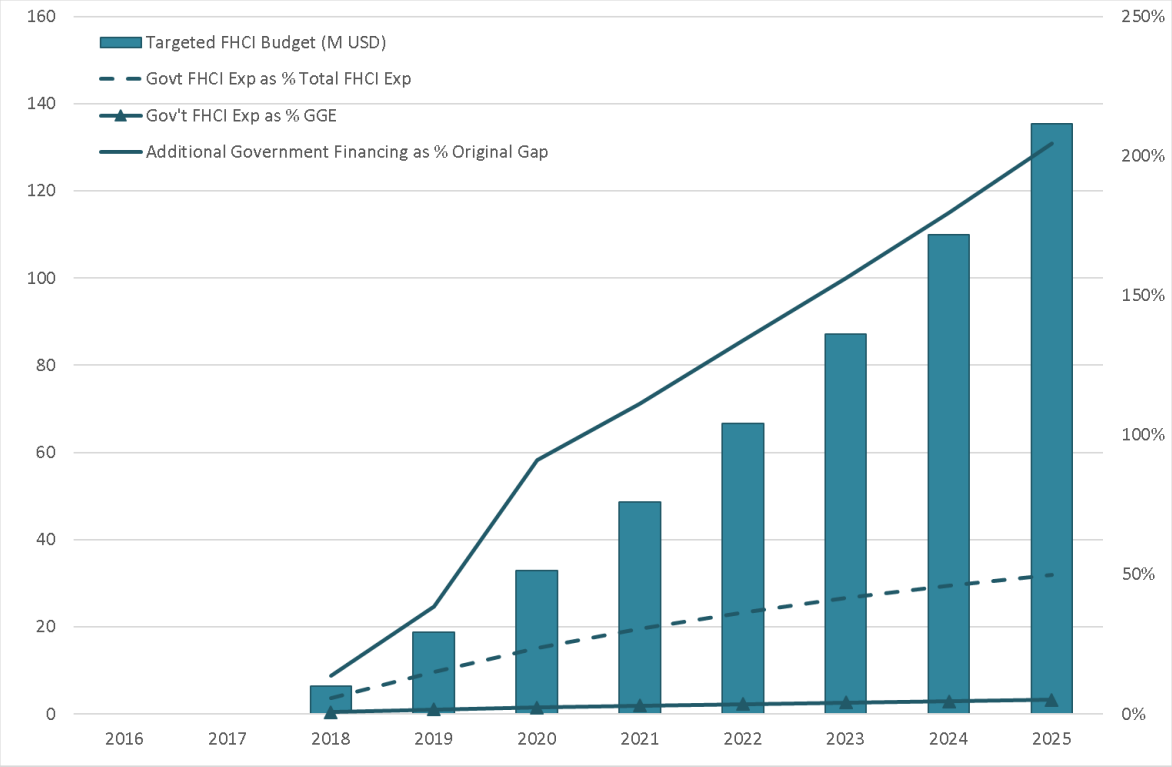
Allocations from government revenue (central or district) to the FHCI are conceptually similar to raising resources for the FHCI through MHI. Both mechanisms levy resources from economic actors to finance health care services, just through different modalities (i.e. the tax system/budget and the health insurance fund).

All together these make up public health spending. The target for public spending on health set in the Abuja Declaration is 15% of total government expenditure. The Director of Budget in MoFED stated that this was a goal that the GoSL was serious about and, in his view, should be achieved by 2025. This would entail possibly rising to 10% of GGE in the next five years, and then on to 15% over the subsequent five years.[115] We therefore assume that the total health budget will rise to reach the Abuja target and the internal allocations within health sectors will remain unchanged. In this way, the FHCI will automatically gain extra budgetary funding.

The National Social Security and Insurance Trust (NASSIT) committee state that pilot plans for SLeSHI will start in the last quarter of 2016 and will last six to 12 months.[116] The pilot will involve the security sector (police, prisons, military) and thereafter all formal economy sectors, which will be about 5% of the population. Premium rates are being considering at 6%, i.e. 3% from employees and 3% from employers. This is what was set out for the business as usual scenario above. Within this new scenario, FHCI beneficiaries become – in the words of a NASSIT committee member during the KIIs – 'a subset of UHC'. The current idea is that the FHCI could change from a system of paying no fees to being a SLeSHI member with premiums paid by a government subsidy. NASSIT consider that within about five years external financing to the FHCI may bottom out and then SLeSHI will take up the funding gap.

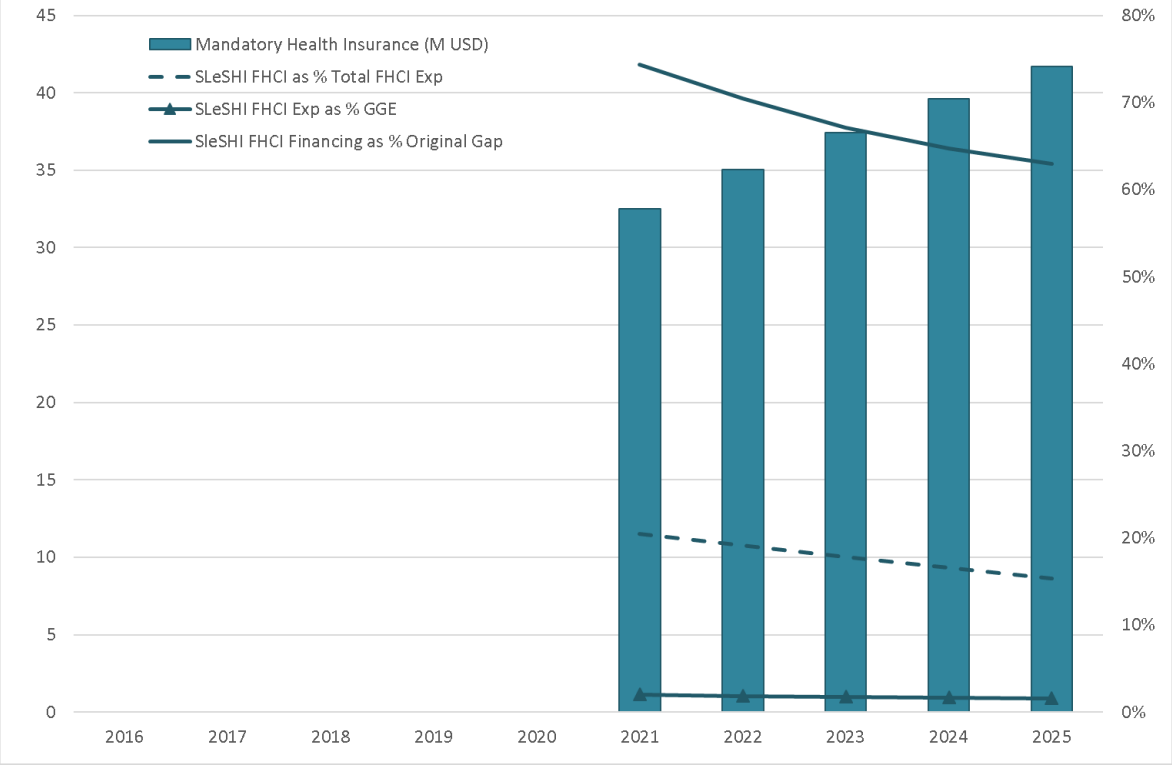
[115] Stakeholder interview, January 2016.
[116] Stakeholder interview January 2016.

Figure 95: Projections for increasing the budget allocation to the FHCI (US$ millions)



Source: Authors' calculations

Figure 96: Projections for increasing allocation to the FHCI and incorporating MHI (US$ millions)



Source: Authors' calculations

As these are such early stages in the ideas of the NASSIT Committee, this analysis presents two alternative scenarios for public sector funding to the FHCI:

- The first is represented in Figure 96, wherein all FHCI public funding comes from budgetary allocation. As the 2016/17 budget is already set, the model begins the move toward the Abuja target in 2018 and this is achieved by 2025. The increased share to the FHCI would average an additional US$ 63 million a year (from this rise in health allocation of 15% of GGE). This policy change alone would close the financing gap for the FHCI in Sierra Leone by 2021.
- The second projection for public spending is shown in Figure 97. This looks at MHI in isolation. If NASSIT plans go ahead, from 2021 the FHCI will be delivered through SLeSHI with GoSL providing full subsidies to FHCI beneficiaries. The premium levels that are estimated for the FHCI are clearly less than the potential budgetary share as in Figure 96. This projection may bring an additional source of funding to the FHCI, but by 2025 the financing through SLeSHI is providing little more than the business as usual scenario.

It must be noted that these are cautious estimates and the GoSL would be advised to look more in depth into actuarial assessment of long-term premium and benefit packages for developing SLeSHI in general and for the FHCI specifically.

Finally, it is important to note that the ability of the government to raise the budgetary allocation is not only linked to the political will to do so, e.g. deciding to move its spending priorities from roads to health. It is also a function on the wellbeing of the economy – the government would not need to move as much in nominal terms if the entire budget envelop rose. For this to happen the Sierra Leonean economy would need to show solid economic growth and the tax-to-GDP ratio will have to move considerably higher than the current 9.2%. This is a low taxation rate even for a low-income country such as Sierra Leone. This model assumes (somewhat optimistically) that emphasis on tax system reforms could bring the ratio up to the low income average of 14% by 2020, and possibly reach 20% by 2025 if there was serious dedicated effort. While tax reforms are underway, these take time. Public sector financing may be a long-term goal for Sierra Leone but, as the financing gap for FHCI shows, money for RMCH is needed in the near term.

Option 2: Earmarked taxes

As we have seen from the subsection above, the incremental rise in budget allocation to health makes for a significant reduction in the resource gap by 2025 but over the short to medium term Sierra Leone simply does not have the capacity to raise the financing required. However, Sierra Leone is not operating at the optimal taxation incidence; there is fiscal space to increase taxation and this can be done in the near term by implementing earmarked taxes. Indeed, Sierra Leone has already shown strong political commitment to the FHCI by adding a clause in the Finance Act of 2016 whereby a share of withholding taxes collected on government contracts will be set aside for the FHCI. This in essence is an earmarked tax.

The main arguments against earmarked taxes and levies are that they may lead to inefficient allocation of resources by removing spending decisions from broader public resources allocation processes, can introduce additional distortions into economic decision-making, and may undermine parliamentary/democratic control of public finances. Nevertheless, there are some arguments in favour of specific taxes and the earmarking of spending. Earmarking can play an important role in ensuring the political acceptability of additional taxes and levies. This is particularly the case where the taxes are used to fund a clearly defined social benefit (such as health services) or linked to particular social dis-benefits (e.g. sin taxes).

The financing of health in general – and the FHCI in particular – is characterised by the need for sustained expenditure well into the future, high donor dependency and uncertainty around future donor support caused by a tight fiscal climate globally. Many governments are therefore confronted with the certainty of important expenditure for health into the future but uncertainty about how to finance their programmes. Sierra Leone currently does not have the economic growth levels to

translate into a wider tax base whereby revenues can cover expenditures. In the previous subsection we have seen that, over time, Sierra Leone can be expected to self-fund through general taxation measures as growth and tax reform continue. However, in the short term the current tax systems cannot sustain the needs of the sector. Within the context of dwindling external resources Sierra Leone needs to take ownership of the sector. Given the limitations of the general taxation system it is therefore essential that the FHCI increases fiscal space and investment for RMCH outcomes through alternative funding sources.

The GoSL is currently examining a number of initiatives in this area, such as a mobile phone airtime levy (specifically for Ebola), sin taxes (on alcohol and tobacco), a remittances levy or diaspora bond, and petroleum tax.[117] While the petroleum (and mining) sectors are a potentially solid stream of financing for the FHCI these ideas have been put on hold due to the collapse of these industries, with international mineral prices remaining subdued.[118]

From a large list of potential sources of earmarked revenues, the fiscal space analysis involved us looking at five different potential earmarked taxes and levies for Sierra Leone. The full list is set out in Table 58 in order of their score within selection criteria to assess their effectiveness as sources of funding for UHC. Each has been measured on a five-point scale: 1) sustainability of resource flows over time; 2) stability of funding; 3) progressiveness (i.e. impact on equality); 4) administrative efficiency (how costly it would be to set up and maintain the levy); and 5) any potential side effects.

The table shows that the top-scoring types of levy are airline and sin taxes (dormant funds are not relevant in Sierra Leone according to the Bank of Sierra Leone). While remittances and airtime levies do not score well they have been discussed in country and so will be put forward for consideration here. One new element not included in the table is using funds from withholding taxes for the FHCI. This is something currently being discussed in Parliament in Sierra Leone and will be considered here.

Table 58: Overview of the costs and benefits of innovative funding mechanisms – experience from other countries

	General Findings					
Mechanism	**Sustainability**	**Stability**	**Progressivity**	**Administrative Efficiency**	**Side Effects**	**Total**
Airline levy	4	4	5	4	4	**21**
Dormant funds	4	4	5	3	4	**20**
Tourism levy	4	4	5	3	3	**19**
Sin taxes – Alcohol & Tobacco	4	4	2	4	3	**17**
Remittances levy	4	3	2	4	3	**16**
Private sector contributions	3	3	3	3	4	**16**
Airtime levy	4	4	2	4	1	**15**
Health bonds	1	5	3	1	4	**14**
Health lottery	2	2	1	2	4	**11**
						Total

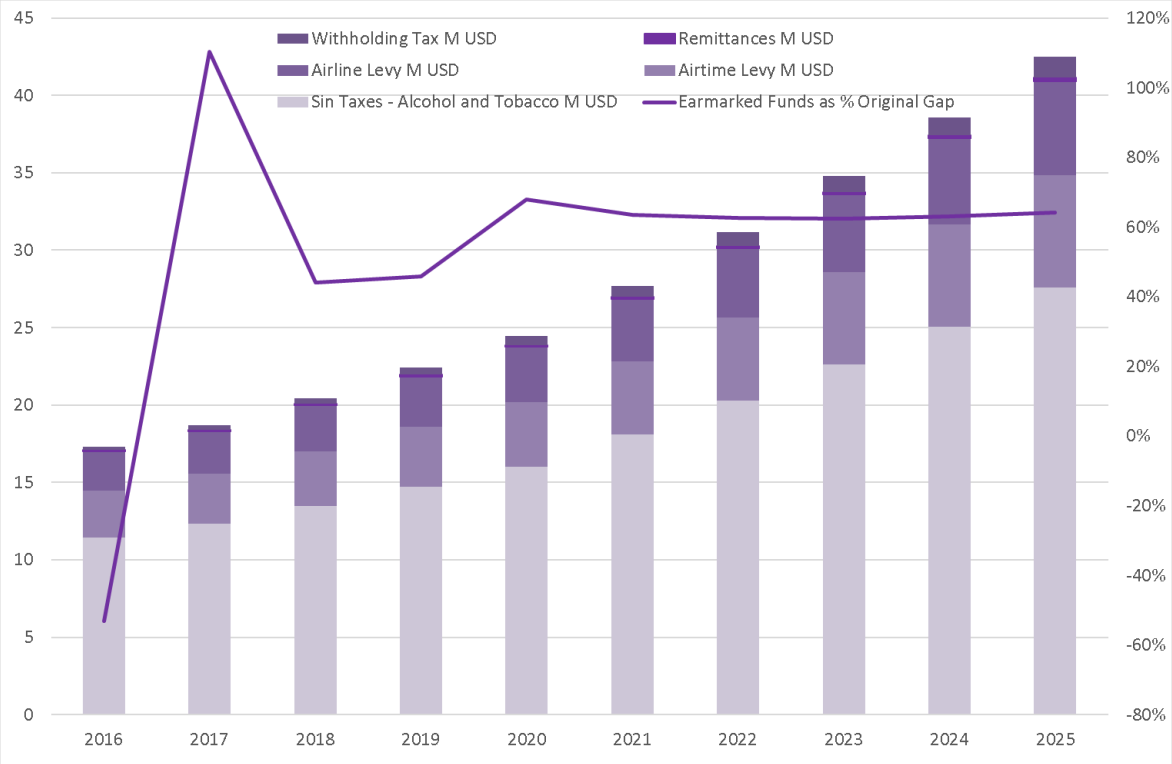
Source: Adapted from Lievens (2012)

Note: Summarises findings from countries that have implemented or carried out analysis on these earmarked taxes.

[117] Discussed in meetings with various stakeholders including officials in the Central Bank, Ministry of Finance, and MoHS. None are yet implemented.
[118] Stakeholder discussions mentioned that the GoSL is prioritising the reintroduction of mining production and so do not wish to increase costs to mining firms at this time.

The findings from other countries have been applied to the Sierra Leone macro-health framework for the five chosen options. The analysis suggests that Sierra Leone could gain an additional US$ 28 million a year over the projection period if various earmarked taxes were implemented (see Figure 98 below). This would be the equivalent of raising an additional 0.4 percentage points of tax to GDP, and would close the financing gap for the FHCI by 65% over the projected time period. However, it is unlikely that these five taxes would all be implemented to fund the FHCI. Therefore, the arguments for and against each type will be examined below.

Figure 97: Projections for earmarked tax revenues for the FHCI (US$ millions)



Source: Authors' calculations

Withholding tax

A clause has been included in the Finance Act 2016 that states: *'A national health insurance levy shall be imposed at a rate of 0.5% on the value of all contracts relating to the supply of goods and services in support of the Free Health Care Programme'.*[119] In a meeting with the architect of this fund for the FHCI it was clear that the main operational elements were not yet fully considered and agreed.[120] As it is in its developmental phase, there is therefore space to improve the arrangements. To date, the following is what is known about this potential source of funds for the FHCI:

- It stems from the understanding that the FHCI is too donor-dependent and needs dedicated domestic revenues.
- 0.5% of additional tax will be taken from withholding taxes. There is no estimation of the magnitude of the flow of funds expected.
- The funds will be placed in a dedicated account; they will not go into the general budget and the normal budget allocation to health will not be reduced. As a result, MoHS planning and

[119] MoFED (2016) Finance Act 2016, Clause 38, page 16.
[120] This section draws from the meeting with the MoFED Revenue and Tax Policy Division Director.

budgeting will no longer include the FHCI. Indeed, it was suggested that the MoHS annual plans would be split between one to MoFED and one to the FHCI account.

- The modalities are still under discussion, but a Ministerial Committee is preferred to oversee the fund; this would include MoFED, MoHS, and the Ministry of Works.

Funds from withholding tax are likely to provide a stable revenue source. The government will always outsource goods and services contracts underpinning the flow of funds, while roads and energy contracts will be larger one-offs. It would score well on progressivity in that those bidding on and winning government contracts are not poor. Administrative efficiency would also be high as this tax already exists and it does not cost much to set up a separate account.

However, there are major concerns about what this would mean for the current organisation of the FHCI in terms of planning, budgeting and financing systems. Indeed, the suggestion as it stands states that the MoHS would relinquish control of the FHCI and be required to run RMCH policy and plans separately from the FHCI, with two separate planning and financing systems. This would be far from an ideal position in terms of planning and implementing health care programmes. Side effects may be substantial when considering the risk of non-delivery of FHCI services to vulnerable children and women.

Moreover, there is no costing. There is no comprehension of the actual costs of the FHCI and no concept of how much this 0.5% tax could generate in revenues. When discussing this tax, MoFED did not know if it would cover the basic government FHCI costs, i.e. salaries, drugs, etc.

We have made a 'back of the envelope' attempt at estimating the size of this fund. If this initiative were to move forward, our projections show that the withholding tax revenues could be in the region of US$ 0.7 million a year over the 10 years. This would account for only 1.6% of the FHCI financing gap.

In sum, while this shows strong political support for the FHCI there is much work to be done in clarifying the organisational elements and ensuring that this will work in favour of the FHCI.

Airline levy

The summary table above shows that the airline levy gets the highest score in the subset of levies we have assessed. The key benefit to highlight here is the fact that the majority of the Sierra Leonean population is not being taxed under this option– air travel being a luxury good which primarily tourists will pay – and this should make such a tax politically acceptable to most taxpayers.

An airline levy can be implemented with relative ease as the levy would make use of the infrastructure already in place to collect indirect taxes on the sale of aeroplane tickets. There is strong international evidence of the success of such a levy. UNITAID, the International Drug Purchase Facility, was established specifically to oversee the use of aviation solidarity levies. UNITAID's mission is to provide people in the developing world with long-term access to quality drug treatment for diseases such as malaria, tuberculosis and HIV/AIDS at the lowest price possible. Since its creation in 2006, on the initiative of Brazil, France, Chile, Norway and the UK, there are now 34 member countries – the majority of these contribute through aviation solidarity levies.

Some argue that such a levy reduces the demand for plane tickets and therefore might not generate the expected revenue. However, there is evidence that the price elasticity on demand for plane tickets is low and that the airline industry is not affected by this additional tax (WHO, 2007). Tourism is a significant contributor to GDP and foreign exchange in Sierra Leone and must be

protected as a growth source. The levels of the levy suggested here are far from any additional cost that would discourage people from travelling to Sierra Leone. Thus, it is important to note that this levy is seen as a solid contender for alternative financing due to the relatively small charge on the cost of an airfare and the fact that it is not a tax on the poor.

On average, countries have found they can raise 0.06% of GDP through an airline levy. This would mean that Sierra Leone could gain something in the region of US$ 4 million a year over the next 10 years, which would cover 9.4% of the FHCI resource gap.

There are various pricing options the GoSL could take to increase the revenue flow, such as using a sensitivity analysis to see how far they could raise the levy and it not affect demand (these projections are based on cautious estimates for levy values). A US$ 5 to 10 charge is a very small proportion of the total cost of the average ticket price, and US$ 40 is charged by UNITAID on international business class flights. Raising the levy could more than double the projected revenues mentioned above, depending on bundle of levies for class of seats chosen. Other possibilities are disaggregating the charges further, between economy, premium economy, business and first-class travel passengers.

In conclusion, this option could provide a significant proportion of funding in terms of the gap that is projected, and is a sustainable income flow that does not constitute a regressive tax. A levy on airline tickets is both long term and predictable in nature, as air travel is growing and is expected to continue to grow in years to come. Moreover, it could be easily administered and there are strong country experiences to build on. It is therefore seen as a viable option for Sierra Leone. GoSL would need to consult with the tourism and airline industries to ensure that this move would be accepted.

Sin taxes

There is an established link between alcohol and tobacco consumption and health and hence a plausible argument that funds raised from a levy on these goods should be devoted to health and indeed RMCH through the FHCI. This taxation measure is simply a rise in the taxation on alcohol and tobacco that is earmarked for the FHCI. It penalises drinkers and smokers and is not paid by people who do not consume these goods. This type of taxation is referred to as a ‘sin tax’ because such taxes are attempting to regulate the consumption of a product that society deems undesirable. The revenue generated by sin taxes can be used for special projects. For example, in Sweden the proceeds of a tax on gambling are used to help people with gambling problems (European Commission, 2006).

One possible side effect of a sin tax is that there may actually be some improvements in health as a result of the imposition of sin taxes. A recent analysis of 112 studies on the effects of alcohol tax increases affirmed that, when taxes go up, drinking goes down, including among problem drinkers and young people (Wagenaar et al., 2009). Arguments against sin taxes include such reasoning as a belief that rising taxes trigger a rise in the black market and that such taxes are regressive in nature.

A sin tax with proceeds earmarked for the FHCI is administratively similar to any other indirect tax. It should be relatively straightforward to collect the tax and to separate out the revenue for allocation to health programmes. Moreover, experiences in developed countries suggest that excise taxes cost less to administer than many other taxes.

If Sierra Leone was to implement sin taxes, projections show a rise in the tax take of US$ 18 million a year over the projection period. This would account for 42% of the FHCI financing gap.

To conclude, sin taxes may be easier to digest for taxpayers in as much as they are taxing socially undesirable goods. If further analysis proved that the market could absorb a tax in these industries the sustainability of resource flows to health would be achieved. This is because there would be little pressure to reduce the taxation of these goods from a social standpoint. Furthermore, there would be little administrative cost in setting up this levy as the taxation systems are already in place for both alcohol and tobacco. There are concerns that this type of tax is not progressive in that lower-income households will pay proportionally more of their incomes on this tax. Yet it has been argued that the higher you raise this tax the more the poor are priced out of the market, meaning their health risks are taken out of the equation. In a sense then, this type of sin tax can also be viewed as a luxury goods tax.

Airtime levy

There has been prior interest in this type of levy in Sierra Leone. At the time of the Ebola outbreak there was talk of setting up a levy to pay for Ebola health needs, and thereafter this idea has been discussed in terms of earmarking the funds for other health needs.[121] A levy sufficiently small not to distort demand could in principle be imposed on mobile phone calls. However, the mobile phone industry in Sierra Leone affects a large and diverse population. The mobile phone market is young and developing quickly and it is therefore uncertain how consumer demand might change in response to a tariff on calls.

It is not just outreach that is expanding. In many countries there are plans to develop services accessed through mobile phones, such as mobile money (Mohapatra and Ratha, 2011). In other countries' experience, once it is available demand for this type of service grows exponentially. As and when the mobile phone market covers more than just phone calls there will be increased concerns about this type of levy. If new financial services develop on the back of mobile phone penetration, the introduction of an additional cost to using these services may have a detrimental impact on these services and thus more widely on the country's economic development.

Nonetheless, if Sierra Leone were to implement a tax on mobile phone airtime this could raise US$ 5 million over the next 10 years. This would account for 11% of the FHCI financing gap.

In sum, this levy could represent a source of financing for the FHCI. The industry is expected to continue to grow rapidly over the next few years and so revenues could be relied upon in a consistent manner. However, lower-income households spend proportionally more of their income on airtime than higher-income households. This, as well as the idea that new services such as mobile money could benefit the poor, suggests that this could be a regressive rather than progressive tax.

Further research into the plans for mobile banking services should be carried out before a decision to increase the tax on this industry is made. This should also include analysis of the potential side effects of raising taxes on airtime for businesses, the financial sector and other industries.

Remittances levy

Imposing a levy on international remittances has been identified as a potential revenue source for funding the FHCI. This would be achieved by adding a small fee onto all money transfers from abroad. The IMF estimates that remittances to Sierra Leone are around US$ 100 million a year.[122] As a proportion of GDP this is 2% and as such they constitute an important source of funds within

[121] In multiple stakeholder interviews in country, we found this topic to be a very common one throughout the information-gathering visit.
[122] IMF Article IV 2015.

the economy, comparable with external on-budget support which has been around 4% (averages for 2010 to 2014). Therefore, any taxation on this flow of money must be considered carefully.

Remittances can be made through both formal and informal channels, and this levy would relate to formal remittances only. Formal, or official, cash flows make up the majority of remittances. However, it must be noted that the data from the Bank of Sierra Leone involve an estimate as to the size of informal remittances as no data are available; the true size of informal remittances into Sierra Leone is therefore not known. The difference between formal and informal flows is described below.

Formal channels include domestic and international banks and service providers. Providers in Sierra Leone include international firms such as Western Union. Factors affecting their use include:

- High transaction costs, which are believed to dampen the scope of money transfers;
- Banking requirements often excluding potential users from accessing banking services;
- Clearance times for money transfers being notoriously long; and
- Stringent exchange controls.

Informal channels include money carried by migrants themselves and remittances carried by friends and family or sent via taxis and buses. These are believed to have a number of advantages and disadvantages, including the following:

- Their costs are typically lower;
- They provide an opportunity to avoid government taxes;
- They do not require documentation and thus facilitate transfers from illegal immigrants; and
- They are less reliable and extremely difficult to monitor.

The fact that such a levy could only affect formal sector transactions may lead to a move from formal to informal channels, with consequent externalities associated with this. It is possible that, if the diaspora is made aware that the extra charges are channelled to health programmes, they will be sympathetic and this could mitigate the shift toward informal remittances. However, the importance of fully researching this policy option cannot be overstated, as remittances are a key flow of funds to developing countries:

> *Remittances are the second biggest source of external financing after foreign direct investments for developing countries. ... Remittances represent almost 2.5 times the volume of ODA [overseas development assistance]. Due to lack of data, this amount is considered by the [World] Bank as grossly underestimated, since it only reflects transfers through official channels* (Lamontagne and Greener, 2008:9).

International findings provide further evidence for treating any policy change to remittances with caution (Ibid.). Research has shown that remittances can:

- Act as a safety net in times of hardship;
- Be used to support families in the face of unexpected health care expenditures; and
- Protect poor families from slipping into extreme poverty.

It is clear that remittances provide a crucial source of income for the population. They can be spent on health services and in doing so will contribute to the financing of health (mostly probably through OOP payments).

If a levy was placed on remittances, Sierra Leone could expect annual revenues of US$ 0.1 million. Over the projection period this would cover just 0.3% of the FHCI financing gap.

For the amount of effort required to implement this type of taxation system and given the fact that these remittance resource flows are essential for low-income families such an approach is not to be recommended as a long-term solution to the health financing gap. Moreover, in Sierra Leone there is an understanding that remittances play an important role in maintaining a stable macro economy.[123]

To conclude, although remittances provide a sustainable and rising base from which to raise health funds they are not progressive; they are effectively a tax on those receiving remittances and these are usually the poor in a society. If this funding mechanism was chosen new administrative measures would have to be put in place to monitor and audit revenue flows, which would be costly. Given the important contribution that remittances make to economic development and poverty reduction, and the limited understanding of the behavioural effects that any policy change may cause, much more research would be needed before this could be a recommended funding source.

Summary of earmarked taxes for Sierra Leone

The withholding tax for the FHCI currently has the most traction in Sierra Leone. For this to work in the favour of those implementing the FHCI, it would be advised to work with MoFED to develop this to work optimally with current financing arrangements and FHCI needs. However, the projected values are very small and would only cover around 1.6% of the total financing gap for FHCI.

More effort may be best used in further research into an airline levy or sin taxes in terms of the value of revenues flows projected. The airline levy is the most pro-poor example discussed and has the added benefit of being paid by the international population rather than citizens. Additionally, the example given here is based on cautious estimates; a closer assessment of the industry could bring greater funds. The sin taxes have the most health-relevant factors and may be an easier argument to put to GoSL and the public. The mobile phone tax would not be recommended as it is regressive and risks endangering potential growth in new financial services. Finally, the remittances levy brings in very limited funds and is a risk to the economy and so this would not be advised.

For the longer term, when the mining sector returns to strength and petroleum becomes viable there should be an idea to re-evaluate the potential of earmarked funds from these sectors' earnings. It could be a valid longer-term source of finance as a recent study finds that natural resource revenues could cover 82.7% of the health financing gap in Sierra Leone (Witter et al, 2015).[124] However, the report does conclude that extractive industries are sensitive to price fluctuation and the GoSL may be unable to smooth expenditure and revenue flows.

3) Efficiency savings

For this particular strand of the financial gap analysis, the focus is on estimating the potential savings from efficiency gains in Sierra Leone. The methodology used to estimate the magnitude of potential savings from imposing efficiency measures is based on international comparative performance. This was carried out for Sierra Leone in terms of the entire health sector and no data exist for the FHCI sector alone. However, some efficiency challenges for the FHCI have been

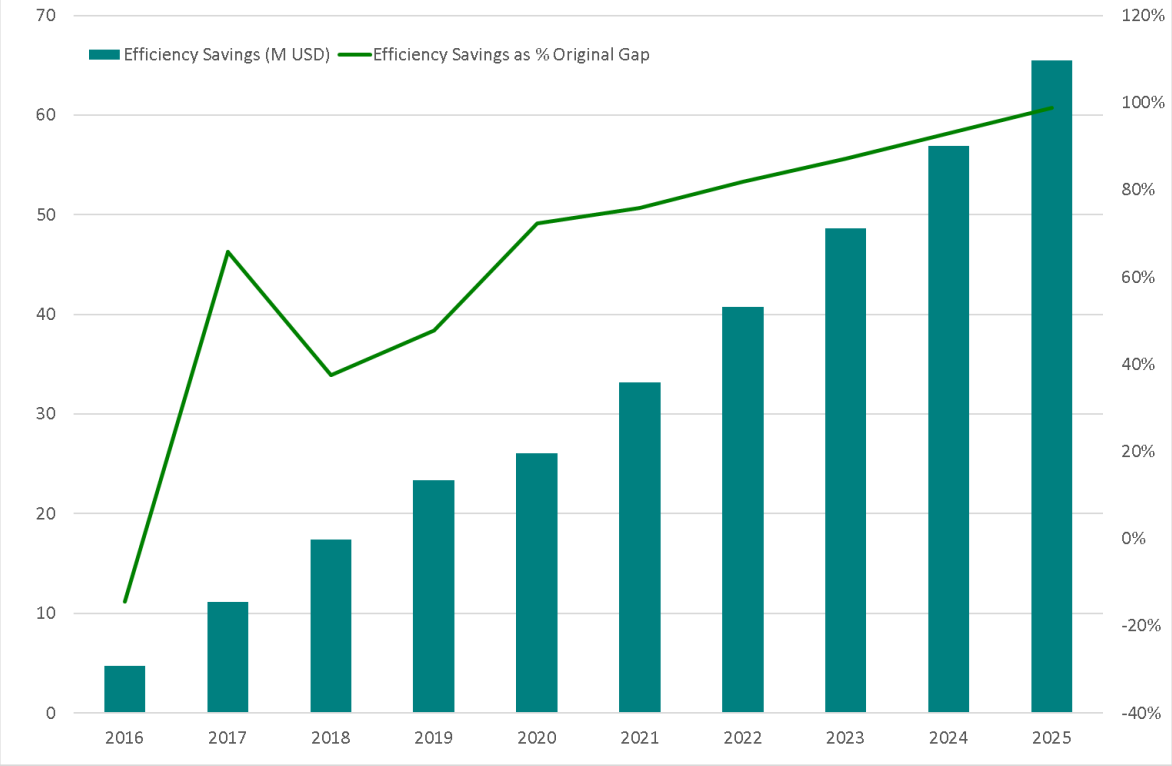
[123] According to our discussions with Bank of Sierra Leone officials.
[124] Note however that these estimates were based on extractive industry prices before their recent decline.

discussed above. The key areas for focus would be drugs (procurement and supply chains) and HR management.

In this case, we assume the average efficiency levels for the FHCI are similar to those of the entire health system. The results of the Data Envelope Analysis (DEA) carried out by Zeng (2014) show that Sierra Leone is relatively inefficient: 80% less efficient compared with those countries producing at the production frontier. If Sierra Leone was to continue on an efficiency improvement path it is projected to be only 67% less efficient by 2025, meaning the country would be 33% as efficient as the most efficient countries. This supports the idea that the health system is constrained by great inefficiencies.[125]

The impact of reducing inefficiencies would be that the volume of resources needed for health could be reduced if the same amount was spent more effectively; this would then bring down health resource needs by an average of US$ 33 million a year, as shown in Figure 99. This would reduce the financing gap by 65% over the time period. This value is a cautious estimate as it does not assume any new focus on reducing inefficiencies; it simply projects the recent past trends in reducing inefficiencies.

Figure 98: Projections for efficiency savings in the FHCI (US$ millions)



Source: Authors' calculations

In sum, Sierra Leone would need to investigate the bottlenecks in efficiency most pertinent to delivering the FHCI. This process would not be a one-off exercise; finding and implementing efficiency savings is an ongoing task as processes, health packages and technologies change over time.

[125] Discussed by stakeholders in a number of meetings, January 2015.

4) Borrowing

The last option available to a government to close the resource gap domestically is to borrow. However, if the GoSL makes some domestic policy choices as mentioned above borrowing would not be needed over the long term to close the FHCI gap.

The most recent DSA from the IMF and The World Bank puts Sierra Leone at a 'moderate risk of debt distress'[126]. However, this does not take into account the Ebola outbreak and iron ore price collapse. The latest IMF Article IV states that these duel factors have caused a "*deterioration in macroeconomic performance [which has] have moved Sierra Leone close to being at high risk of debt distress*"[127]. It goes on to say that the government's policy is to use grants and concessional financing for critical projects. In this light it is unlikely that there would be much support for borrowing for FHCI. As such borrowing would not be recommended as a sustainable financing plan.

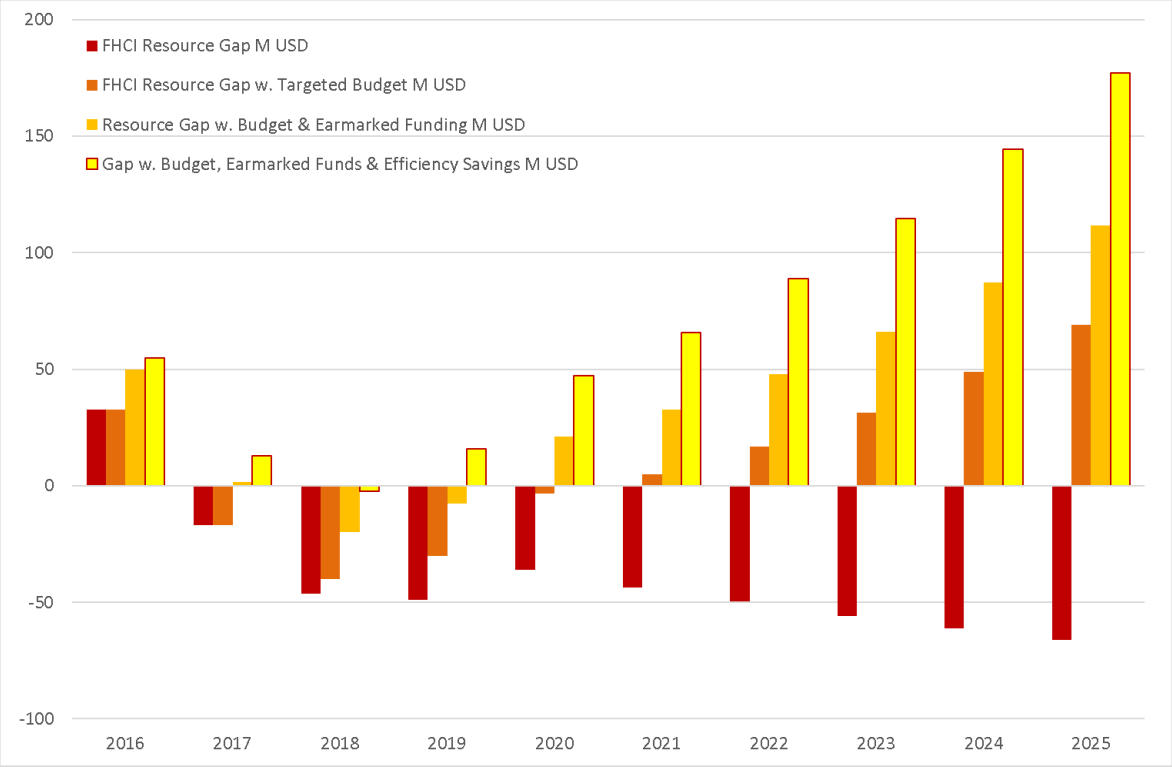
11.4.2 Revised financing gap

Taking all of the prioritising activities discussed together we are left with the scenario set out below in Figure 100 for the FHCI resource gap. This includes the expenditures from government and donors only in trying to achieve sustainable non-catastrophic financing. The developments projected in order to maximise fiscal space for the FHCI can be explained in the following steps:

1. The original financing gap (the red bar chart) is the resultant gap under the 'business as usual' scenario, which was set out in Figure 95. By 2025 the gap is projected to reach US$ 66 million, which is 0.6% of GDP.
2. The next bar chart (orange) shows how the gap can be reduced through government funding. Raising the budget for the FHCI – in line with the total health budget moving toward the 15% Abuja target – would close the gap in its entirety by 2021. (A second option of including FHCI beneficiaries into SLeSHI may reduce the gap by only 2% in 2025.) A gap remains in the medium term and short-term financing options are required.
3. The third bar chart (gold) shows the sum of the government's actions (in point 2 above) with the potential resources from earmarked taxes. These innovative funding mechanisms could reduce the financing gap by 65%. In the unlikely situation that the GoSL implemented all new taxes on top of raising budgetary allocations, the financing gap would decline in 2017 and would be closed by 2020.
4. The final bar chart (yellow) takes the situation in point 3 above and adds in renewed efforts on the part of the government to improve efficiency. Efficiencies can be made but can take some time to implement; however, choosing the right areas to target could close the financing gap.

[126] Quoted in IMF (2015).
[127] Ibid page 3.

Figure 99: Maximising fiscal space to address the FHCI financing gap (US$ millions)



Source: Authors' calculations

In sum, with a reprioritised focus on FHCI financing policy the resource gap can be closed. Longer-term budgeting needs should be considered and implemented soon for the impact to be felt post-2020. Medium-term earmarked taxes and efficiency savings should be further researched, planned and implemented for their introduction in the near term before economic growth can support greater budgetary allocation to the FHCI.

There are two current financing propositions being discussed in Sierra Leone: a) including the FHCI within the SLeSHI and b) having a fund financed by revenues from withholding taxes. As things stand both options would add more complexity to the situation and would undermine the MoHS's leadership in regard to the financing, planning, implementation and M&E systems of the FHCI. However, as yet neither are formally structured and so the MoHS has the opportunity to mould these initiatives, strengthening organisational structures so as to improve the efficiency of financing and capacity to plan for service delivery.

It is important to note that external financing remains in the FHCI system over the next 10 years in this scenario, albeit at a lower level than currently seen. This support is crucial for the longevity of the FHCI in the foreseeable future. However, recently more external financing has moved off-budget, which is a suboptimal financing arrangement for implementing a policy that is highly donor-dependant.

To help gain continued support for the FHCI, and potentially on-budget support, the GoSL should be equipped with a more detailed comprehension of FHCI financing than exists at present. Extensive plans and policies should include financing as well as implementation and expected outcomes. Showing policy plans against available funds can act as an advocacy strategy for continued external support for the FHCI. Donors can be assured of political will and see that it is underpinned by a firm strategy, costed goals and a dedication to longer-term sustainability. This, alongside improvements in PFM, could bring more donors back on-budget, which is a more sustainable financing method when domestic resources are insufficient to cover the gap.

What is the cost of not doing so? If the FHCI is not reprioritised the gains in MCH over the past few years will not be sustained and Sierra Leone will continue to have one of the worst child and maternal mortality rates in the world. The FHCI could falter due to insufficient funds in totality or lack of attention to crucial areas such as the risk of losing PBF at PHU level. So far, the FHCI has been successful in reducing maternal and child health-related OOP payments but total health OOP expenditure has only reduced 'modestly' with the introduction of the FHCI. Thus, more clearly needs to be done to reduce the number of families at risk from catastrophic health expenditure. The overarching goals of the GoSL are to reduce OOP expenditures and to move toward a nationally inclusive health system to reduce the high level of OOP spending, i.e. toward UHC. The FHCI can be viewed as a first step toward this goal. As such it is important to understand that although a lowincome country, Sierra Leone can provide sustainable domestic funding within the current and future economic context, but that external funding will be required to optimise chances of success.

From a political point of view, the focus in the past couple of years has been in enshrining the FHCI into law. Indeed, as long as the FHCI remains a presidential decree it runs the risk of being eliminated when the next president comes in (although this is highly unlikely). The upcoming elections in 2018 seem to have hastened the importance of this law. The draft constitution includes a provision for free health care. This would ensure the sustainability, at least politically, of the initiative.

There is broad social support for the FHCI, as our qualitative research has shown – indeed, there is a demand for it to be extended to other beneficiary groups, all with valid needs (for example, the elderly). However, it is important to consolidate the existing programme before extending it. Moreover, this evaluation has raised some important concerns about institutional weaknesses (as evidenced by the implementation challenges highlighted in Section 4). These need to be addressed as the FHCI moves ahead, alongside the financial planning and additional resources highlighted by the fiscal space analysis.

12 Conclusions

Answers to the specific evaluation questions, cutting across the different domains of the ToC, are found in the summary at the start of this report. Overall, and despite the difficulties with data and counterfactuals, we can say with confidence that the FHCI responded to a clear need in Sierra Leone, was well designed to bring about needed changes in the health system to deliver services to the target beneficiaries (under-fives, pregnant women and lactating mothers), and did indeed bring funds and momentum to produce some important systemic reforms. Underlying this achievement was strong political will, which has been sustained, enhanced donor cooperation, the deployment of supportive technical assistance and consensus among stakeholders that the FHCI was significant and worth supporting. However, weaknesses in implementation have been evident in a number of core areas, such as drugs supply, and these are partly but not exclusively related to under-funding.

We conclude with reasonable confidence that the FHCI was one important factor contributing to improvements in coverage and equity of coverage of essential services for mothers and children. Other important contributors have probably been other RMNCH investments that would have continued in the absence of the FHCI and broader economic changes. Clearly, Ebola also plays a major role in eroding gains in 2014/15.

Whether the FHCI's contribution fed through into improved health is less clear from the data, although there was a very sharp drop in under-five mortality associated with the start of the initiative. Modelled cost-effectiveness is high. However, it is important that efforts are made to monitor and very likely improve the quality of care provided in public facilities. In addition, there needs to be continued efforts to overcome residual barriers, including lack of transport and socio-cultural barriers, so as to ensure gains are fairly distributed. On the supply side, efforts to improve the economy and efficiency of key resources – especially staffing and drugs – will be critical, as will addressing some of the harder-to-reach underlying systemic challenges, such as strengthening the MoHS and the devolved health functions at district level and improving PFM. The sustainability of the FHCI is not assured without such improvements, and increased public investment in health care in general. This requires the efforts of all stakeholders, including the development partners, to enhance performance and accountability in the sector.

It is instructive to compare the FHCI with similar policies adopted in post-conflict countries in Africa, such as Burundi, and neighbours such as Ghana. Both have prioritised free care for mothers and under-fives over the past decade. In the case of Burundi, like Sierra Leone, it used PBF funding to replace resources lost at facility level,[128] with some success (at least until recent unrest), although the policy has not been systematically evaluated. In the case of Ghana, the use of a VAT levy to support the National Health Insurance Scheme enabled free care to be extended to all pregnant women in 2008 (Witter et al., 2013). This provides some insights for Sierra Leone as it considers future financing options, although Ghana as a middle-income country is in a somewhat different position to Sierra Leone.

What Sierra Leone attempted was more ambitious than both of those countries, in that it did not approach fee exemption as a 'vertical programme' focused solely on finance but understood that, for fee exemption to work, the whole health system had to be upgraded. This ambition and the weak starting point are part of the context in which our evaluation findings have to be situated, along with the subsequent shock of the Ebola epidemic.

[128] See http://heapol.oxfordjournals.org/content/early/2014/12/19/heapol.czu132.full.pdf?keytype=ref&ijkey=YxuFZG6c5vPmJYS

13 Recommendations

The FHCI was a concerted effort to strengthen the overall health system, focusing on particular vulnerable target groups but potentially benefiting all. In this respect, there can only be **one central recommendation, which is to renew and deepen that commitment by continuing the reforms that were started in 2010**. The investment that is coming in to Sierra Leone – not just in financial terms but also wider political and technical support – can be harnessed to take this forward from both government and development partner sides.

More specifically, we make the following recommendations, based on the evaluation findings. A number of these dovetail with recent plans, such as the Health Sector Recovery Plan 2015–2020 (MoHS, 2015).

13.1 Cross-cutting recommendations

Bring a relentless focus to bear on quality of care. Quality of care drives perceptions of services as well as their effectiveness, and this review has highlighted the failure to focus on quality of care in the original FHCI, as well as before and since.

- All recommendations here link to quality of care, which should be specifically built into each pillar.
- Clear standards and protocols for the basic package should be developed and incorporated into training and supportive supervision.
- Indicators to monitor technical quality of care are lacking and should be built into routine systems.
- Indicators of responsiveness and respectful treatment should also be incorporated into surveys.
- It would also be useful to repeat the EmONC needs assessment carried out in 2008 (UNFPA, 2008) in order to assess progress in key domains.

Address wider barriers to access. While there has been some reduction in household costs and some improvements in the supply of care, this review highlights the need to address other barriers too, such as engaging communities in supporting transport to facilities, spreading information about entitlements and the benefits of health services, and raising awareness of danger signs for women and children. A stronger inter-sectoral collaboration with other ministries such as the Ministry of Education and the Ministry of Social Welfare, Gender and Children's Affairs would be fruitful here.

Deepen decentralisation. This includes long-term work around some of the structural PFM issues for funding of districts, including timeliness and capacity to report on funds. Strengthening the decentralised components could include both work to consolidate and improve PBF (with an examination of the governance roles at different levels), as well as strengthening capacity of DHMTs to plan, supervise and monitor donor and public programmes and close the policy-to-practice gap.

13.2 Governance and planning

Invest in institutional development of the MoHS to steward the policy and health system. Short-term measures, crises and Ebola have reduced the ability of the MoHS to be able to provide long-term leadership. While delivering on priority outputs for the population, all stakeholders should ensure they support institutional development in the MoHS and not undermine it through parallel

programmes and systems. This balance is of course difficult, perhaps most apparent in the supply chain, where the necessity to get life-saving drugs to those in need confronts the more messy requirement of trying to work through GoSL procurement systems and the challenges these provide. However, while donors should continue to balance these concerns, there are easier actions that could also be achieved, for example through boosting planning capacity and the staffing, capacity and role of the health financing unit and the key directorates.

The development of a health financing strategy is desirable to provide coherence between the FHCI and other policy strands. This should look at risk pooling, revenue raising and strategic purchasing, as well as how to improve the volatility of funding and institute mechanisms for funding facilities. Moreover, clear guidelines on residual charging policies at facility level, among other key areas, also need to be provided.

Specifically on the FHCI, there needs to be better communication and planning between the Cabinet, MoFED and the MoHS, including clear leadership on the policy, estimates of its resource needs and financing, and a plan for taking the policy forward (including ensuring it is rooted in more than the 2002 Presidential Decree). Conversations have been held but not in a joined-up way with all of the key stakeholders in government. How the policy will be extended, whether it will be rolled out to other groups, whether other sectors (such as NGO providers) will be included in the future – all of these matters require a clear forward plan, based on projected needs and resources, for which our fiscal space analysis can serve as a starting point.

Introduce greater accountability. The focus for all parties should be on implementation and delivering agreed outputs. This applies to donors that have not delivered on their promised investments as much as NGOs, districts and government. Parties should agree plans and commitments, with incentives and sanctions incorporated. Information on funding and performance should be made open and transparent in order to encourage good performance.

Strengthen community engagement. Community engagement is an important part of this process and has hitherto been weak. Our research indicated that there is a demand for this and a limited sense of engagement by communities at present in terms of the running of public health services. To ensure that future spending is well used, the mechanisms of local accountability should be reviewed and reinforced. The use of civil monitors was a useful innovation in the early days of the FHCI but appears, like many of the reforms, to have lost momentum since. There is a chance now for the lessons learned from communities' engagement in the Ebola response to be applied to more mainstream health interventions, including to the FHCI.

13.3 Health financing

Provide additional funds to the health sector to reduce OOP spending. Sierra Leone is a low-income post-conflict fragile state. Health is essential for strong economic growth and social development. The scale of household OOP expenditures is incredibly high and the risk of catastrophic health expenditure must be brought down. Addressing the systemic problems with HR and provision of drugs and supplies are among the important ways to reduce the need for household OOP spending.

Tax revenue collection is a priority and will continue to require reform over the next 10 years. However, there is not expected to be a short-term fix for the lack of general domestic tax revenues for budgetary allocation to health and the FHCI.

There is some evidence that earmarked taxes could be supported by the Sierra Leone public to fund health initiatives. Levies in support of the FHCI could be implemented as near-term

solutions to the funding gap (there is certainly fiscal space for this, with a current tax-to-GDP ratio of 9%, compared to the low-income average of 17% or even the fragile state average of 14%). Five types have been analysed and three have potential in Sierra Leone: sin taxes, withholding taxes (in this case taxes on contracts) and an airline levy. More focused research would need to be carried out to provide country-specific industry risks and sensitivity analysis on the levels of tax deemed appropriate before one was chosen to be implemented. As it stands, however, the withholding tax being considered for implementation will not cover FHCI costs. The issue of how it is to be managed and used also requires more discussion and agreement between stakeholders.

There are not enough domestic resources to pay for the requirements of the FHCI, or UHC, in the next 10 years so continued and increased donor support is needed. Over the next decade Sierra Leone is projected to remain a low-income country. Trends suggest that Sierra Leone's proportion of donor monies to GDP is less than the average low-income country receives. As serious health plans have been established, the implementation of these will require external funding over the foreseeable future. Without external support the FHCI is unlikely to continue effectively.

However, there is also a strong argument for improving PFM to encourage on-budget external funding. Notwithstanding fiduciary concerns regarding MoHS systems, given the extent of external funding over the foreseeable future efforts must be made to build local financial management systems where possible. If this does not mean actually putting funds through the GoSL budget, other hybrid solutions such as using common and mutually agreed indicators for release of funding and using GoSL supply and procurement systems for donor-financed goods should proactively be explored.

Provide more flexible financing to the local level. Issues with central MoFED/MoHS allocations and weaknesses in drug supply have meant that local facilities struggle to access enough flexible resources to be able to ensure continuous service delivery. PBF is a good start in terms of enhancing this flexibility and autonomy at local level, and despite difficulties should be strengthened, sustained and eventually expanded. However, plans to expand the number of indicators significantly seems risky, and represent an added burden on weak monitoring systems.

There is a need for investment in improving data on health financing so these recommendations for sustainable financing can be fine-tuned to the Sierra Leone health and fiscal environment. In particular, two areas stand out:

- Improved M&E for capturing the true costs of the FHCI; and
- Improved methods for measuring OOP payments.

13.4 Planning, monitoring and evaluation

The FHCI belongs in the MoHS and while its scope does warrant a whole health system – and hence MoHS – approach, **this policy should continue to be led at the RCH Directorate level** or be clearly housed in a MoHS directorate that takes ownership of it. This ownership is essential considering the complexity of the policy and the difficulties in its implementation. The renewed coordination with health implementation partners and donors brought about by the Ebola outbreak could support the MoHS in its effort to lead the continued and renewed support for the FHCI.

The main challenge in terms of M&E is to develop and implement a robust and comprehensive M&E strategy for health. This should include the monitoring of the whole results chain (inputs, outputs, outcomes) and also specifically those strategic areas where data have been

weak until now, i.e. quality of care, staffing, drugs and financing. The M&E strategy should cover the following key areas:

- Consultation with key data users on what to collect and how frequently;
- Improving the quality and coherence of the various data sources;
- Publishing and distributing health data analysis in user-friendly formats such as dashboards of indicators, regular health bulletins and more extensive research and analysis; and
- Increasing the demand for and use of health information, particularly through health sector reviews and accountability processes.

13.5 HR

Improve the management of the payroll, bringing people who are recruited into the system in a more timely way and ensuring that the payroll remains up to date without the need for periodic externally led cleaning exercises, such as have happened repeatedly over the last decade. External consultants have been tasked with making the payroll more locally manageable – this needs to be a priority.

Decentralisation of HR functions to the district level is needed to ensure greater responsiveness to district needs and a greater ability to performance manage staff effectively.

At the same time, HR management capacity at central level should urgently be strengthened to allow the MoHS to lead the process of reforms that are planned (including new HR strategies, modelling of HR needs, development of a scheme of service, an HR information system, improved communication with staff and review of training needs and standards). The HRH Directorate has very few staff and remains dependent on external support.

Given the inequalities in distribution of staff and staff shortfalls in some key cadres, **the MoHS should develop integrated and sustainable packages to retain qualified staff in remote areas and in shortage cadres** (or those with high attrition levels, such as midwives), including accommodation, remote allowances and access to training opportunities.

There also needs to be a clearer definition of the role and funding of the different types of staff and close-to-community providers such as TBAs and CHWs, whose role and remuneration is being managed in an *ad hoc* way at facility level. As a part of this, there needs to be clarity on how they function in relation to existing cadres such as MCH aides.

Revising training curricula (including to improve staff ability to control infectious diseases, as illustrated in the Ebola epidemic) is another challenge facing the MoHS; this was put on the back-burner during the launch of the FHCI and work during Ebola around IPC should continue to be prioritised. Linked to this could be **an assessment of staff competences and support for continuous professional development**, which are lacking to date. This would help to rebuild confidence in the health staff and system among communities.

Supportive supervision should be promoted and resourced, not only to motivate and support staff but also to ensure they are responsive and respectful to their clients – this would address a complaint that was frequently made in our community research, especially in relation to nurses. Streamlining supervision and reporting will also be important, given the limited staffing at facilities, and the time that such reporting takes.

13.6 Infrastructure, drugs and supplies

Urgent investment is needed to bring key health infrastructure up to acceptable standards and maintain it – not just in terms of capital spend, which has been highlighted as low in recent years, but also to enable flexible funding at facility level to cover routine maintenance costs. This should include continuing to increase the number of EmONC facilities and upgrading PHUs, as well as addressing all seven 'enablers' – especially water and electricity.

Connect rural health posts with district hospitals and improve the referral system by **reconditioning dozens of Ebola ambulances** donated by aid agencies, and continuing to explore the feasibility of a national ambulance service.

Implement a 'pull' system across all hospitals and PHUs to reduce the likelihood of stock-outs of drugs and medical supplies. This should be complemented by a timely delivery of commodities from the port to CMS and from CMS to DMS. Even with a 'pull' system in place, stock-outs will still occur if commodities are not available at key distribution points and transport systems do not work.

Support the simplification of forms to be filled in by hospitals and PHUs. CHAI has designed forms for each type of facility (MCHP, CHP, CHC and hospitals), so that they reflect the drugs and medical supplies for the type of services they provide. A new LMIS system ('M Supply') is also being piloted, which seems to be addressing some of the issues identified in CHANNEL. **Investment in developing an effective monitoring system is essential for an adequate management of the supply chain at all levels.**

Build adequate storage facilities and ensure the SOP Manual is implemented. The Manual developed by UNICEF is comprehensive and although it would need to be updated to reflect changes in the LMIS system it follows WHO standards for drugs storage and for stock and quality monitoring. A first step could be enforcing the FEFO policy so as to minimise wastage.

Allocate a fixed budget for the supply chain. Lack of or sporadic funding leads to variability in the timeliness of procurement and, ultimately, to stock-outs. Both GoSL and donors (until GoSL has sufficient capacity) need to make fixed financial commitments to fund the supply chain and ensure a continuous supply of commodities to hospitals and PHUs. Budget allocations from government will eventually allow for the new NPPU to fully take over. The new NPPU will require transparent governance and sufficient human and financial capacity to function effectively.

13.7 Communications

Since a lack of communication can have a negative impact on the success of any policy, it is recommended that a **communications budget is allocated at the very start of any future reform**. While an original budget of US$ 3 million was promised, it was not forthcoming and this hampered the breadth of communication activities. Since then, the energy to support communication has dwindled.

Communications need to be integrated across all initiatives and a longer-term approach to information, education and communication developed. The understanding of communication activities as linked to a specific activity that has been seen so far in relation to the FHCI neglects the need for broader communication capacity at national and DHMT levels to address disease outbreaks and chronic health challenges, such as non-communicable diseases.

Engaging the implementers and addressing their concerns should always precede communication to the public. The FHCI was communicated to the population before it was

communicated to health workers. This was a grave mistake because, as a result of this misstep and due to a lack of understanding of the reform, health workers went on strike – such a situation would not be repeated were communications initiatives given due importance.

Bibliography

African Development Bank (2015) Flagship Report Paper Series Paper 4: How to use revenues from extractive industries to improve health and education in Africa.

Amara, M. (2010) Free service delivery in Sierra Leone: FINANCE, 18 February 2010.

Amara, R., O'May, F., Fustukian, S., McPake, B. (2016) Life histories, paying for health care, Sierra Leone. ReBUILD report.

Amnesty International (2009) Out of Reach: The Cost of Maternal Health in Sierra Leone.

Amnesty International (2011) At a Crossroads: Sierra Leone's Free Health Care Policy. AFR 51/001/2011.

Andre, F., Booy, R., Clemens, J., Datta, S., John, T., Lee, B. and Schmitt, H. (2007). Vaccination greatly reduces disease, disability, death and inequity worldwide. *Bulletin of the WHO*.

Anti-Corruption Commission (2008) Recommendations for reform towards a better health care delivery system.

Audit Service Sierra Leone (2012) Performance audit report on anti-malaria interventions.

Avenir Health (2015) OneHealth Tool. Available at: http://www.avenirhealth.org/software-onehealth.php [Accessed July 26, 2015].

BDO LLP (2015). Independent assessment of FHCI stock control procedures administered by NPPU for DFID, s.l.: s.n.

Bertone, M., Samai, M., Edem-Hotah, J. and Witter, S. (2014) A window of opportunity for reform in post-conflict settings? The case of Human Resources for Health policies in Sierra Leone, 2002-2012. *Conflict and Health*, 8:11.

Bertone, M. and Witter, S. (2015) An exploration of the political economy dynamics shaping health worker incentives in three districts in Sierra Leone. *Social Science and Medicine*, Vol 141, pp.56–63. http://www.sciencedirect.com/science/article/pii/S0277953615300447

Bertone, M., Lagarde, M., Witter, S. (2016) Performance-based financing in the context of the complex remuneration of health workers: findings from a mixed-method study in rural Sierra Leone. (Under review)

Bhandari, N., Mazumder, S., Taneja, S., Sommerfelt, H., and Strand, T. (2012) Effect of implementation of integrated management of neonatal and childhood illness (IMNCI) programme on neonatal and infant mortality: cluster randomised controlled trial. *BMJ* 2012.

Campbell and Graham (2006) Strategies for reducing maternal mortality: getting on with what works. *The Lancet* 368, No. 9543, pp.1284–1284.

Carole Green (2014) Building back better in Sierra Leone: Thoughts and ideas on 'building back better' in Sierra Leone – How to work together more effectively to make a 'step change' to improve health care provision. Available at: https://www.linkedin.com/pulse/building-back-better-sierra-leone-carole-green.

Chernichovsky, and Kara Hanson (eds.) (2009) *Innovations in health systems finance in developing and transitional economies. Advances in Health Services and Health Services Research*, Vol 21. Emerald Group Publishing Limited.

Cordaid (2014) Performance based financing in healthcare in Sierra Leone external verification, Final Report Volume 1 Main Report, Draft 07 April 2014.

Darmstadt, G., Bhutta, Z., Cousens, S., Adam, T., Walker, N. and de Bernis, L. (2005) Evidence-based, cost-effective interventions: how many new born babies can we save? *The Lancet*.

DFID (2012) Evaluation of DFID Support to Healthcare Workers Salaries in Sierra Leone.

Diaz, T., George, A.S., Rao, S.R., Bangura, P.S., Baimba, J.B., McMahon, S.A. and Kabano, A. (2013) Healthcare seeking for diarrhoea, malaria and pneumonia among children in four poor rural districts in Sierra Leone in the context of free health care: results of a cross-sectional survey, *BMC Public Health* 13: 157

Donnelly, J. (2011) How did Sierra Leone provide free health care? *The Lancet* Volume 377, No 9775, pp. 1393–1396, 23 April.

Edoka, I., Amara, R., Ensor, T., McPake, B., Tseng, F. and Edem-Hotah, J. (2015) Free health care for under-fives, expectant and recent mothers? Evaluating the impact of Sierra Leone's Free Health Care Initiative.

Ehreth, J. (2003) The global value of vaccination. *Vaccine* 21(7–8): 596–600.

Eichler, R., Paul Auxila, Uder Antoine, Bernateau Desmangles (2006) Going to scale with performance based payment in Haiti. Working paper 121, Center for Global Development, Washington DC.

Ensor, T., T. Lievens and M. Naylor (2008) Review of financing of health in Sierra Leone and the development of policy options.

European Commission (2006) *The Impacts of Internet Gambling and Other Forms of Remote Gambling on the EU Gambling Market*, in The Economics of Gambling, European Commission.

Fox-Rushby and Hanson (2001) Calculating and presenting disability adjusted life years (DALYs) in cost-effectiveness analysis. *Health Policy Plan* Vol 16(3):326–31.

Friberg, I., Angela Baschieric, Jo Abbotts (2015) Methodology to estimate maternal and newborn lives saved 2011–15. Technical note describing how DFID uses the Lives Saved Tool (LiST) to estimate the number of maternal and newborn lives saved by its programming.

GoSL (1996) Sierra Leone 1995 Multi-Indicator Cluster Survey. Ministry of Planning and Economic Development Central Statistics Office. April 1996.

GoSL (2000) The Status of Women and Children in Sierra Leone: A Household Survey Report (MICS-2). Ministry of Planning and Economic Development Central Statistics Office. November 2000.

GoSL (2004) Consumption aggregates and poverty estimates. SLIHS (2003–2004). Statistics Sierra Leone.

GoSL (2007) Sierra Leone: Monitoring the status of children and women. Multiple-Indicator Cluster Survey 2005. Statistics Sierra Leone and UNICEF.

GoSL (2008a) An Agenda for Change. Second poverty reduction strategy (PRSP II) 2008–2012.

GoSL (2008b) Sierra Leone Demographic and Health Survey 2008. Statistics Sierra Leone.

GoSL (2009a) Free healthcare services for pregnant and lactating women and young children in Sierra Leone. November.

GoSL (2009b) Sierra Leone National Health Sector Strategic Plan 2010–2015, November 2009.

GoSL (2010a) FHCI Steering Group Meeting Notes.

GoSL (2010b) The Republic of Sierra Leone public financial management performance assessment report – 2010.

GoSL (2011a) MoHS Information Bulletin. Volume 2, Number 3. FHC Edition (April 2010 – March 2011).

GoSL (2011b) Sierra Leone performance based financing scheme for primary healthcare operational manual 2011, 07 March 2011.

GoSL (2011c) NPSS 2011. Ministry of Finance and Economic Development.

GoSL (2011d) SLIHS 2011. Statistics Sierra Leone.

GoSL (2011e) Agenda for Change Progress Report.

GoSL (2012) The National Pharmaceutical Procurement Unit Act. Retrieved from http://www.sierra-leone.org/Laws/2012-08.pdf.

GoSL (2014) Sierra Leone Demographic and Health Survey 2013. Statistics Sierra Leone.

GoSL (2015) National Ebola Recovery Strategy for Sierra Leone 2015–2017.

Government of Sierra Leone (2016) *Finance Act 2016*, GoSL, Freetown.

Graham, W., Bell, S., and Bullough, C. (2001) Can skilled attendance at delivery reduce maternal mortality in developing countries? In V. De Brouwere, and W. Van Lerberghe *Safe Motherhood Strategies: A Review of the Evidence*, pp. 105–139.

Gwatkin, D., Rutstein, S., Johnson, K., Suliman, E., Wagstaff, A. and Amouzou, A. (2007) *Socioeconomic Differences in Health, Nutrition and Population in Developing Countries: An Overview.* World Bank: Washington, DC.

Health Poverty Action (2012) Abolishing user fees: Making it work in Sierra Leone and beyond.

Health Sector Working Groups (2010) Draft Terms of Reference.

HFAC (2012) Monitoring report. Community monitoring of the Free Health Care Services – Second Edition.

IHME (2010) report.

IMF (2009) Sierra Leone joint IDA–IMF staff advisory note on the Second PovertyReduction Strategy Paper, 17 September 2009.

International Monetary Fund (2013) *Sierra Leone 2013 Article IV Consultation*, November 2013, Country Report Number 15/323, IMF, Washington DC

International Monetary Fund (2015) *Sierra Leone Third and Fourth Reviews Under the Extended Credit Facility Arrangement and Financing Assurances Review*, November 2013, Country Report Number 13/330, IMF, Washington DC

International Growth Centre (2011) Transformation and development in Sierra Leone'. Background note on health infrastructure, policies and programmes, conference on transformation and development: social service delivery.

IRCBP (2007) Primary healthcare in Sierra Leone: Clinic resources and perceptions of policy after one year of decentralization, June 2007. Freetown: IRCBP Evaluations Unit.

Kamara, A.B. and C. Mambu (2011) Free health care in Sierra Leone one year on: National public and stakeholders' perceptions of the Free Health Care Initiative. Health for All Coalition and Save the Children UK.

Kanu, J.S., Yuan Tang and Yawen Liu (2014) Assessment on the knowledge and reported practices of women on maternal and child health in rural Sierra Leone: A cross-sectional survey. *PLOS ONE*, 28 August 2014.

Lamontagne E and Greener, R. (2008) Long-term sustainable financing opportunities for HIV in Africa. Concept paper. Geneva: UNAIDS

Latreille, K., Coppens, K., Philips, M., van Herp, M., Bachy, C., and Ponsar, F. (2006) Financial access to healthcare in postwar Sierra Leone. Freetown: Médecins Sans Frontiers Holland and Belgium.

Lievens, T. et al. (2012) *Assessment of the Potential of Innovative Financing Mechanisms for HIV, Health and Development: A Focus on Africa*, OPM internal report.

Loevinsohn, B. and A. Harding (2005) Buying results? Contracting for health service delivery in developing countries. *The Lancet* 366, No.9486, pp.676–681.

Mamaye (2012) (2013) and (2014) FIT assessments. Available at: http://www.mamaye.org.sl/en/evidence/facilities-improvement-team-assessments-2012-2013-2014.

Mamaye (2014) Summary of health facility EmONC readiness, July 2014, Facility Improvement Team (FIT) and QulCFIT assessment report.

Marchal, Van Belle, De Brouwere, and Witter (2013) Studying complex interventions – from theory to practice: Designing the FEMHealth evaluation of fee exemption policies in West Africa and Morocco. *Health Services Research*, 13: 469. http://www.biomedcentral.com/content/pdf/1472-6963-13-469.pdf.

Maxmen (2013) Sierra Leone's Free Health Care Initiative: Work in progress. *The Lancet*, 381, 19 January 2013.

McCoy, D. *et al*. (2008) Salaries and incomes of health workers in sub-Saharan Africa. *The Lancet.*

McIntyre, D and Meheus, F. (2014) Fiscal space for domestic funding of health and other social services. Centre on Global Health Security Working Group Papers, Paper 5, March 2014. Available at: http://www.chathamhouse.org/sites/files/chathamhouse/home/chatham/public_html/sites/default/files/20140300DomesticFundingHealthMcIntyreMeheus.pdf

McPake, B. and Shumba (2012) Health Financing policy options in Sierra Leone, April 2012, Mimeo.

McPake, B. *et al.* (2013) Removing financial barriers to access reproductive, maternal and newborn health services: The challenges and policy implications for human resources for health. *Human Resources for Health*.

McPake, B., Brikci, N., Cometto, G., Schmidt, A. and Araujo, E. (2011) Removing user fees: learning from international experience to support the process, *Health Policy and Planning*, 26 Supplement 2:ii104-ii117.

Mohapatra, S. and Ratha, D. Eds. (2011) '*Remittance Markets in Africa*', Directions in Development Finance, World Bank, Washington DC.

MoHS (2008) National Service Delivery Perception Survey in Sierra Leone, 2008.

MoHS (2009) National Health Sector Strategic Plan 2010–2015.

MoHS (2010a) FHCI communication strategy final, January 2010.

MoHS (2010b) FHCI: The way forward, October 2010.

MoHS (2010c) Free health care services, briefing update 06 May 2010.

MoHS (2010d) Infrastructure working group presentation, February 2010.

MoHS (2011) Scaling up maternal and child health through free health care services, one year on. *Health Information Bulletin*, Vol 2, Number 3 FHC (Apr 2010—Mar 2011) Edition.

MoHS (2012a) 2010 Health sector performance report.

MoHS (2012b, December) Essential medicines list of Sierra Leone (revised).

MoHS (2012c) Joint Programme of Work and Funding 2012–2014.

MoHS (2012d) National Medicines Policy. Directorate of Drugs and Medical Supplies.

MoHS (2012e) Sierra Leone health sector performance report 2011, Draft Report, July 2012, mimeo.

MoHS (2012f) Sierra Leone service availability and readiness assessment 2011 report.

MoHS (2013) *Health Information Bulletin*, Vol 4, Issue 2.

Ministry of Health and Sanitation (2015) *Health Sector Recovery Plan* (2015 – 2020), MOHS, Freetown.

MoHS (2016) Presentation to ReBUILD meeting on HRH, January 2016, HRH Directorate.

MoHS (n.d.) National Data Management Procedure Manual. Directorate of Policy, Planning and Information.

UNFPA (2008) Nationwide needs assessment for emergency obstetric and newborn care services in Sierra Leone.

Moon, S. and O. Omole (2013) Development assistance for health: Critiques and proposals for change, April 2013.

MSH (2013) *International Drug Price Indicator Guide.* Edited by Julie E. Frye.

MSH (2014) *International Drug Price Indicator Guide*.

MSH (2015) *International Drug Price Indicator Guide.*

Murray, CJL and Lopez, AD (1996) *Global health statistics: a compendium of incidence, prevalence and mortality estimates for over 200 conditions.* Cambridge, MA: Harvard University Press.

Naimoli, J.F. and P. Vergeer (2010) A Series of snapshots of experiences in verifying performance linked to financial incentives for results-based financing (RBF) programs from selected countries. The World Bank.

Nimpagaritse, M. and Bertone, M (2011) The sudden removal of user fees: The perspective of a frontline manager in Burundi Ministry of Public Health, Bujumbura, Burundi. *Health Policy and Planning* (Impact Factor: 2.65). 11/2011; 26 Suppl 2:ii63-71.

ODI (2014) Secure Livelihoods Research Consortium, ODI, Mapping Sierra Leone's plural health system and how people navigate it, Briefing Paper 6, September 2014.

One Health (2013) One health model – intervention treatment assumptions, s.l.: s.n.

OPM (2014) Evaluation of the FHCI – Inception report.

OPM (2016a) Review of the FHCI in Sierra Leone – Facility based interviews at district level.

OPM (2016b) Fiscal space analysis: FHCI and UHC in Sierra Leone.

OPM and Focus 1000 (2016) Review of the FHCI in Sierra Leone – Focus group discussion report.

Oyerinde, K. (2013) Can antenatal care result in significant maternal mortality reduction in developing countries? *Community Medicine and Health Education*.

Perrot J *et al.* (2010) Performance incentives for health care providers. Health Systems Financing Discussion Paper, HSS/HSF/DP.E.10.1. Geneva, WHO.

Prüss-Üstün, A et al (2008). Safer water, better health: costs, benefits and sustainability of interventions to protect and promote health. Geneva, World Health Organisation.

Restless Development (2012) Young people in Sierra Leone today: Challenges, aspirations, experiences. A state of the youth report compiled by Restless Development Sierra Leone. May 2012.

Sambo, C. (2013) Barriers to the utilisation of maternal and child health services in Africa: Overview of the literature. (Unpublished). Final draft, 26 March 2013, DFID.

Save the Children (2012) Health and Sanitation Budget Tracking 2012.

Save the Children and Health Alert (2014) Agenda for Prosperity, health monitoring report, July 2014.

Save the Children UK (2013) Progress assessment on health service delivery at national level, facilitated by: Save the Children in partnership with Health Alert, 17 July–17 August 2013.

Scharff, M. (2012) A promise kept: How Sierra Leone's President introduced free health care in one of the poorest nations on Earth, 2009–2010. Innovations for Successful Societies.

Woodrow Wilson School of Public and International Affairs, Princeton University, and theBobst Center for Peace and Justice.

Save the Children (2013) Sierra Leone Health Sector Tracking Study

Simson, R. (2013) Case study: Unblocking results – Addressing pay and attendance of health workers in Sierra Leone, ODI, May 2013

Smith, P. (2009) Measuring value for money in healthcare: Concepts and tools, s.l.: QQUIP.

Smith, R., L. Ashford, J. Gribble, and D. Clifton (2009) Family planning saving lives. Fourth edition. Population Reference Bureau.

Soeters, R., C. Habineza and P.B. Peerenboom (2006) Performance-based financing and changing the district health system: Experience from Rwanda. *Bulletin of the WHO* 84 (11). November 2006.

Spectrum System (2015).

SSL and ICF International (2014) Sierra Leone Demographic and Health Survey 2013. Freetown, Sierra Leone, and Rockville, Maryland, USA.

SSL and ICF Macro (2009) Sierra Leone Demographic and Health Survey 2008. SSL and ICF Macro, Calverton, Maryland, USA.

SSL and World Bank (2013) A poverty profile for Sierra Leone. Freetown: World Bank.

Stevenson, D. *et al.* (2012) Evaluation of DFID support to healthcare workers' salaries in Sierra Leone. Human Development Resource Centre.

Trani, J.F., J. Browne, M. Kett, O. Bah, T. Morlai, N. Bailey, N. Groce (2011) Access to health care, reproductive health and disability: A large scale survey in Sierra Leone. *Soc Sci Med.*Nov; 73(10):1477-89. doi: 10.1016/j.socscimed. 2011.08.040.

Treacy, L. and Sagbakken, M. (2015) Exploration of perceptions and decision-making processes related to childbirth in rural Sierra Leone. *BMC Pregnancy and Childbirth*.

Turay, B.S.R (2010) Delivery of free health care service initiative by GoSL. 18 February 2010.

UN Statistics Division (2007–2009).

UNFPA (2007) Country Programme Action Plan 2008–2010 between the Government of Sierra Leone and UNFPA.

UNICEF (2010) SOP manual.

UNICEF (2011) Case study on narrowing the gaps for Equity. Sierra Leone: Removing health care user fees to improve prospects for mothers and children.

UNICEF (2012a) UNICEF Annual Report 2012 for Sierra Leone.

UNICEF (2012b, January) *Free Health Care Monthly Bulletin*.

UNICEF (2012c, August) *Free Health Care Monthly Bulletin*.

UNICEF (2014).

UNICEF Sierra Leone (2014).

United Nations, Department of Economic and Social Affairs, Population Division (2015) World Population Prospects: The 2015 Revision

Wagenaar, A., M.J. Salois and K.A. Komro (2009) Effects of beverage alcohol price and tax levels on drinking: A meta-analysis of 1003 estimates from 112 studies. *Addiction* Vol 104 (2).

Walker, N. (2015) Personal communication of 17 November 2015.

Walker, N., Y. Tam and I.K. Friberg (2013) Overview of the Lives Saved Tool (*LiST*), *BMC Public Health*, Vol 13 (suppl.3).

WHO (2010a) Health systems financing: The path to universal coverage, World Health Report 2010. Geneva: WHO.

WHO (2010b*) Monitoring the Building Blocks of Health Systems: A Handbook of Indicators and their Measurement Strategies*. Geneva: WHO.

World Health Organization (2011) *The Abuja Declaration: Ten Years On,* WHO, Geneva. Available at: http://www.who.int/healthsystems/publications/abuja_report_aug_2011.pdf

WHO (2013) Cholera country profile: Sierra Leone. WHO Global Task Force on Cholera Control. 22 January 2013.

Wilkinson, D., Gouws, E., Sach, M. and Abdool Karim, S. (2001) Effect of removing user fees on attendance for curative and preventive primary health care services in rural South Africa, *WHO Bulletin* Vol 79(7).

Witter, S. (2009) Service- and population-based exemptions: Are these the way forward for equity and efficiency in health financing in low income countries? *Advances in Health Economics and Health Services Research* (2009*)* Vol. 21, pp. 249–286.

Witter, S. and Ensor, T. (2007) Evaluating a health financing policy change: Tools and methods. Technical report for Immpact toolkit'. www.immpact-international.com.

Witter, S. *et al.* (2015) Health worker incentives: survey report, Sierra Leone, s.l.: ReBUILD.

Witter, S. *et al.* (Forthcoming). Delivery fee exemption and subsidy policies: How have they affected health staff? Findings from a four-country evaluation.

Witter, S., Dieng, T., Mbengue, D., Moreira, I., and De Brouwere, V. (2010) The free delivery and caesarean policy in Senegal – How effective and cost-effective has it been? *Health Policy and Planning* Vol 25(5), pp. 384–392.

Witter, S., Fretheim, A., Kessy, F., Lindahl, A.K. (2012) Paying for performance to improve the delivery of health interventions in low and middle-income countries. Cochrane Database of Systematic Reviews, Issue 2. http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD007899.pub2/abstract

Witter, S., Garshong, B. and Ridde, V. (2013) An exploratory study of the policy process and early implementation of free NHIS coverage for pregnant women in Ghana. *International Journal for Equity in Health,* 12:16. http://www.equityhealthj.com/content/12/1/16.

Witter, S., Jones, A., Ensor, T. (2013) How to (or not to)...measure performance against the Abuja target for public health expenditure. *Health Policy and Planning*. doi: 10.1093/heapol/czt031

Witter, S., Kusi, A. and Aikins, M. (2007) Working practices and incomes of health workers: Evidence from an evaluation of a delivery fee exemption scheme in Ghana.

Witter, S., Lipcan, A., Nugroho, D. and Outhred, R. (2015) *Flagship Report Paper Series – Paper 4: How to use revenues from extractive industries to improve health and education in Africa*, commissioned by African Development Bank in collaboration with Bill and Melinda Gates Foundation.

Witter, S., Wurie, H. And Bertone, M. (2014) The Free Health Care Initiative: How has it affected health workers in Sierra Leone? Available at: https://rebuildconsortium.com/media/1014/the-free-health-care-initiative-how-has-it-affected-health-workers-in-sierra-leone.pdf.

Wurie, H. *et al.* (2014) Policies to attract and retain health workers in Sierra Leone particularly in rural areas: Secondary data analysis. ReBUILD Consortium.

Wurie, H., Samai, M., Witter, S. (2016) Retention of health workers in rural and urban Sierra Leone: findings from life histories. *Human Resources for Health* Vol 14 (3). http://www.human-resources-health.com/content/pdf/s12960-016- 0099-6.pdf

Xu, K., David B. Evans, Guy Carrin and Ana Mylena Aguilar-Rivera (2005) Designing health financing systems to reduce catastrophic health expenditure. WHO.

Xu, K., Saksena, P., Jowett, M., Indikadahena, C., Kutzin, J. and D. Evans (2010) Exploring the thresholds of health expenditure for protection against financial risk, World Health Report Background Paper 19.

Zeng, W. (2014) Evaluation of the performance of national health systems in 2004–2011: An analysis of 173 countries, s.l.: s.n.

Annex A Terms of reference

Evaluation of the impact of the Free Health Care Initiative on maternal and child mortality in Sierra Leone

1. BACKGROUND

Sierra Leone is rebuilding its health sector, which collapsed following the civil war. Whilst there have been measurable improvements, the health situation remains dire with key health indicators below the Sub-Saharan average:

Indicators	Sierra Leone[129]	Sub-Saharan Africa[130]
Maternal mortality rate (per 100,000 live births)	857	900
% institutional deliveries	42%	46%
Contraceptive Prevalence Rate	8%	22%
Unmet need for family planning	28%	25%
Under-five mortality rate (per 1,000 live births)	140	144
Doctors per 10,000 population	0.25[131]	2

In 2008, DFID Sierra Leone committed to a significant scale-up of its support to the health sector focusing on the delivery of the National Reproductive and Child Health (RCH) Strategy (2008–2010). In November 2009, the President launched Sierra Leone's first National Health Sector Strategic Plan (2010–2015), which brings together all the various sub-sector strategies and polices including the RCH strategy, the free health care policy for vulnerable groups, and the commitment to deliver a Basic Package of Essential Health Services. The NHSSP now provides a comprehensive framework for a coordinated approach to strengthening the entire health sector.

In April 2010, with significant support from DFID and partners, the President launched the Free Health Care Initiative (FHCI) for pregnant and nursing women and children under five years old within the context of delivering commitments made in the NHSSP. The aim of the FHCI is for up to 230,000 pregnant women, 230,000 lactating women and 1 million children under the age of five to receive free essential health care services every year. After the first year and despite many challenges, the results were impressive:[132]

- 2,926,431 under-5 consultations, a tripling compared to the year before;
- 1,288,828 million of these young children received life-saving treatment for malaria;
- 126,477 women delivered their babies in a health facility, 39,100 more women than the year before;
- 20,135 maternity complications were managed in health facilities, with a 60% drop in the fatality rate in these cases;
- 140% increase in the number of new users of modern family planning.

The FHCI is a potentially valuable intervention and one against which future plans for investment are being made (in terms of the GoSL's planned second phase of universally free-of-charge health care and the plans of funders such as DFID. However, the relationships between the changes in uptake of services and the FHCI have not yet been fully researched or evidenced. Furthermore, there is no concrete evidence that the initiative is leading to the anticipated health outcomes or having an impact on reducing maternal, newborn and child mortality, nor how changes have been achieved if this is found to be the case. The FHCI-focused MoHS Health Information Bulletin

[129] 2008 Sierra Leone DHS.
[130] United Nations Statistics Division (2007–2009), unless otherwise indicated.
[131] MoHS, May 2010, based on recruitment from April 2010 following health workers' substantial pay rise.
[132] MoHS (2011). 'Scaling up maternal & child health through Free Health Care Services, one year on.' Vol. 2, No. 3, April 2011

issued in April 2011[133] also raised a number of challenges associated with the first year of implementation but to date it has not been feasible to formally and independently review the operational processes required to deliver the FHCI (many of which have been acknowledged as challenges for implementation). Nor has it been feasible to look at the quality of care provided during the first year.

DFID is committed to working with the GoSL and its partners to ensure the FHCI is a success. We will do so by substantially scaling up our support for proven, cost-effective and evidence-based interventions, as well as increasing demand for their use, and accountability for their delivery. This includes strengthening the evidence base and tracking the results to determine the impact and outcomes of the interventions, and of the UK's investment in the sector.

2. EVALUATION AIM AND QUESTIONS

The FHCI was designed as an emergency response to the dire maternal and child mortality rates and was implemented within a very short timeframe. As a result, the mechanism for evaluating the impact of the programme was not put in place at the start, nor was baseline data collected in a systematic manner. Whilst a number of countries in Africa and Asia have offered free health care packages to vulnerable populations there appears to be no evaluation of the impact of such schemes on health outcomes and mortality. The evaluation will therefore offer the opportunity to undertake a robust and credible assessment of the relationship between free-of-charge health care at the point of service delivery and health outcomes and impact on mortality, and will provide important information and lessons that will be useful to Sierra Leone and elsewhere.

The **aim** of this project is to conduct a rigorous evaluation of the FHCI over a four-year period 2010 to 2015 so that evidence can be gathered to determine whether the FHCI has contributed to improved health outcomes and reducing maternal, newborn and child mortality in Sierra Leone and represents VFM.

The FHCI evaluation programme commenced in July 2012 with the inception phase implemented by the DFID Human Development Resource Centre. It was concluded and agreed during the programme inception phase that an experimental or quasi-experimental design that compares the impact of the FHCI on maternal and child mortality and health outcomes cannot be conducted for feasibility and ethical reasons. As such, the concept of an impact evaluation of the FHCI has been discarded and the focus is now on an evaluation of the FHCI's impact.
These Terms of Reference apply to the programme implementation phase, which will be awarded as a 30-month contract. The project must be implemented in line with DFID's ethical principles and guidelines (see Annexes 2.B and 2.C), as well as other such guidelines in Sierra Leone.

The evaluation will therefore seek to **answer the following questions**:

Results:

i) What contributions to health outcomes, among the target groups, did the FHCI make and how were these achieved?
ii) Does the FHCI represent VFM?

Operationally:

iii) How and to what extent were the six priority interventions that were put in place effective in enabling the FHCI to be operationalised?
iv) Are the six priority interventions the right ones to ensure continued and increased utilisation of services by the target beneficiaries?
v) What are the socio-cultural issues that affect the uptake of free health care amongst the target beneficiaries?

[133] Government of Sierra Leone. Ministry of Health & Sanitation Health Information Bulletin. Volume 2, Number 3. FHC Edition (April 2010 – March 2011).

vi) Did the FHCI have a differential impact on different socio-economic groups or marginalised groups?
vii) Were there any unintended consequences of the FHCI?

3. RECIPIENT

The main recipients of this piece of work are the MoHS and the DFID Sierra Leone MDG Team, particularly DFID's Health Adviser and programmes in DFID Sierra Leone's Health portfolio. There are a number of secondary recipients of this work, including DFID's Aid Effectiveness, VFM and Evaluation departments, and externally other key partners supporting or considering supporting the FHCI.

4. SCOPE OF WORK

The scope of the evaluation work is structured around the questions identified above and will include the following issues:

i. **Did the FHCI contribute to improving health outcomes?** This will require robust demonstration of additional results achieved. This is a key element of the evaluation and requires the review and confirmation that the counterfactual identified in the inception phase is plausible and credible. This element of the evaluation is focused on establishing rigorously that the results and health outcomes achieved as a consequence of the introduction of the FHCI were greater than would have been achieved without the FHCI.

   The service provider is expected to confirm in their first progress report how this question would be approached, building on the work carried out during the programme inception phase.

ii. **Does the FHCI represent good VFM?** This will require analysis of inputs versus outputs and outcomes, and ultimately impact. The service provider will be expected to draw lessons on the cost-effectiveness and VFM of investment in the FHCI. This should include, but not be limited to, robust data for the unit costs for the results specified and comparisons with other approaches. The service provider would also be expected to address:

   - Issues of contribution, i.e. assessing if the results achieved arose due to the removal of fees for health care services at the point of delivery or were part of the counterfactual or a result of other interventions, e.g. the World Bank Performance-Based Financing programme that commenced in April 2011.

   - Including all aspects of value. This would involve identifying ways of capturing the value of other intended and unintended benefits of the programme beyond the direct effect on the numbers of pregnant and nursing women and children under five utilising health care services.

iii. **What were the processes that led to these additional results?** In particular, this will require a qualitative assessment of the six priority interventions, and whether these were and continue to be effective. It is expected that the evaluation should identify and document any good practices in the implementation of the priority interventions.

iv. **What does 'a lack of finance' as a barrier consist of?** The 2008 National Service Delivery Perception Survey showed that a lack of finance was by far the biggest barrier to accessing healthcare by the targeted group. Does this just refer to direct costs (e.g. charges for treatment, for drugs) or does it also include indirect costs (e.g. transport to/from health facilities; costs of accommodation for relatives; food for in-patients)?

v. **Did socio-cultural issues impact on the utilisation of FHCI services by the target beneficiaries?** What were these and what actions could be taken to address these. This would require assessing the role of influencers in the household and wider community.

vi. **What were the unexpected consequences?** Unintended consequences, both positive and negative, that might be purposively sought need to be identified, for example:

- Diversion of existing financial resources away from other sectors, e.g. education. It is recognised that this will be difficult to assess rigorously; however, this is an issue that has been suggested anecdotally and should be considered by the evaluators, even if this is only to exclude it as a matter of concern.
- Negative effect on patients that are outside of the FHCI's beneficiary group.
- Effects on the current Health Management Information System (HMIS).
- Effects on accountability to citizens, including, for example, the role of civil society bodies (such as Health For All Coalition – HFAC – which was instructed by the President to monitor drugs distribution and management, and healthworker attendance and patient relations, in delivering the FHCI).
- Any unexpected effects on aid relationships, particularly between GoSL and DFID Sierra Leone but also capturing effects on and perceptions of other development partners. There is particular need to assess whether conditionalities and transaction costs have changed in ways other than those expected and what effects, if any, those changes have had.
- Any effects on observation of partnership principles (poverty reduction and achieving the Millennium Development Goals; respecting human rights and other international obligations; strengthening financial management, strengthening accountability and tackling corruption).
- Effects on financial management, accountability and corruption. DFID is interested in knowing how FHCI funds are used and whether they have any effect on financial management systems, including providing incentives (both positive and negative) for corruption.

In addition, it is expected that the service provider will:

a. Compare experience from the FHCI with experience of other such programmes, e.g. in Burundi (a country with a similar context) and Ghana (a regional neighbour), as part of the discussion of the findings in Sierra Leone.
b. Ensure that evaluation expertise, data and evidence are disseminated widely and especially to the MoHS (centrally and at local council level) and for the management and implementation of all aspects of the FHCI. This will involve the service provider in an ongoing relationship with DFID Sierra Leone and the MoHS, advising how the evaluation could and should shape programme design, management and implementation. This will be particularly important for making adjustments and corrections to the FHCI during its implementation.

5. METHODS

DFID Sierra Leone expects that the service provider would review the existing programme inception report and then confirm to DFID the methods to be followed. The final methods would be agreed upon submission of a pre-implementation phase report by 10 December 2013 and approval of the report by DFID.

It is expected that the method for the evaluation would include a mix of qualitative and quantitative methods and the following elements:

i. The provision of support and advice to the MoHS, DFID Sierra Leone and its health implementing partners on issues associated with the FHCI data analysis, data collection and use of the data arising from this evaluation.
ii. Baseline qualitative assessment of current resourcing levels to the health sector and tracking over time of health sector resourcing by central government and local councils.
iii. Rigorous quantitative assessment of the health results achieved against a credible counterfactual.
iv. Assessment of the elements identified under the scope above. It is envisaged that this would involve review of FHCI and related documents, interviews with individuals and groups of FHCI stakeholders and beneficiaries, and development of a method of tracking change over time.

6. DELIVERABLES

The associated **overarching objectives** are:

- The creation of an evidence base on how the FHCI is contributing to a decrease in maternal, newborn and child mortality including modelling a baseline as well as the counterfactual.
- Improved utilisation of information and data to inform the effective management of the FHCI within the context of the National Health Sector Strategic Plan (NHSSP) through the Joint Programme of Work and Financing (JPWF). This will include the FHCI evaluation programme feeding into the annual health sector performance review process.
- Improved transparency and accountability between the state and its citizens, and between the state and its financing partners in relation to the FHCI.

Specific deliverables are:

- A pre-implementation phase report by February 17 2014 would include:
    I. Confirmation of the evaluation framework that outlines what methods will be used, and how the different elements of the qualitative and quantitative data will be brought together;
    II. Programme management structure and arrangements;
    III. Final programme logframe;
    IV. Jointly agreed 26-month work plan with a detailed year one work plan and key performance indicators in line with the finalised logframe;
    V. A strategy to transfer ownership and skills for analysing health data with the Department of Planning at the MoHS; and
    VI. Programme budget for the 26-month project duration.

- Quarterly narrative and financial reports.
- Presentation of a brief quarterly progress report against results/deliverables and expenditure at the DFID Sierra Leone health quarterly progress meetings.
- Annual narrative and financial reports in preparation for the annual programme reviews. In line with results-based management principles, the annual reports will highlight in particular outcomes where progress to date is above or below target to an unexpected degree. Strategies to build on strengths and address weaknesses will then be identified.
- A final draft narrative report submitted by 1 March 2016 detailing progress against the deliverables. The final narrative and programme financial reports detailing overall programme progress against the logframe and expenditure of all project funds submitted by 30 April 2016.

Anticipated activities will include:

Pre-implementation period:

- To finalise the design, work plan, logframe, budget, financial plan and risk assessment for the project.

At the end of the Pre-Implementation Period there will be a break point to review Inception Outputs. Progress to the Implementation Phase will be subject to the satisfactory delivery and review of the programme report.

Year 1 (March 2014 – December 2014):

- Agree final design approach and work plan with MoHS.
- Plan and implement strategy to gather baseline data as required.
- Plan and implement the initial evaluation looking retrospectively at the period April 2010 to February 2014 and disseminate the findings:
  1. Identify, formulate and test appropriate methodologies in collaboration with the key partners and technical working group;
  2. Undertake the evaluation, the scope of which (in Year 1) will include:
     - Analysis of results achieved at the different levels of the health system, in comparison with established MoHS milestones and the baseline.
     - Analysis of the effectiveness of the implementing systems and processes.
     - Assessment of the level of quality of care provided (subject to available data).
     - Assessment of contribution of the FHCI to health outcomes including deaths.
- Assess the value of the results in helping to improve understanding of the impact and operational effectiveness of the FHCI.

- Plan 2015 annual evaluation. Annual evaluation to include review and revision of the methodologies used as appropriate for the initial evaluation to ensure they are relevant to ongoing annual process and for the expanded scope, which will include in Year 2:
  - Exploring relations between poverty reduction and the FHCI;
  - An assessment of the effectiveness of providing equitable access to free health care services for all potential end users; and
  - An assessment of the VFM of the FHCI and the long-term funding viability.
- Participate in DFID's Programme Annual Programme Review process.
- Develop and work on an Exit Strategy.
- Collaborate with DFID Health Implementing Partners to expand the evidence base for maternal and child health programming.

Year 2 (January – December 2015):

- Implement annual evaluation and disseminate findings.
- Execute research into the socio-cultural considerations of the uptake of health care amongst the FHCI target group in Sierra Leone and disseminate the findings.
- Collaborate with DFID Health Implementing Partners to expand the evidence base for maternal and child health programming.

Year 3 (January – April 2016):

- Implement final evaluation and disseminate findings.
- Implement Exit Strategy.
- Participate in an external evaluation of the FHCI Impact Evaluation programme.
- Produce a Final Report within three months of the end of the project.
- Collaborate with DFID Health Implementing Partners to expand the evidence base for maternal and child health programming.

At the end of the two-month pre-implementation period, the service provider will provide a pre-implementation programme report for DFID. On the basis of this and discussion, the project design and milestones will be finalised and approved.

In addition to standard mandatory annual reviews, DFID may carry out an external evaluation of the FHCI evaluation programme towards the end of Year 3 to assess performance against the

contract deliverables and logframe, the process of programme implementation, and the added value of the FHCI evaluation programme.

The implementation of the programme will be governed by the conditions of the contract and the deliverables outlined in the TOR and project documentation (logframe and approved programme report). The service provider will be expected to maintain the agreed protocols for:

- Provision of leadership to ensure effective financial management, communications and key stakeholder management;
- Procurement of goods and services;
- Reporting, including financial reporting and planning;
- Processes for ensuring that technical excellence, quality of care and free-of-charge services are monitored;
- Risk identification and management; and
- All other agreed protocols.

7. INSTITUTIONAL ARRANGEMENTS

Within DFID the project will be managed by the DFID Sierra Leone MDG Team. Technical oversight will be provided by the Health Adviser, whilst day-to-day issues regarding reporting requirements will be provided by the MDG Assistant Programme Manager. Any contractual issues will be dealt with by the DFID Sierra Leone Contracts Officer.

In order to ensure robustness of methodology and quality of reports produced, a programme Steering Committee will be established that meets quarterly. The Steering Committee will report to the M&E subcommittee of the Health Sector Steering Group, in conformity with the co-ordination structure articulated in the Sierra Leone Health Compact. Members will be drawn from DFID head office and Sierra Leone under the Health Adviser's leadership, the MoHS's DPI who lead on M&E for the Ministry, the Health Sector Steering Group M&E Subcommittee, and other relevant external stakeholders. The service provider will act as secretariat for this committee.

The Steering Committee will ensure that the project is aligned with the management framework for the health sector as articulated in the international Health Partnership Plus Compact for Sierra Leone. The project will be incorporated into the MoHS's three-year rolling JPWF, which will sustain the project beyond DFID funding, and report to the Health Sector Steering Group through participation in its multi-stakeholder Integrated Service Delivery and M&E working groups as appropriate.

8. TIMEFRAME

The project is scheduled to commence in December 2013 and continue through to 31 March 2016. The first two months will constitute the pre-implementation period and it is anticipated that, subject to approval, the main programme will commence immediately after this period.

Subject to satisfactory progress as evidenced by execution of agreed deliverables and approval of programme reports, the project will run for 28 months (inclusive of the pre-implementation period).

During the project, the outputs required are those articulated in no. 6 above (Deliverables). The final evaluation reports should be produced and submitted within one month of the end of the contract, i.e. by April 2016.

CEA limitations

There are two key limitations to the cost-effectiveness analysis. Firstly, drawing boundaries around what interventions—and their associated costs and outcomes—are, or are not, linked to the FHCI is challenging. Our approach is to try to ensure that what is included on the cost side is matched

on the effect side; however, this is inevitably determined to some extent by the available cost and outcome data.

Secondly, limitations to data sources on both the costs and outcomes of the FHCI means that the true incremental costs and effects of the FHCI are difficult to isolate. The lack of 2011 and 2012 NHA data is the key limitations on the cost side. On the effect side, coverage data is used to model the effect on maternal, newborn and child mortality using the Lives Saved Tool (LiST). It is important to acknowledge that LiST is a tool that allows for the modelling of impact, not the actual estimation of impact using data on the impact variables and an appropriate impact evaluation technique. The conclusions that can be drawn from such an exercise are different from those that could be drawn from an actual impact evaluation. It is also worth highlighting a few key limitations of LiST:

- LiST uses inbuilt assumptions about the effectiveness of MNCH interventions to convert increased coverage estimates to mortality reductions. These are based on international literature. In the absence of evidence from Sierra Leone, we have used these. However, they may overstate gains if the quality of care provided is below expected levels to ensure effectiveness.

- Family planning is a difficult intervention to model in terms of maternal lives saved. This is essentially because of lack of data on abortion practices. We take the approach of modelling maternal deaths averted in the context of the increased CPR of Sierra Leone from 2008 to 2013. To the extent that FHCI contributed to the increase in FP over the period (FP was free before 2010 but increased utilisation of health facilities by women of reproductive age likely increased its use), we are therefore underestimating the demographic impact of the FHCI on maternal deaths.

Finally on the effect side, there are important limitations to the DHS data that is used to estimate increases in coverage due to the FHCI. Incremental trend analysis cannot be undertaken for the child interventions and a few maternal and newborn interventions. This is because the recall variable for the indicator is too short to allow for annual disaggregation of the data. When incremental trend analysis is possible, the gradient of the projected counterfactual line is very sensitive to the jump in coverage estimates between 2008 and 2009. This is the point between the two rounds of the DHS and is more likely a product of data quality problems in one or both surveys and not a real increase at this point.

There is therefore inevitably uncertainty around our estimates. A sensitivity analysis is performed to understand how the estimate changes when some key assumptions are varied. Comparison with other reductions in mortality estimates are also made to understand whether the modelled estimates are credible in terms of their level. However, it should be acknowledged that not all our assumptions can be tested, and the point estimates for the cost-effectiveness ratio should therefore be interpreted within this understanding.

Annex B Evaluation matrix

Stage in results chain	Research question	Indicator	Methods	Data source	Where the questions are answered in evaluation report
INPUTS	Was there relevant, effective and sustained technical assistance to support capacity of the implementation of the FHCI over the period?	Type and volume of technical assistance (assess at episodic points over the period). Qualitative assessment of relevance and quality of technical assistance by stakeholders.	Document review + KIIs.	MoHS (including Donor Liaison Office)	Across core intervention process analysis: Section 4
	To what extent was there 'political will' supporting the FHCI and what contribution/role did it play over time?	Qualitative assessment of changing political support.	Document review + KIIs	Members of the Parliamentary Health Committee and State House	Preparation for launch (Section 3) and process analysis (Section 4)
	To what extent did the FHCI contribute to new resources for the target groups and the wider sector (by internal and external actors)?	- Marginal changes in total public expenditure on health care in Sierra Leone from 2010 onwards. - Marginal changes in household expenditure on health care in Sierra Leone from 2010 onwards.	- Comparison of public health expenditure post-FHCI with what it would have been if pre-FHCI trend had continued. - ReBUILD analysis of OOP expenditure using a regression discontinuity design.	- NHA and government budgets - Living Standards Survey	Health financing analysis (Section 4.1) and analysis of changing OOP spending (Section 5.3.1)
	Did the FHCI achieve economy?	- Unit costs of key inputs, such as drugs and salaries. - Staff pay-to-GDP per capita ratio. - Cost per working hour and cost per patient across different professional groups.	Trend analysis and/or benchmarking if appropriate and feasible.	- UNICEF for drugs data - Living Standards Survey for HRH data	Economy analysis: Section 9.1

Stage in results chain	Research question	Indicator	Methods	Data source	Where the questions are answered in evaluation report
PROCESS	To what extent was there effective implementation and scale-up of six key intervention areas (i.e. NHSSP pillar areas, including finance), and specifically (see below):	- What were the challenges prior to the FHCI? - What changes did the FHCI bring? - How effective were they? - What other independent developments contributed to change in this domain? - What challenges remain?	Qualitative research: - Documentary review - KIIs		Section 4: implementation of core interventions
	To what extent was the community aware of the FHCI?	- Awareness of right to free care for specific population groups, including understanding of which components are exempted and which not	Analysis of trends in awareness indicators. Thematic analysis of qualitative sources.	HFAC surveys FGDs	Section 5.3 on barriers to uptake, particularly 5.3.3 on awareness of FHCI and 5.3.6 on accountability
	How and why has the FHCI changed target users' health-seeking, attitudes and involvement with health services?	Community confidence in public health system and willingness to use it. Community involvement in health services, e.g. via health facility management committees – increased or decreased?	Health facility 'exit' surveys, FGDs	ReBUILD interviews with households, FGDs HFAC data (uses structured questionnaire), KIIs	Section 5.3 on barriers to uptake
	Did the FHCI achieve efficiency?	Qualitative assessment of processes of resource management.	Qualitative research: - Document review - KIIs		Section 4: analysis of implementation of core interventions; see also efficiency analysis (9.2) and analysis of overall efficiency of health section in Section 10 (sustainability)
	Pillar 1: Drugs Continuous availability of drugs and other essential commodities	Availability of funding	MoHS records: PET forms UN records UNICEF records MoHS records	The NPPU is expected to take over this function from UNICEF as soon as it is established. Crown Agents have been identified for this purpose.	Section 4.4: drugs and supplies

		Timely and appropriate external purchasing Effective internal distribution Delivery of drugs and supplies matches specified need	MoHS records: stock issues and reception reports.	This is monitored through the CHANNEL software and supported by CSOs, e.g. HFAC, whose representatives are present in government health facilities. KIIs and document review.	
	Pillar 2: HRH How did the FHCI affect availability of health workers?	2008–13: Changes to staff numbers, type and distribution, by level of system and district. Changes to percentage of posts unfilled, by type and district post. Changes to percentage of absentee staff, by type and district. Changes to delays in getting on to payroll. Changes to numbers of ghost workers and volunteers and to processes of recruitment and management.	Calculate trends over time in posts, staff numbers and vacancies (reviewed against guidance on required staffing levels), and exploration of patterns of staff transfers (e.g. rural-to-urban shifts), disaggregated by district if possible. Thematic analysis of qualitative information: HR Payroll, MoHS, Booz & Co report. Human Resources Management Office (HRMO) HRMO – reports on absenteeism KIIs ReBUILD survey Health for All exit interviews and research	The first three indicators should be available from routine data within the MoHS. This should be added to KIIs conducted by the evaluation team. The ReBUILD survey and in-depth interviews with health workers can be mined for information relevant to the FHCI. The tools are cross-sectional but have a retrospective component. We can also draw on other studies, such as the DFID evaluation of health worker pay uplift (2012).	Section 4.3: HRH
	Pillar 3: Governance	Signalled by:	Documentary analysis	Health Sector Review meetings	Section 4.2: governance; Section 4:1 for

	To what extent was there country ownership of FHCI implementation – and what contribution did it make?	- Function of COMPACT 2011 - Government responsiveness - Trends in percentage of public spend on the FHCI	KIIs Financial plots/summaries	HMIS Government and donor informants GoSL financial data	public/donor financial contributions
	How effective was governance (i.e. in terms of responsiveness, accountability, learning lessons)?	- Management response to problems identified - Functioning of governance structure/system	Documentary analysis KIIs	Annual health sector reviews, COMPACT agreement, etc. Key stakeholders	Section 4:2 governance
	Pillar 4: Communication Has there been effective information, education and communication to stimulate demand?	An effective publicity programme in place. Media support to help disseminate the publicity. General public have high levels of FHCI awareness, and how it affects them. Effective complaints systems in place for when the programme fails in its stated objectives.	Document review/KIIs Secondary data analysis Community research – thematic analysis	Appraisal of the communication strategy for launch and rollout of the FHCI, MoHS 2010. NGO surveys of awareness post-FHCI. Health for All exit interviews and research (e.g. patient satisfaction of users). ReBUILD in-depth interviews. FGDs. MoHS call centre records.	Section 4.7: communications; also Section 5.3.3 on awareness of policy
	Pillar 5: Infrastructure Was infrastructure adequate to offer services to the target population?	Physical buildings are 'fit for purpose'. Adequacy of utilities (lighting, electricity, water, sanitation, etc.). Furniture and other large equipment, e.g. refrigerators, beds, etc. Ambulances (availability). Proportion of health facilities providing EmONC services.	KIIs/document review	DHIS HFAC data FIT reports EC/UNICEF programme AfDB AMDD assessment?	Section 4.5: infrastructure

	Pillar 6: M&E What M&E framework was developed and was this appropriate? What M&E was undertaken? How has the M&E been used to assess progress and shape the FHCI's development? How relevant has the M&E work been? Is the M&E system working and how has it or should it be developed to make it more effective?	Timeliness Reliability Consistency (across time and space) Coverage Policy relevance Levels of public trust	Review of Working Group terms of reference and minutes Assessment of M&E framework Assessment of delivery of M&E against framework Assessment of use of M&E system and its impact KIIs/document review	HMIS data HFAC data, for triangulation NGO services Key informants	Section 4.6: monitoring and evaluation
	Other contributory factors What other major contextual changes have occurred, independent of the FHCI, which may have influenced the outputs, outcomes and impacts documented below?	Economic changes, affecting family expenditures and ability to pay for health. Disease outbreaks and natural shocks. Major investments in other sectors, e.g. roads, affecting access. Political changes. Health sector investments decoupled from FHCI.	Document review KII	Government economic reports Media reports Budget analysis	Section 8: other contributory factors

Stage in results chain	**Research question**	**Indicator**	**Methods**	**Data source**	**Where the questions are answered in evaluation report**
OUTPUTS	Was there an adequate and reliable supply of drugs over time?	Percentage of drug stock-outs in a specified period – tracked over time	- Trends over time (disaggregated at district level)	HMIS HFAC data GoSL service	Section 4.4: drugs and supplies

Stage in results chain	Research question	Indicator	Methods	Data source	Where the questions are answered in evaluation report
				Availability and readiness report (SARA, 2011) Assessment reports LMIS	
	Have more patients been treated as a consequence of the FHCI, and if so to what extent?	Patient throughput	- Calculate throughput by target groups (pregnant women, lactating mothers, children under five) by service level by region and district - Sub-analyses: By area of care (e.g. ANC, supervised deliveries, PNC, caesareans); By disease area (malaria, diarrhoea, malnutrition, ARI), contraceptive uptake	HMIS HFAC data DHS/MICS ReBUILD survey data analysis	Section 5.1: increased utilisation and coverage
	Are adequate numbers of health staff available and performing adequately to enable the delivery of FHCI-related services?	Changes to pay and motivation of staff Staff views on effects of the FHCI on their work Changes to informal charging by health workers Perceptions of quality of care by patients Measures of technical quality of care by staff	- Calculate trends over time in posts, staff numbers and vacancies (reviewed against guidance on required staffing levels) and exploration of patterns of staff transfers (e.g. rural-to-urban shifts), disaggregated by district if possible	MoHS payroll data HRMO ReBUILD in-depth interviews HFAC data Fred Martineau PhD Absenteeism reports KIIs Technical measures still outstanding	Section 4.3: HRH; also 5.2 on quality of care; and 5.3.1 on charging of patients

Stage in results chain	Research question	Indicator	Methods	Data source	Where the questions are answered in evaluation report
				(looking for data sources)	
OUTPUTS	To what extent are there increased levels of health finance (amount, regularity, flexibility) to support the FHCI?	Volume, regularity and flexibility of fund disbursement at service delivery level	- Trend analyses, overall and by district - KIIs	- Budget tracking survey (by Save the Children) - Key informants (e.g. facility staff, DHMTs, central MoHS, etc.) - Local government finance department	Section 4.1: health financing
	To what extent is there a strengthened and functioning referral system and to what extent has the FHCI contributed to this?	Availability of ambulances, fuel supply, maintenance schedule Changed community awareness of danger signs and support for emergency transport	Descriptive data analyses and trends over time Qualitative analysis	LMIS FGDs & district interviews	Section 5.3.2: access; and Section 4.5: infrastructure; also 5.3.4: awareness of danger signs

Stage in Results chain	Research question	Indicator	Methods	Data source	Where the questions are answered in evaluation report
OUTCOMES	Has the FHCI achieved improved service coverage and equity for the target groups (disaggregated by quintile and district)?	Tracking changes in coverage: (a) Tracer conditions: malaria, pneumonia, ANC and PNC, percentage of facility deliveries and caesarean sections disaggregated by quintile, by education level (b) Explore switching behaviour between the private and public sectors	Trends over time 1.1 Percentage of pregnant women attended at least four ANC visits 1.2 Proportion of institutional deliveries 1.3 Number of caesarean sections as a proportion of all deliveries in a year 1.4 Proportion of women and newborns receiving postnatal care in first 24–48 hours after birth at government facility 1.5 Pneumonia – % of children aged 0–59 months with suspected pneumonia received antibiotics 1.6 Malaria – % of children aged 0–59 months diagnosed with malaria and treated with ACT	DHS, MICS ReBUILD survey analysis	Section 5.1: utilisation and coverage by group, region and quintile; district analysis in 9.4: equity
	Are there reduced barriers to service uptake (affordability, transport, attitudes)? Have the main barriers been addressed? What substantial barriers remain from users' perspectives?	Changes to affordability Indicators for physical access and how these have changed Altered health-seeking behaviour, including for vulnerable sub-groups, e.g. adolescents -percentage seeking care for sick children -change in delivery practices	Document review Analysis of secondary data	DHS + ReBUILD LSS analysis; 2008 OPM study for baseline figures FGDs National Service Delivery Perception Survey ReBUILD qualitative interviews	Section 5.3 on barriers to uptake

		-reduction in informal care-seeking			
	To what extent has the FHCI contributed to strengthening social cohesion?	Defined as trust in public institutions, social capital and solidarity, perceptions of policy fairness	Qualitative analysis	FGDs Secondary studies /documents/KIIs	Section 6.4: social cohesion
	Improved quality of care	Proportion of deliveries by SBAs Proportion of mothers receiving parenteral oxytocin or misoprostol after delivery as part of AMTSL/adherence to third stage management protocol CFR for PPH Proportion of women with obstetric complications treated in EmONC facilities Proportion of newborns breastfed within one hour of birth (facility) % of children aged 0–59 months with watery diarrhoea treated with ORS/zinc			Section 5.2: quality of care (though many data are missing)
	Improved /strengthened health system	This is a product of all other domains and spans the entire results chain			Section 4.8: summary of effects on health system

Stage in results chain	Research question	Indicator	Methods	Data source	Where the questions are answered in evaluation report
IMPACT	Has the FHCI contributed to saving lives in target groups? If so, how and to what extent?	Reduced MMR, neonatal, infant and child mortality rates	Pre/post comparison adjusting for confounders Explore use of LiST to model impact of changing coverage of key interventions	DHS MICS INGO sources	Section 6.1: changing health outcomes; and Section 9.3: cost-effectiveness
	Did the FHCI achieve cost-effectiveness?	- Incremental cost-effectiveness ratio - Broader effects on and perceptions of communities - Broader health system effects	Calculated from marginal effect data (in terms of lives saved) and marginal cost data (in terms of public and household expenditure on health) - Qualitative community research - KIIs and document review	- NHAs/ government budgets for cost data - DHS and/or HMIS and LiST for effect data (modelling)	Section 9.3: cost-effectiveness; Section 11: conclusions
	Has the FHCI contributed to reducing morbidity in target groups? If so, how and to what extent?	Lower prevalence of tracer conditions in target groups Malaria Pneumonia PPH Neonatal tetanus Child vaccine-preventable conditions	Pre/post comparison adjusting for confounders	DHS MICS	Section 6.2: changing morbidity
	Has the FHCI contributed to reduction in inequalities in health spending across districts,	Explored through disaggregated analysis of public health expenditure across districts over the period, judged against population and need, as well as changes to uptake	Changes in values over time	Geographically disaggregated data on expenditure and utilisation	Section 9.4.1: changes to public spend across districts

	and to what extent?				
	Has the FHCI contributed to reductions in health inequalities among target groups, and to what extent?	Explored through disaggregated analysis of mortality and morbidity	Trend analysis pre/post	DHS; HMIS	Sections 6.1 and 6.2 on changes to mortality and morbidity
	Has the FHCI contributed to reductions in impoverishment /poverty reduction – how and to what extent?	Changes in health-related expenditure by quintile and different groups (mothers, under-fives)	Econometric analyses	Living Standards Surveys 2003/04 and 2011 – working with ReBUILD study	Section 6.3: impoverishment
	How sustainable is the FHCI?	Analysis of composition of donor expenditure versus public expenditure on health over time Fiscal space analysis to assess future funding options Analysis of political, social and institutional support	Modelling of needs and resources going forward Thematic analysis of qualitative sources	Financial records; documentary analysis; KIIs	Section 10: sustainability
	Has the FHCI resulted in any unintended consequences?	For example: • Birth rates and uptake of contraception (including for teenagers) • Health seeking for other patient groups (general outpatient department) • Trends for preventive services • How has the FHCI impacted on health managers and facilities? • How has the FHCI impacted on private/informal services uptake? • Changes to informal payments	Trend analyses Qualitative analysis	HMIS, DHS, MICS Peer reviewed + grey literature KIIs with stakeholders DHS FGDs Possible PhD thesis	Section 7: unintended consequences

Annex C List of KIIs

List of institutions and key people met			
Institution	**Name**	**Role**	
MoHS	Miatta Kargbo	Previous Minister of Health	1
	Dr Abubakarr Fofanah	Previous Deputy Minister of Health	2
	Foday Sawi	Previous Deputy Minister of Health	3
	Bernard Dugba	Previous Planning Coordinator DPPI	4
	Emile Koroma	Previous HR Manager	5
	Brima Kargbo	Current CMO – previously Director of National AIDS Secretariat	6
	Dr Daoh	CMO at the time of FHCI launch	7
	Sahr Hemore	Programme Manager, Health Education Department	8
	Dr Sarian Kamara	Reproductive Health/Family Planning Manager	9
	Mohamed Jalloh	Previous M&E Officer, DPPI	10
	Foday Sawi	Deputy Minister of Health	11
	Abu Bakarr Fofana	Minister of Health	12
	Yayah Conte	Director Donor Liaison	13
	SAS Kargbo	Director DPPI, previously Director RCH	14
	Dr Kamara	Previous Director DPPI	15
	Dr Santigie	Director of Reproductive and Child Health	16
	Mariatu Charlie	Head of Health Financing Unit	17
	Alex Jones	Previous ODI Fellow, Health Financing Unit	18
	Noemi Schramm	ODI Fellow, Health Financing Unit	19
	Tanya Philipp	ODI Fellow, Health Financing Unit	20
	Fanta Musu Amara	Health Education Officer, Health Education Department	21
	Johnson W.S. Kargbo	Deputy Chief Registrar, Births and Deaths Division	22
	Simeon Kuyembeh	Senior Registrar in Charge of Deaths, Births and Deaths Division	23
	Dausy Wurie	MoFED, seconded to MoHS	24
	David Ibrahim Bangura	Asst Registrar in Charge of Maternal Deaths, Births and Deaths Division	25
	Richard Konie	Store and Logistics Manager, Births and Deaths Division	26

	Alhaji Samuka Nallo	Senior Registrar in Charge of Births, Births and Deaths Division	27
	Wogba Kamara	M&E Manager, HMIS Team at DPPI	28
	Samuel Sesay	Health Education Officer, Health Education Department	29
	Dr M. Musa	M&E Director of DPPI	30
	Thekeka Conti	HMIS Team at DPPI	31
	Tamba John	Performance-Based Finance, HMIS Team at DPPI	32
	Zara Kargbo	HMIS Team at DPPI	33
	Dr D.A. Bash-Taqi	Director of Hospitals and Lab Services	34
	Lansanah Conte	Communications	35
	Dr Kandeh	Health Services Strengthening Manager	36
	Joseph Kandeh	Director PHC	37
	Regina Bash-Taqi	Health Policy and Information Specialist, HSS Hub	38
	Claudia Shulemani	HSS Hub Director	39
	Haja Mariatu Koroma	HRH Director	40
	Emil Koroma	HR Manager	41
	Dr A Sandi	HRH Manager (2002–2010) now: DMO Koinadugu	42
	Prince Cole	Former Director, HRH	43
	Amara Jambai	Director Disease Prevention and Control	44
	Sidie Y. Tunis	Director ICT	45
	Dr Bassie Turay	Director, Directorate of Drugs and Medical Supplies	46
	Samuel Smith	Manager, National Malaria Control Programme	47
	Dr Kenneh	Child Health Team, Expanded Immunisation Team (EPI)	48
	Mohamed Kanu	ICT CHANNEL office	49
	Mohamed A. B. Kamara	Manager of ICT CHANNEL Office	50
	Betty Lemor	Head of HR Payroll	51
	Dr Arthur Williams	HSC Commissioner – Former CMO (2007–2009)	52
	Dr Michael Amara	Previous Health Economist at DPPI	53
	Sorie Kamara	Previous Director of Finance	54
	Mabel Carew	Previous Chief Nursing Officer	55

	Husainatu Kargbo	Chief Nursing Officer	56
	Dr Joseph Edem-Hottah	Hottah Dean, Faculty of Nursing, COMAHS	57
	Mohamed Massaquoi	Manager, Office of CMO	58
	Dr Mohamed Samai	Directorate of Research and Training, MoHS, Head of Pharmacology, COMAHS	59
State House	Yabom Sesay	Health Adviser to President	60
	Ali Redhead	Governance Adviser	61
SSL	Mohamed King Koromer	Statistician General	62
	Peter Bangura	Director, Demographic and Social Statistics	63
	Abu Bakarr Turay	Director, Economic Statistics	64
MoFED	Adams Kargbo	Director, Local Government Finance Department	65
	Mathew Dingie	Director of Budget	66
	Idrissa Kanu	Director, Revenue and Tax Policy Division	67
	Mohamed Salisu	Economist, Revenue and Tax Policy Division	68
	Dausy Warie	Budget Directorate	69
	Abu Bakarr Tarawalie	Assistant Director, Economic Policy and Research Unit	70
	Lansana Fofanah	Senior Economist, ERPU	71
	Sellu Macarthy	Senior Economist, ERPU	72
	Mohamed Deen Sankoh	Economist, Inter-Governmental Fiscal Affairs Local Government Finance Department	73
	Ajayi Nicol	Development Aid Coordination	74
NPPU	Dr Michael Lansana	Deputy Director	75
Pharmacy Board	Bassie S R Touray	Chairman	76
	Wiltshire Johnson:	Registrar	77
National HIV AIDS secretariat	Abu Bakarr Koroma	Communications Specialist	78
	Dr Momodu Sesay	Programme Manager, HIV/AIDS Control Programme	79
NASSIT Committee	Amara Kuyateh	Deputy Director General	80
Bank of Sierra Leone	Morlai Bangura	Assistant Director, Research Department	81
National Revenue Authority	Alfred Akibo-Betts	Deputy Commissioner, Domestic Tax Department	82

Civil society			
HFAC	Alhassan B. Kamara:	Programme Manager	83
	Charles Mambu	Director	84
MSF B	Jose Hulsenbek	Head of Mission	85
Health Alert	William B.M. Sao	Programme and Communications Director	86
	Koroma Victor	Director	87
MSI	Anna Macauley	Clinical Services Manager	88
HPA	Ibrahim Touray	Programme Manager	89
	Regina Bash-Taqi	Country Director	90
Save the Children	Sembia Johnson	Policy and Advocacy Coordinator	91
	Amie Kamara	Health Adviser	92
	Joanna Tomkargbo	Campaign Coordinator	93
IRC	Saffea Senessie	Country Director	94
	Laura Miller		95
Concern	Emily Cummings	Operations Research Adviser for Child Survival	96
	Kristen Cahill	Senior Programme Manager – Innovations	97
	Rosie Davis	National Health Coordinator	98
E4A	Dr Mohamed Yilla	Country Director	99
	Sowoh Lebbie		100
SFCG	Ambrose James	Director	101
MRC	Dr Heidi Jalloh Vos	Programme Manager	102
Donor community			
World Bank	Sheikh Alhaji Yayah Sesay	Country Operations Officer	103
UNICEF	Yaron Wolman	Chief of Child Survival and Development	104
	Dr Ngozi Kennedy	Senior Health Specialist, FHCI Coordinator	105
	Dr Augustine Kabano	Health Manager	106
	Rajesh Patnaik	M&E Specialist	107
WHO	Teniin Gakuruh	Health Systems Specialist	108

	Dr Wondi Alemu	Head of Office	109
	Dr Sebora Kamara	Health and Environmental Officer (former HRH Officer)	110
UNFPA	Sonia Gilroy	Programme Coordinator	111
	Angela Msosa	Technical Assistance on the DHS	112
	Saffiatu A. Foday	Regional Family Planning Coordinator	113
	Dr Jarrie Kabba-Kebbay	National Reproductive Health Manager	114
	Hashina Begum	Reproductive Health Specialist	115
	Aiah Sosso Kohne	FHCI Key Person	116
	Ibrahim Kamara	OIC	117
Global Fund	Abu Kamara	Programme Coordinator	118
DFID	Rob Yates	Health Adviser at the time of FHCI launch	119
	Susan Mshana	Health Adviser at the time of FHCI launch	120
	John Paul Fanning	Economist	121
	Uzo Gikpin	Health Adviser (2014)	122
CHAI	Madisyn Lu	Programme Manager	123
	Dan Gwinnell	Country Director	124
EU	Tom Ashwanden	Head of Governance and Institutional Support	125
JICA	Kiyomi Mokoma	In-house Consultant	126
Consultancies and consultants			
Options	Delips Allieu:	M&E / Research Coordinator	127
	Sara Nam	Technical Adviser	128
	Ladi Sotimehin	Country Director	129
	Derek Reynolds	Public Finance Consultant	130
Crown Agents	Maurice Juma	Managing Director & Team Leader	131
Freelance	Carole Green	Independent Consultant	132
Center for Economic Research and Capacity Building	Samuel Jibao	Chief Executive Officer	133
Academic institutions			
ReBuild	Joseph Edem-Hotah	Head	134

LSTM	Betty Sam	Senior Technical Officer	135
	Moses Bockarie	Director of Centre for Neglected Tropical Diseases	136
	Mselenge Mdegala		137

Annex D Explanation of FHCI costing

Actual costs associated with FHCI					Calculations explained
	2010	2011	2012	2013	
TOTAL costs FHCI (SLL, millions)	**316,433**	**396,636**	**452,776**	**563,307**	
TOTAL costs FHCI (SLL, millions) without 'other donor funds'	**120,211**	**155,960**	**157,575**	**201,229**	
Donor FHCI cost (SLL, millions)	**256,937**	**325,069**	**389,508**	**452,559**	
Payment of health workers' salary supplement as part of FHCI	19,413	33,811	36,601	12,112	Made up of DFID and Global Fund funding. Used figures provided by GoSL budget documents and Stevenson et al. (2012), which coverts external funding into Sierra Leone's fiscal year.
Drugs and medical consumables	32,424	37,910	37,682	52,823	Largely DFID funding captured through NHA questionnaire, although included funding by ECHO in 2011.
Key activities for service delivery	8,878	11,725	13,374	14,752	Not clear what types of expenditure this captures but was used by MoHS as estimate of direct expenditure to FHCI, adjusted for inflation from 2010 estimate.
PBF (World Bank)	-	947	6,649	10,794	Actual disbursement figures provided by MoFED.
Other donor funds going to RCH	196,222	240,676	295,201	362,078	From the NHA 2013 calculated the proportion of donor funds that went to three FHCI groups and subtracted other known donor expenditure in the line items above. For Years 2010 to 2012 used the same proportion of RCH expenditure as a

					percentage of total donor funds in 2013 and applied to 2010–2012 total donor funds (given these years did not breakdown RCH expenditure in as much detail as 2013). The use of this methodology also reflects the poor data on off-budget donor expenditure ein the development budget.
GoSL FHCI cost (SLL, millions)	**59,496**	**71,567**	**63,269**	**110,749**	
Salary expenditures of GoSL as recurrent expenditures	43,984	42,565	52,760	94,105	Based on MoHS data on actual expenditures.
Drugs and medical consumables	-	-	-	-	Discussions with MoHS and evidence from CMS suggests all FHCI drugs are donor-financed. This changed in 2014 with the use of GoSL funds through NPPU.
Key expenditures for service delivery	2,995	2,776	8,673	13,500	Based on MoHS data on actual expenditures (2010 is called 'Reproductive care in MoHS budget').
Domestic funded capital expenditure	12,517	26,226	1,836	3,143	Based on MoHS figures (for domestic funded development expenditure).
Incremental costs associated with FHCI					
	2010	**2011**	**2012**	**2013**	
TOTAL incremental costs FHCI (SLL, millions)	**148,688**	**228,891**	**285,031**	**395,562**	
TOTAL incremental costs FHCI (SLL, millions) without 'other donor funds'	**91,870**	**127,619**	**129,235**	**172,889**	
Donor FHCI cost (SLL, millions)	**117,533**	**185,664**	**250,103**	**313,154**	

Payment of health workers salary supplement as part of FHCI	19,413	33,811	36,601	12,112	Salary uplift taken as 'new' funding, thus same as above.
Drugs and medical consumables	32,424	37,910	37,682	52,823	FHCI drugs assumed to be all funded by donors and while some were probably funded by donors before, the large increase is viewed as 'new funding'.
Key activities for service delivery	8,878	11,725	13,374	14,752	New FHCI-specific funding so same as above.
PBF (World Bank)	-	947	6,649	10,794	New FHCI-specific funding so same as above.
Other donor funds going to RCH	56,818	101,271	155,796	222,673	Using NHA methodology above to estimate average spend on RCH before FHCI as a baseline and then calculating difference post-FHCI (minus other known donor expenditure).
GoSL FHCI cost (SLL, millions)	**31,155**	**43,227**	**34,928**	**82,408**	
Salary expenditures of GoSL as recurrent expenditures	20,739	19,320	29,515	70,860	Using average GoSL salaries 2008/09 before FHCI as baseline and then calculating difference post-FHCI.
Drugs and medical consumables	0	0	0	0	Assumed that government only spends money on cost-recovery drugs as per 2013 CMS report.
Key expenditures for service delivery	0	-218	5,678	10,506	Using average GoSL expenditure 2008/09 before FHCI as baseline and then calculating difference post-FHCI.
Domestic funded capital expenditure (incremental)	10,416	24,125	-265	1,042	Using average GoSL expenditure 2008/09 before FHCI as baseline and then calculating difference post-FHCI.

Annex E Note on health services and outcomes data sources and quality

The main report gives brief details of how and why we used different sources of quantitative data in our analysis. This annex sets out further information about these sources of data. The main sources are as follows:

1. The HMIS, which collects monthly data from all health facilities; and

2. Household surveys, including two rounds of the DHS in 2008 and 2013 and the DHSBS of 2009.

There was no specific baseline data collection exercise for the FHCI. This appears to have been because there were insufficient time and resources to do this given the speed at which the FHCI was launched.

E.1 The HMIS

The HMIS collects regular administrative data from each health facility in the country. MoHS officials have developed a series of forms that facility staff complete each month. These are then passed to the DHMT to collate and validate the information at district level before being sent to the ministry using the DHIS2.

The system existed in the years before 2010 but it was strengthened considerably as the FHCI was launched. In particular, the forms were redesigned and extended, the data transfers from district to ministry moved to an electronic system, and supervision of facility staff by DHMT staff was improved.

Like other administrative data systems, HMIS has some particular potential strengths:

- It should, in theory, provide complete coverage of all health facilities in the country;
- The frequency of the information is high, with forms completed each month; and
- Analysis can be conducted for small geographical areas.

However, there are also several factors that present quality problems for HMIS data, and these have restricted the extent to which we have been able to use this source in our assessment.

First, although data collection started in the years before the FHCI, all the microdata from before April 2011 was lost during the upgrade to DHIS2. Therefore, in order to compare the picture before and after the start of the FHCI, we are restricted to using the few tables that had already published by MoHS, for example in their series of health bulletins.

Second, a review by Options and Dalan Consultancies in 2015 showed that there were significant inconsistencies between the information in health facility registers, the collated data in the district tally sheets and the final dataset in the DHIS2. This points to weaknesses in the recording of information by facility staff, insufficient supervision by district staff and poor quality control procedures overall.

Third, as part of our work on this assessment of the impact of the FHCI, we examined the information in DHIS2. We found that, although overall response rates show that around 90% of health facilities supply information each month, the variables we looked at typically had missing

values for between 20% and 40% of health facilities. This is likely to lead to biases in the HMIS analysis.

E.2 Household surveys

The two DHSs and the DHSBS are sample surveys of the country's population. These sources have the following strengths:

- Like other sample surveys, sampling errors and confidence intervals can be calculated to show the likely precision of the estimates;
- The surveys are representative of all households and therefore cover both those that do and those that do not interact with the health system (in contrast to the HMIS information, which typically covers only those who visit a health facility); and
- Analysis can be conducted to examine equity issues such as variations between different wealth groups.

The surveys too are not without their problems, particularly the 2008 DHS. Analysis of the ages of children and females in the survey points toward the following quality weaknesses.

First, the distribution of children born in the years before the 2008 survey shows that there is a bulge in births for those aged six at the time of the data collection. A bulge is even more noticeable for deaths of those children born six years before the survey. It is thought that the reason for this is because interviewers tended to encourage births and deaths to be recorded outside the five-year reference period (especially where there was doubt in the respondent's mind of the exact date) so that fewer questions needed to be asked of the respondent.

In the 2008 DHS there were 120% more deaths of children born six years before the survey compared to the average of the years either side. For the 2013 DHS, fieldwork checks and supervision were improved and the issue was not so prominent, with only around 40% more deaths for this cohort.

Second, the population pyramids for women in the survey do not match those from the census. In particular, there appear to be more females just below and just above the 15–49 year age range. Again it is thought that interviewers may have encouraged women to say they were outside this reproductive age range in order to reduce the number of questions that needed to be asked.

Both these issues back up the general consensus of those involved in conducting and analysing the surveys that the 2013 DHS is of significantly higher quality than the 2008 round. This almost certainly arises from the tighter monitoring and supervision of the fieldwork in 2013. For example, consistency checks were done on the early weeks of data collection in 2013 as the information was being collected. This led to the interviewers being recalled for re-training. The fieldwork teams were also then restructured and reduced from 24 to 18.

The 2009 DHSBS used an almost identical questionnaire and method to the 2008 DHS. Some of the quality issues from the 2008 survey are also likely to be present in the 2009 survey.

Annex F CEA methods

Our analytical aim is to estimate the costs and effects of the provision of free health care for children under 5, pregnant women and lactating mothers—and the accompanying health system strengthening reforms—over the time period 2010-2013. The resulting cost-effectiveness ratio is then compared to standard thresholds to arrive at a judgement of cost effectiveness.

There are two key challenges to the analysis. Firstly, drawing boundaries around what interventions—and their associated costs and outcomes—are, or are not, linked to the FHCI is challenging. Secondly, limitations to data sources on both the costs and outcomes of the FHCI means that the true incremental costs and effects of the FHCI are difficult to isolate and there is inevitably uncertainty around our estimates.

To address these issues, we aim to take a structured, transparent and reproducible approach to the CEA. As with all economic evaluation, modelling requires assumptions be made and these are varied in a sensitivity analysis. In line with this approach, in this annex we articulate the following elements that structure the CEA:

a. the target population for the interventions;
b. the healthcare interventions included;
c. the timeframe for the analysis;
d. the counterfactual;
e. the costs and effects included; and
f. the perspective taken.

F.1 Target population

Our target population is the target groups for the FHCI—children under 5, pregnant women and lactating mothers. It could be argued that other groups are also affected by the FHCI, either positively and negatively. However, these knock-on effects are difficult to incorporate into the analysis and likely much smaller and so our focus is the FHCI target groups.

F.2 Interventions included

As mentioned, defining what interventions are, or are not, linked to FHCI is challenging. Our choice is determined to some extent by the available cost and outcome data, with an emphasis on ensuring that what is included on the cost side is matched on the effect side. For example, we would not want to include the costs of wider health systems strengthening and then compare to only a limited set of intervention-level effects.

We use the Lives Saved Tool (LiST) to model the effect of the FHCI on maternal, newborn and child mortality. LiST is a software tool used to model the impact of scaling-up health interventions aimed to reduce the mortality of mothers, newborns and children under 5. Country-specific coverage data is combined with data on causes of death and the secondary evidence on the effectiveness of interventions. A key feature of LiST is that the modelling techniques allow for a package of interventions to be assessed together without double counting (Walker et al. 2013). Analysis was conducted using version 4.31 of the OneHealth Tool, an integrated tool that includes LiST as one of its components.

There are several options for defining the FHCI package:

- The first is to include interventions that are directly related to the FHCI; that is, interventions for which user fees were charged before the introduction of the policy. For pregnant

women, these include antenatal, childbirth and postnatal interventions; for newborns, case management of prematurity and severe infection; and for children under 5, treatment of diarrhoea and other infectious diseases.

- The second is broader and includes interventions that were previously free but the increased uptake of which has been catalysed by the introduction of the policy. These include contraception and provision of insecticide-treated nets (ITNs) for malaria.

Table 59 gives a summary list of interventions included in the different scenarios.

Table 59: Interventions included in the LiST modelling of the FHCI

	Interventions directly related to the FHCI	Interventions directly and indirectly related to the FHCI
Pregnancy		
* Antenatal care	Yes	Yes
Tetanus toxoid vaccination	Yes	Yes
IPTp	Yes	Yes
Syphilis detection and treatment	Yes	Yes
Hypertensive disorder case management	Yes	Yes
Diabetes case management	Yes	Yes
Malaria case management	Yes	Yes
MgSO4 – management of pre-eclampsia	Yes	Yes
Child birth		
Skilled birth attendance	Yes	Yes
Health facility delivery	Yes	Yes
Preventative		
Clean postnatal practices	Yes	Yes
ITN/IRS	No	Yes
Vaccines		
BCG	No	Yes
Polio	No	Yes
Measles	No	Yes
Curative		
ORS - oral rehydration solution	Yes	Yes
Antibiotics - for treatment of dysentery	Yes	Yes
Zinc - for treatment of diarrhoea	Yes	Yes
Oral antibiotics for pneumonia	Yes	Yes
Vitamin A - for treatment of measles	Yes	Yes
Source: List of interventions from LiST;		

LiST is therefore ideal for our analysis as it allows us to define the FHCI as a package of interventions and to model how increased coverage over the period 2010-2013 has translated into mortality reduction. The FHCI scenarios use actual coverage data, primarily from the Demographic and Health Survey. When possible disaggregated annual data is used to construct a time series for how coverage of the intervention has changed in Sierra Leone from 2010 to 2013. In the absence of such data, we linearly interpolate the indicator between 2008 and 2013.

However, it is important also to acknowledge that LiST is a tool that allows for the modelling of impact, not the actual estimation of impact using an appropriate impact evaluation method and data on the impact variables. The conclusions that can be drawn from such an exercise are

different from those that could be drawn from an actual impact evaluation. It is worth also highlighting a few key limitations of LiST:

- LiST uses inbuilt assumptions about the effectiveness of MNCH interventions to convert increased coverage estimates to mortality reductions. These are based on international literature. In the absence of evidence from Sierra Leone, we have used these. However, they may overstate gains if the quality of care provided is below expected levels to ensure effectiveness. Furthermore, LiST can only model the impact of interventions for which coverage data is available.

- Family planning is a difficult intervention to model in terms of maternal lives saved. International evidence suggests that when FP coverage increases from a low level, the proportion of women with an unmet need for contraception also increases initially because demand outstrips supply in the short term. It is further hypothesised that a certain proportion of women who had an unmet need for contraception and became pregnant will have an abortion (because by definition the pregnancy was unwanted). Abortion is one of the main causes of maternal death internationally and so LiST yields an unexpected result of increased maternal deaths due to FP coverage increases. This is unlikely to reflect reality. We therefore take the approach of modelling maternal deaths averted in the context of the increased CPR of Sierra Leone from 2008 to 2013. To the extent that FHCI contributed to the increase in FP over the period (FP was free before 2010 but increased utilisation of health facilities by women of reproductive age likely increased its use), we are therefore underestimating the demographic impact of the FHCI on maternal deaths.

F.3 Timeframe

The timeframe for the analysis is that for cost and effect data is available—2010-2013.

F.4 Counterfactual

To understand the effect of the FHCI, we need some understanding of what coverage of these interventions would be in the absence of the policy. In the absence of a control group, we construct several different counterfactuals to produce a range of credible estimates:

- The first counterfactual is a simple, ‘no change’ counterfactual. We assume that in the absence of the FHCI, there is no change in coverage values over the period 2010-2013 from 2008 DHS estimates. This has the advantage of being straightforward and an easily recognised

DHS data can be disaggregated for most maternal and newborn interventions. For these:

- The second counterfactual is another simple, no change counterfactual, this time using the 2009 coverage value

- The third fits a trend line to the pre-2009 data and extrapolates this to the FHCI time period. It should be noted that the gradient of the projected counterfactual line is very sensitive to the jump in coverage estimates between 2008 and 2009. This is the point between the two rounds of the DHS and is more likely a product of data quality problems in one or both surveys and not a real increase at this point.

F.5 Costs and effects

13.7.1 Costs included

On the costs side, our objective is to estimate the marginal cost of the FHCI compared to the counterfactual of what expenditure would have been without the policy. Our primary analysis relies on the estimate of the incremental expenditure on FHCI as given in Table X of the Health Financing section. This has the advantage of being our best estimate of expenditure on the policy itself. However, it may miss out broader changes in the health financing of interventions and reforms that affect coverage and quality of MNCH interventions.

13.7.2 Effects included

Our LiST estimates of maternal, newborn and child lives saved can relatively easily be converted into life years saved. The calculation first requires a disaggregation of lives saved by age and sex. This is an output of LiST for children under 5. For mothers, however, unfortunately the maternal health part of LiST is not linked to the demographic component of the OneHealth Tool and so we use age-specific fertility rates to estimate the age distribution of maternal deaths. This means that we are accounting for the differential fertility rates but not mortality risks of women of reproductive age. With this age-sex breakdown of deaths, we convert into life years saved using the Years Life Lost (YLL) calculations with the WHO rapid spreadsheet-based tool for DALY calculation. We use standard values for key parameters, shown in Table 60:

Table 60: YLL parameters

Parameter	Value used	Explanation
Discount rate (r)	0.03	Standard discount rate (Murray and Lopez 1996)
Beta (b)	0.04	Standard age weights use b=0.04
Constant (c)	0.1658	Standard age weights use c=0.1658
K	1	Full age weights (as recommended for base case by Murray and Lopez 1996)

Life expectancy estimates for Sierra Leone are taken from United Nations, Department of Economic and Social Affairs, Population Division (2015).

F.6 Perspective

Our analysis takes a perspective that includes government and donor expenditure on the cost side of the equation. Household expenditure is not included given the data quality issues. If expenditure from a household perspective were included, this would increase the cost-effectiveness ratio from the societal perspective given that our best estimate is that OOP household expenditure modestly decreased as a result of the FHCI. On the effect side, the perspective is more a societal one, given that life years gained are of value to households, government and donors.

In terms of other standard economic modelling decisions, costs are not discounted while effects are discounted using a standard discount rate of 3%. Costs are expressed in nominal terms and, as in the rest of the report, IMF exchange rates used to convert Sierra Leone Leones to US dollars.

Annex G Selected development partner health investments, 2008–2015, Sierra Leone

Programme/ Project name	Donor	Topic/focus	Budget	Years of support
Reproductive and Child Health Project in Sierra Leone Phase 1	World Bank	To assist the recipient in addressing immediate constraints to reducing longer-term maternal and under-five mortality.	US$ 6 million	2006–2008
Health system strengthening (HSS 1)	GAVI	PHU training in IMNCI, BEmONC, provision of ambulances to all districts, outreach allowances for health staff.	US$ 1,161,447	2008–2009
Vaccine support	GAVI	Immunisation services support and vaccines (pneumo & penta largest).	About US$ 40,000,000	2008–2014
Malaria prevention and control	GFATM	Scaling up of community-based interventions for malaria prevention and control with special reference to children under the age of five and pregnant women.	US$ 12,317,290	2008–2011
UNFPA Fourth Country Programme Action Plan	Multiple	Across all UNFPA components, including reducing maternal mortality, improving the quality of reproductive health services, fostering better access to reproductive health information and services for youth and other vulnerable groups and ensuring reproductive health commodity security.	US$ 9.4 million	2008–2010
Making it Happen – Liverpool of Tropical Medicine (LSTM)	DFID	Three main components: - competency-based training packages in EmONC - strengthening of data collection and use in the facilities and for research - introduction of a Quality Improvement methodology.	Multi-country with total around £18 million	2009–2011
Joint Assistance Strategy (with World Bank & IFC)	AfDB	Improved access to basic health services.	37% of US$ 45 million in 2009	2009–2012
RMNH	DFID	To support the implementation of the FHCI for under-fives, pregnant and lactating women and provide expanded family planning services, and to reduce the maternal mortality rate to 600/100,000 live births by 2015.	£13.7 million	2010–2011
Reproductive and Child Health Project Phase 2 (restructured to include Ebola response)	World Bank	To increase utilisation of a package of essential health services by pregnant and lactating women and children under the age of five.	US$ 20 million	2010–2016
Multiple	UNICEF	Child survival and development.	US$ 35 million	2010

4th Country Programme Extension	UNFPA	As above, now includes neonates and infants.	US$ 8.34 million	2011–2012
Malaria prevention and control	GFATM	Scaling up malaria control interventions toward universal coverage in Sierra Leone.	US$ 39,351,791	2011–2015
RMNH	DFID	...including support to the FHCI.	£2.1 million	2011–2012
RMNH	DFID	....including support to the FHCI.	£5.150 million	2012–2013
Multiple	UNICEF	Across all UNICEF sectors including support to IMCI.	US$ 36 million	2012
Multiple	UNICEF	Across all UNICEF sectors.	US$ 45 million	2013
Health system strengthening (HSS 2)	GAVI	Medical equipment management and maintenance, outreach using the RED approach, and supply chain management for drugs, vaccines and other health commodities (implementation delayed due to response to report of misappropriated US$ 523,000 from HSS).	US$ 2,723,058	2013–2014
RMNH	DFID	...including support to the FHCI.	£14.5 million	2013–2014
Reproductive and Child Health 2 Project – Second Additional Financing	World Bank	To increase the utilisation of a package of essential health services by pregnant and lactating women and children under the age of five.	US$ 13 million + US$ 5 million grant	2013–2016
UNFPA 5th CPAP		Contribute to achievement of universal access to sexual and reproductive health, promote reproductive rights and reduce maternal mortality and morbidity, including increased access and utilisation of quality maternal and newborn health services.	US$ 18.8 million	2013–2014