

**Regional Network for
Equity in Health in east
and southern Africa**

DISCUSSION

Paper
NO. 111

A case study of the role of an Essential health benefit in the delivery of integrated health services in Zambia

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In association with Ifakara Health Institute and
Training and Research Support Centre
In the Regional Network for Equity in Health in east
and southern Africa (EQUINET)

EQUINET DISCUSSION PAPER 111

The role of Essential Health Benefits in the delivery
of integrated services: Learning from practice
in East and Southern Africa

August 2017

With support from IDRC (Canada)



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Cite as: Luwabelwa M, Banda P, Palale M, Chama-Chiliba C (2017) 'A case study of the role of an Essential Health Benefit in the delivery of integrated health services in Zambia,' EQUINET Discussion paper 111, Zambia Ministry of Health, EQUINET: Lusaka.

Acknowledgements:The research team extends its gratitude to the Regional Network for Equity in Health in East and Southern Africa (EQUINET), particularly the Ifakara Health Institute (IHI) and the Training and Research Support Centre (TARSC), for facilitating this project. Special thanks also go to the entire ECSA Health Community for the confidence they have demonstrated in the capacity of the local team to deliver the project. Special mention goes to the reviewers of the report for the time spent to provide valuable comments, namely Masuma Mamdani (Ifakara Health Institute), Rene Loewenson (TARSC) and Bona Chita (University of Zambia).

Special thanks also to the management of the Ministry of Health in Zambia for facilitating and authorising the project and providing policy guidance. We acknowledge Rene Loewenson for technical edit and Virginia Tyson for copy edit. Last, but not least, special thanks also go to the entire research team for their efforts to facilitate the production of the report through a very enriching consultative process.

Executive summary

This case study report compiles evidence on the experience of the Essential Health Benefit (EHB) in Zambia. The paper aims to contribute to national and regional policy dialogue regarding the role the EHB plays in budgeting, resourcing and purchasing of health services as well as monitoring health system performance for accountability. It outlines the motivations for developing the EHBs in Zambia, the barriers encountered in the process, the methods used to develop EHBs, and issues related to dissemination and communication of its content.

The paper was done under the auspices of an EQUINET research programme through Ifakara Health Institute (IHI) and Training and Research Support Centre (TARSC), in association with the ECSA Health Community, supported by IDRC (Canada), and with the permission of the Ministry of Health of Zambia.

Many other countries in the region and beyond use different nomenclature to refer to the EHB. This notwithstanding, the principle has been that an essential health benefit is a policy intervention that identifies a set of services designed to direct resources to priority areas of health service delivery to reduce disease burdens and ensure equity in health.

The health services delivery system in Zambia is pyramid in structure, with primary healthcare (PHC) services at community level, at the base, followed by first and second level hospitals at district and provincial levels, respectively, and third level (tertiary) services at national level. Notably, primary health services are free in Zambia and health service providers are either government-owned or not-for-profit facilities.

Over the years, resource constraints have affected the quality and extent of healthcare services at all levels, requiring the mobilisation of additional resources for the sector. In doing so, prioritisation was high on the agenda of health sector reform. The EHB, therefore, prioritises interventions with the highest impact on the population, enabling policy makers to revisit priority diseases and conditions and to cost the services provided at each level of facility. Other key issues in developing the EHB in Zambia have included the need to have cost-effective services and cost per capita of services for more systematic budgeting, to rank interventions and to validate and cost the health benefit package as a whole.

From as early as 1993, the EHB has played a key role in shaping policy, allocating resources and in prioritising the delivery of health services. The process towards the development of an EHB was started in 1993 and in 1996 the Ministry of Health prepared a paper titled 'An essential basic package of healthcare for Zambia'. Following this, in 1998, the Central Board of Health and the Ministry of Health developed the second- and third-level hospital package. By 1997, the first formal package of essential healthcare services was developed and this was subsequently followed by reviews and updates. By 2000, the Central Board of Health and the Ministry of Health had developed Zambia's Essential Health Benefit called the 'Basic healthcare package' from community level to third level'.

In 2001, the Ministry of Health began costing the first-level basic healthcare package in Zambia. In 2003 the 'Basic healthcare package' for first, second and third levels of referral services was the only benefit package that had costs attached to it. However, even these costs, however, were not fully adopted and institutionalised by government.

In June 2016, the Ministry of Health thus convened a team of experts from the University of Zambia, the Ministry of Health and other stakeholders to review the existing work towards costing the EHB. In retrospect, the delay in finalizing the costing of the EHB and making it 'official' can perhaps be explained by its political nature.

Experience has shown that an EHB is sometimes said to be aspirational, and therefore describes what the package of services should look like. However, citizens do not treat it as 'aspirational' but rather as a promise made by political establishments that needs immediate fulfillment. Not delivering on the aspirational EHB could therefore result in a government losing popularity. Implementing an EHB, therefore, is not just a technical exercise, but a political and institutional process that needs effective stakeholder engagement.

The EHB has policy implications that need to be taken into consideration. For example, policy makers have to ensure a balance between the goal of achieving universal and equitable access to services, improved efficiency and cost-effectiveness. Guaranteeing a minimum package has some ramifications. The question is whether government is able to guarantee the package, and if a package that cannot be adhered to should have been defined at all. With high poverty levels, even if the package is defined and accessible to most, what lies outside the package can still remain beyond the reach of many. Government must design services to ensure that access to tertiary health services outside the package are accessible, despite their highly specialised staff and technical equipment. These services include cardiology, intensive care unit and specialised imaging units.

Moving forward, government has decided to implement a social health insurance scheme, and the model for this is yet to be concluded. This raises implications of whether the EHB will be the minimum package and equivalent to the social health insurance scheme benefit package or not. This is still a matter of discussion, and the decision is yet to be made

While costing of the EHB has been done at different stages in the past, the gap has been in the health sector reaching consensus on, publishing and fully implementing the package. The latest EHB version, called the National Health Care Package (NHCP), has taken into consideration previous work, including costing. However, due to the passage of time and the need to validate the package, the costing of the current version is yet to be updated.

Overall, the National Health Care Package is being implemented and has an official printed and published version. However, calls for renewed discussions to revisit the publication have been instigated partly through this work. Some key stakeholders in Zambia who have both local and international experience in the EHB process feel the name given to the latest EHB in Zambia is not appropriate and should be revisited to find a name that fits with common practice. Further, they felt that the process of defining it was not sufficiently consultative, that it did not adequately build on past experience and that it failed to validate and institutionalise the services costed at policy level.

Consequently, the appetite to rework the process and bring closure to it has gained momentum. Having an EHB is generally agreed to be a correct option of the country. Implementation is the challenge, is ongoing and needs to be reviewed as work progresses.

1. Introduction

An Essential Health Benefit (EHB) is a policy intervention designed to direct resources to priority areas of health service delivery to reduce disease burdens and ensure equity in health. Many countries in east and southern Africa have introduced or updated EHBs in the 2000s. Recognising this, the Regional Network for Equity in Health in East and Southern Africa (EQUINET), through Ifakara Health Institute (IHI) and Training and Research Support Centre (TARSC), in association with the ECSA Health Community and national partners in the region, is implementing research to understand the role of facilitators and the barriers to nationwide application of the EHB in resourcing, organising and in accountability on integrated health services. The work is supported by International Development Research Centre (Canada).

This case study report compiles evidence from Zambia on the experience of the EHB at national level. The study is done under the auspices of the Ministry of Health (MoH) and has benefitted from close collaboration with relevant stakeholders, including co-operating partners and civil society. The study contributes to both national and regional policy dialogue and addresses issues such as the role EHBs play in healthcare delivery, the methods that have been used to develop and cost EHBs and the definitions and nomenclature used for the benefit package. The paper also outlines how the EHB in Zambia was disseminated, communicated and used in budgeting, resourcing and purchasing services and monitoring their performance for accountability. The study addresses the factors that have motivated the development of EHBs and factors that have either enabled or acted as barriers to its development, uptake and use.

The policies and strategies adopted by Cabinet in 1992 guided the health reforms in Zambia, including the EHB process. The government's health mission statement currently states that the government is committed to the principle that it "provide equitable access to cost effective, quality health services as close to the family as possible" (MoH, 2015, p45). The vehicle for this is primary healthcare as a strategy, and this conceptual framework has taken root in Zambia in line with the Alma Ata Declaration. The rationale is to provide better management for quality healthcare for the individual, the family and the community. The philosophy of the whole approach may be argued to rest on the adage that "prevention is better than cure".

1.1 Socio-economic situation

Zambia was classified as a lower middle-income country in 2013 with a per capita gross domestic product of US\$1,305 [hereafter \$ refers to the US\$]. The country has since experienced growth over the past 5 years, with the growth in the gross domestic product averaging 6.1% against a target of 7%. This growth has generally been driven by high commodity prices and sound macroeconomic policies. Growth slowed, however, from 7.6% in 2012 to 2.9% in 2015. Inflation averaged 9.9% between 2011 and 2015, but increased to 14.3% in October 2015 from 7.7% in September 2015. The increase in inflation was largely due to significant depreciation of the Zambian Kwacha by over 72% in the last quarter of 2015. On a positive note, the rate of inflation reverted to single digit in November 2016 to 8.8% and was projected to remain at single digit levels in 2016 (Ministry of Finance, 2016).

This good performance at macro level has not yet significantly impacted on the socio-economic wellbeing of the population, the majority of whom are poor and vulnerable. Although the share of people living below the poverty line has declined from 68% in 2006 to 54% in 2015, the percent living in poverty still remains high. This is particularly the case in rural areas, where 76.6% lived below the poverty line in 2015. Similarly, income inequality as measured by the Gini co-efficient has increased from 0.60 in 2006 to 0.69 in 2015 (Central Statistical Office, 2015). Despite the progress in many socio-economic indicators, therefore, more needs to be done to bring the living standards of the majority of the people to an acceptable standard.

1.2 Health, morbidity and mortality profile

Recent statistics show a decline in all mortality categories over the past decades. The infant mortality rate declined significantly from 107 per 1,000 live births in 1992 to 45 per 1,000 live births in 2014, while the child mortality rate fell from 191 per 1,000 live births in 1992 to 75 per 1,000 live births in 2014. Maternal mortality ratio, which is the most challenging indicator for Zambia, recorded a decrease from 729 per 100,000 live births in 2002 to 398 per 100,000 in 2014 (MoH, 2015). Improvements in the maternal mortality ratio over the years may be attributed to a number of factors, such as strengthening the quality and expanding coverage of essential obstetrics; provision of emergency obstetric and neonatal care as per national guidelines for different levels of care; construction of safe motherhood shelters and strengthening family planning and contraceptive choice programmes, with a special focus on rural districts; and, accelerating midwifery training, ensuring equitable distribution and retention of midwives. Notably, HIV prevalence reduced from 15.6% in 2001 to 14.3% in 2007 and then to 13.3% 2014 and 11.3% in 2015 (MoH, 2007; 2015).

Despite some achievements, the health sector continues to face major challenges. These include the high disease burden, inadequate medical staff, weak logistics management in the supply of drugs and medical supplies, inadequate and inequitable distribution of health infrastructure, equipment and transport, and challenges related to health information systems, inadequate financing, and identified weaknesses in the health systems governance (MoH, 2012a).

In addition to these health sector issues, other factors beyond the sector have contributed to the lack of progress. Although the number of deaths as a result of malaria has fallen over time, it remains high, as do respiratory infections other than pneumonia. Although malaria affects all age groups, it is more common in those aged 5 years and below, where the incidence at 845.6 /1000 in 2013 was three times that in the age group of 5 years and older (MoH, 2014). HIV prevalence in adults, aged 15 to 49 years, is still high at 14.3%. An estimated 480,925 out of two million people living with HIV receive antiretrovirals in the public sector. A total of 97,664 mothers needed prevention of mother-to-child transmission of HIV in 2012 while the number of positive pregnant women in need of ART was 28,159 in 2012 (MoH, 2014).

1.3 Organisation of health system

The health sector in Zambia comprises the public, private-for-profit and private not-for-profit providers. Government-owned facilities are the main providers of health services in rural and urban areas. One of the main challenges in health service delivery is that some regions are geographically vast, making health service delivery costly.

The Ministry of Health is responsible for the overall co-ordination and management of the health sector. To facilitate efficient and effective co-ordination, sector co-ordination structures have been established at national, provincial, district and community levels. At national level, the MoH at headquarters level is responsible for overall co-ordination and management of the health sector. At provincial level, provincial health offices are responsible for co-ordinating health service delivery in their respective provinces, while district health offices (DHOs) co-ordinate health service delivery at district level. At the community level, neighbourhood health committees (NHCs) facilitate linkages between the communities and the health system. It is important to mention from the outset that the health system in Zambia has undergone several reforms, the 1992 health reforms being the most significant.

These reforms gave birth to the Central Board of Health (CBoH), which was an implementation structure, leaving the MoH as the policy-level structure. The CBoH was a semiautonomous entity with a mandate to implement government health policies, by purchasing health services from district health management teams (DHMTs), hospitals and other statutory bodies on behalf of government (Bossert et al., 2003).

Due to challenges in the interaction between the Ministry and the CBoH, the CBoH was abruptly abolished in 2006. In the authors' opinion, despite some challenges that it brought, some of the positive impacts it had on the organisation of the health system remain, such as the inclusion of decision-making with a strong participatory approach.

Currently, the public sector has national management units for specific health programmes, including: reproductive health; child health; national malaria control centre; national AIDS council; and the national tuberculosis and leprosy control programme. In addition to the formal sector organisational structure, the MoH has also established sector advisory groups, as forums for policy dialogue and co-ordination of health sector partners under the sector-wide approaches. Sector advisory groups are consultative forums comprising representatives from key stakeholders active in a particular sector, in this case, MoH. They are a product of the poverty reduction strategy paper (PSRP) working groups during the highly indebted poor country initiative under the World Bank and the IMF (HIPC initiative), which were later reconstituted as sector advisory groups and were involved in the formulation of the fifth National Development Plan (FNDP). Sector advisory groups now play a key role in implementing and monitoring sector programmes and projects.

The stakeholders in the sector advisory groups included government, co-operating partners, civil society organisations and representatives of the private sector. As advisory bodies, they review sector performance; discuss intrasectoral allocation of resources and related expenditures; make recommendations for the future focus of activities in the sector and on necessary policy reforms; ensure annual sector budgets presented to the Treasury reflect sector priorities; make recommendations on the intrasectoral allocation of resources as contained in the budget papers; and, where necessary, establish specialised technical sub-committees to work on specific areas of concern, among other duties.

Zambia's health service delivery system comprises promotive, preventive, curative and rehabilitative health service delivery structures, provided at different levels of care. These services are organised along a pyramid structure, with primary healthcare (PHC) services at community level, at the base, followed by first and second level hospitals at district and provincial levels, respectively, and third level (tertiary) services at national level. Community and district level structures provide PHC up to tertiary hospitals, which provide the highest level of specialised health services. These levels of care are linked by a referral system, intended to provide citizens with access to the levels of health services they need (MoH, 2015). A total of 1,540 health centres and 309 health posts refer patients to 81 first level hospitals. The first level hospitals refer patients to 24 second level hospitals and these second level hospitals refer patients to 6 third level hospitals (MoH, 2012b). *Table 1* overleaf presents the different levels of care and the associated EHBs in the Zambian health system.

The referral mechanism dictates a lower level facility that does not provide the needed service refers a patient to a higher level facility that offers the specific service. It presumes that an effective feedback mechanism exists between the various levels. The feedback mechanism assumes that health facilities offer appropriate services for their level. It is further assumed that referral of patients from lower level facilities to higher level facilities should result in improved quality of care for the patient (MoH, 2012a).

It is our opinion that the assumptions are fair in most instances, although there are many challenges. For example, for many patients higher level facilities may be used as the first point of contact due to lack of facilities. However, an established referral system exists, and basic equipment and ambulatory services are increasingly being provided. Where there are challenges, health workers also contribute. For example, it is not uncommon for health workers to use their personal mobile phones where communication equipment is absent.

Table 1: Content by level of care for the most recent EHB

Service level	EHB content for that level
Primary (community)	The community has six key areas of practice, namely: health and wellbeing; children, young people and families; acute care closer to home; long-term conditions; rehabilitation; and end-of-life care. Some key elements of community health service include: health promotion; the use of rapid diagnostic test for malaria, HIV, diabetes and kidney disease; growth monitoring and immunisation of children; screening of cancer, diabetes and hypertension; and hospice and home-based care.
Primary (health post)	The services provided at the health post include: some limited diagnostic capabilities as described in the appendices. Within this setting, the CHA is engaged in a range of promotive and preventive activities and a limited number of curative and rehabilitative activities. The curative activities include the treatment of uncomplicated malaria, acute diarrheal diseases, upper respiratory tract infections, among others, and the provision of first aid. The CHAs are responsible for follow-up and monitoring of adherence to treatment for chronic ailments such as cancer, diabetes, hypertension, TB and HIV. They are also expected to map out all the households in their locality to identify homes with people with diseases that need monitoring and assistance, like planning for deliveries, encouraging people to be screened, and ensuring immunisations are done on schedule.
Primary (health centre)	The primary healthcare services offered may include: antenatal, postnatal and neonatal care, family planning; routine expanded programme of immunisation (EPI); growth monitoring; management of childhood diseases; treatment of malaria and TB, including DOTS; ART and VCT; non-communicable diseases surveillance and screening; treatment of minor injuries, minor surgeries; and the dispensing of essential drugs.
First- level referral	The first-level healthcare services provide medical, surgical, obstetric and diagnostic services. The clinical services at level 1 should support health centre referrals. This level is also the entry point for curative and rehabilitative services provided at the secondary and tertiary levels of care. A number of high-catchment area Zonal health centres should be considered for upgrade to level 1 facilities.
Provincial/ regional referral hospital and services	General or level 2 hospitals are intended to provide services in internal medicine, general surgery, paediatrics, obstetrics and gynaecology, dental, psychiatry and intensive care. These hospitals also act as referral centres for first level institutions, including the provision of technical support to referring facilities.
Central hospital	Level 3 facilities, or central hospitals, are designed to provide services available at level 2 facilities and other specialised services (oral health, non-communicable diseases such as cancer, and advanced diagnostic and rehabilitative services etc.). There should be at least one level 3 hospital per province; this facility should be capable of providing and/or supporting pre-service training programme(s), including attachments for highly skilled health workers, and providing a research environment that address health concerns commonly affecting Zambians.
Tertiary hospital	Level 4 hospitals provide specialised healthcare services, training and research. Currently, there are four facilities offering specialised services: Cancer Diseases Hospital (CDH) for cancer, Chainama Hills Hospital (CHH) for psychiatry, Arthur Davidson Hospital (ADH) for children and University Teaching Hospital (UTH).

Source: Ministry of Health, 2006

2. Methods

The case study followed a standard protocol developed for the regional project by TARSC and IHI and with input from collaborating partners to allow for later regional comparisons. This research was carried out as part of ongoing EHB work within the Ministry of Health and therefore did not require a separate ethical approval. Nonetheless, the team obtained written permission from the Permanent Secretary of the Ministry of Health to do the study.

A document review of publicly available documents related to the EHB process in Zambia was carried out following the health systems conceptual framework (as in the protocol). To complement key gap areas, and to verify information obtained from our desk review, key informants were identified and interviewed. These included both serving and former officials in the health sector, experts from the co-operating partners (see *Table 2*).

Table 2. Categories of key informants interviewed in the case study

Ministry of Health headquarters	Co-operating partners	Others
<ul style="list-style-type: none"> • Public Health and Research, Ministry of Health • Clinical Care and Diagnostic Services • National Co-ordinator for Cancer • Health Planning 	<ul style="list-style-type: none"> • Development Co-operation in the Ministry of Health • European Union • Health Systems Specialist (co-operating partners) • World Health Organisation 	<ul style="list-style-type: none"> • Policy and Planning Ministry of Health • Central Board of Health Planning Specialist • Lecturer at the University of Zambia • University of Zambia –Senior Lecturer- Economics Department • Medical Association of Zambia

The process for interviewing key informants involved preparing structured and semi-structured interview guides. Consent was obtained prior to the interview. Eleven key informants were interviewed for their opinions on the process of developing the EHB package and level of consultations made with different stakeholders; the identification of priority EHB areas; of relevant resources; and policy Implications and perceived future considerations about EHB in Zambia.

The qualitative data collected through interviews and meetings were systematically recorded, analysed and presented based on key themes. Owing to the relatively small number of key informants and participants, analysis was done manually. This report presents a synthesis of information from the desk review and key informant interviews and also incorporates feedback from participants to the national consultative meeting where the report was further validated.

3. Historical development and content of the EHB

The fortunes of a good economy, which Zambia enjoyed at the time of independence in 1964, were short-lived. A fall in the country’s chief export prices and a rise in oil prices precipitated an economic contraction that was compounded by internal mismanagement. Since the provision of health services was largely contingent on continued resources from government, the poor economy meant that health conditions deteriorated. Infant and under-5 mortality rates rose, the percentage of population with access to safe water and sanitation declined, and a rise in malnutrition levels was noted (Saasa and Kamwanga, 1994). The justification for adopting an EHB in 1991 was thus directly connected to the decline in the economy. The health system, exclusively dependent on its own resources in previous years, now relied extensively on external financing. The decline in the economy also implied an increase in poverty levels and, as such, an ambition to ensure that public resources were optimised in a fair, equitable manner in order to maximise population health improvements.

To stop the downward spiral, the new government that came into power in 1991 embarked on measures to better manage primary healthcare. These health reforms were influenced by the spirit of the day: structural adjustment, which was being ‘sold’ to policy makers and by policy makers to health workers and their clients as an exercise in making healthcare more sustainable (World Bank, 1994; cf. Chabot et al., 1995).

3.1 Development of the basic health care package

This reform process marked the beginning of attempts to develop an EHB in the form of the basic healthcare package (BHCP). The reforms focused on rebuilding the national health system and services to address the major health problems affecting Zambians, including those living in remote and underserved areas. The development of the EHB started between 1993 and 1996. The Ministry of Health began a process to determine its major priorities for rebuilding the national health system. These services were termed the BHCP. Three key elements were included:

- a. those services that would have the greatest impact on the major health problems;
- b. services that were cost-effective in addressing the problems faced by many people; and
- c. services that could be delivered to give equal access to both rural and urban populations.

In 1996, the MoH prepared 'The essential basic package of healthcare for Zambia', containing the key elements identified above. At the time, the package represented a 'work in progress'. The process of developing the BHCP involved eight stages, defined below (MoH, 2000).

Complete definition of the main health problems: All diseases for which there were data from the MF447 and MF7 forms used at health centres and OPD departments in hospitals were listed. The morbidity and mortality figures for each disease were also listed. For some diseases, it was felt that institutionalised data from studies from other southern African countries (Mozambique and Zimbabwe) and data from studies made in Zambia (population-based information) were to be used for these diseases (World Bank, 1996).

Calculation of Disability Adjusted Life Years (DALYs) lost in Zambia: DALYs lost due to each disease or group of diseases, as identified in step 1, were calculated, and a list of the total number of DALYs lost due to each disease was identified.

Complete listing and selection of interventions: After an expert assessment and brainstorming session, possible interventions for each disease identified in step 1 were listed. These were then prioritised according to believed efficacy and policy prioritisations. Interventions that are not specifically disease oriented were also identified, such as family planning. The appropriate level of care for each intervention was defined. Decisions on what skills, equipment etc. required for delivering the package at each level was decided on through consensus within the working groups.

Necessary inputs for every intervention identified: Inputs in terms of skills, material, equipment and drugs were identified in group work for all interventions identified in step 3. Efficacy, quality and demand were also identified, and decided on. Representatives from key inputs, such as drugs, human resources and equipment, scrutinised the accuracy and feasibility of the identified inputs for each intervention.

Cost estimates for all inputs, calculation of cost-effectiveness and cost per capita. The cost per capita and the cost-effectiveness calculations were based on inputs that were costed according to standards based on Zambian and, in some cases, international prices. The report estimated the total costs of BHCP for all referral levels in Zambia to be US\$22.70 [hereafter \$ refers to US dollar] on a per capita cost basis using input prices, wages and population figures from 2003. Of course, the accuracy of these costs calculations hinged critically on the validity of the assumptions and accuracy of the input data used. It was, therefore, valuable to compare the costs calculations with some other similar costs calculations made by other international reports.

One such comparison was with the estimate in the report by the WHO Commission for Macroeconomics on Health (WHO, 2003). In that report, the per capita costs of an essential intervention package for health for a low-income country like Zambia were estimated at \$34. This was much higher than the costs calculations indicated in this report. The main reason for this difference was that the WHO Commission for Macroeconomics on Health report included the costs of HIV/AIDS interventions whereas the Zambia costings did not.

Capital equipment was also not calculated when calculating the cost-effectiveness of an intervention. The capital cost (% use of equipment in one intervention at a lower level is believed to be low, whereas it has a greater impact on the cost-effectiveness of interventions that take place at higher levels, as these usually require more sophisticated and expensive equipment.

Ranking of interventions, by cost-effectiveness. All interventions were then ranked according to their individual cost-effectiveness.

Identification of critical interventions: As noted above, the essential package should not be based purely on cost-effectiveness. Other considerations were therefore taken into account when defining the essential package of care for Zambia. Three elements were included: those services that would have the greatest impact on major health problems; services that were cost effective in addressing the problems faced by many people; and services that could be delivered to give equal access to both rural and urban populations. Special consideration was made for interventions that have public health benefit and that have long-term effect on survival and quality of life, such as care for patients with AIDS, nutrition, family planning and immunisation.

Definition of an essential package: Some interventions were excluded from the package such as larviciding for malaria control due to low cost-effectiveness. As stated in 7, in the end the package included malaria, ARI, AIDS, diarrhea, TB, leprosy, malnutrition, anemia, heart conditions, measles and immunisation, injuries and poisoning, hypertension, eye diseases, bilharzia, ear diseases, family planning, worms, diabetes mellitus and STI's.

3.2 Further development of the basic health care package

Later in 1998, the Central Board of Health (CBoH) and the Ministry of Health developed the second- and third-level hospital package (MoH, 1999). Development of hospital package levels 2 and 3 followed the process below:

1. Development of the vision for the services, reflecting the need to complement primary healthcare as part of the National Health Reform (completed 1999).
2. Develop from the vision the list of services to be provided at agreed levels (due to be completed mid-2000).
3. Outline methods required to develop interventions, cost scenarios, package implications in terms of human resource, infrastructure, equipment, supplies and funding.
4. Manage linkage of package services to the financial management systems and hospital information systems.

By 2000, the CBoH and the Ministry of Health had developed Zambia's earliest form of a formal EHB titled the 'Basic Health Care Package from community to 3rd level' (Ministry of Health, 2000). With the support of the World Health Organisation (WHO) and the Health Services and Systems Program, visual presentations of the full package in different matrix forms (matrices) were developed in 2000.

In 2001 the Ministry of Health began costing the first-level basic healthcare package in Zambia. Subsequent work on this package took place in 2003 and 2004, which involved the amalgamation of all reports up to that stage. This work also took into consideration that critical aspects of earlier reports had become outdated because the prices, wage rates, population, and disease burden were based on statistics from the late 1990's (CBoH, 2004).

The 2003 BHCP for first, second and third levels of referral in Zambia is the only package that has been costed (Ministry of Health, 2003). The total costs of providing the 2003 BHCP was \$244 million or \$22.70 per capita. At the time, the estimate did not vary widely from the estimate of \$34 per capita for developing countries obtained by the Commission for Macroeconomics and Health, despite the additional inclusion of cost for providing HIV/AIDS interventions (CBoH et al., 2004). The cost of providing highly active antiretroviral therapy to all eligible Zambians had been estimated at

\$160 million or \$15 per capita (Kombe and Smith, 2003). The total cost of the BHCP with HIV/AIDS interventions thus amounted to \$37.70 per capita.

The package contained both curative and preventive interventions. Preventive interventions (programmes), at first level included five different types of services: child health and immunisation; maternal health; communicable diseases; epidemic preparedness; and information education and communication (IEC). These different types of interventions and services, referred to as 'programmes', covered a wide range of different interventions: preventive, promotional, and other types of interventions. The activities are shown in the *Table 3* below.

Table 3: Activities for the five interventions for BHCP

Intervention/ programme	Activities
Child health and immunisation	Immunisation: BCG, DPT, OPV, TT; vitamin-A supplementation; Integrated Management of Childhood Illnesses (IMCI); ARI; growth monitoring; and diarrhoea
Maternal health	Family planning; antenatal; safe motherhood; postnatal; and vaccinations-TT, DPT
Communicable diseases	Malaria, cholera, dysentery, diarrhoea, STI/HIV/AIDS, TB, ARI, and meningitis. Among the communicable diseases listed here, only malaria and STI/HIV/AIDS were a mix of IEC and actual interventions such as bed-nets and condoms
Epidemic preparedness	The purpose of these activities was to facilitate a fast response to potential epidemic development within the district. The activities included under this programme were: planning, monitoring, evaluation and distribution of epidemic control supplies such as drugs, disinfectants, syringes, vaccines etc.
Information education and communication (IEC)	This programme covered activities such as sensitisation and community dramas to inform people on how to improve their health and living conditions. All out-reach activities were to be conducted by the health centres, which coincided with the community-based care (home-based care). Each health centre had three different out-reach centres to visit every month – usually community posts and schools with every out-reach visit lasting a full day.

Source: CBoH, 2004

These preventive and promotional interventions were to take place through routine outreach activities, awareness campaigns and vertical programmes. The health centres in conjunction with health posts and the community were to conduct the vertical programmes in community drama and sensitisation meetings.

3.3 Aligning the package to national health and development plans

In 2009, with support from the WHO, the MoH engaged a consultant - a public health planner seconded from the Scottish Government - to review the 2000 BHCP and advise it on the way forward with regards to finalising and implementing it. The MoH then determined the priority health services from the twelve areas of focus in the National Health Strategic Plan (NHSP 2006) that would address the most immediate needs of the population until 2010. These priorities included a focus on high-impact interventions targeting the major health problems; overall high quality of healthcare service delivery, to be standardised and clearly articulated; integrated healthcare system; attention to equitable, accessible, cost-effective and evidence-based service delivery models; and an emphasis on accountability of all members of the health system to all patients and other stakeholders.

The Ministry appointed a national technical working group on the healthcare package to realign the healthcare services with the sixth National Development Plan and Vision 2030. The national working group developed the hospital elements and combined them with the BHCP to create the

National Health Care Package (NHCP). The concept of the NHCP is to have a minimum set of guaranteed health services as opposed to a situation where services from first to the tertiary level are not defined or graduated. The package aimed to support better quality and quality service delivery, and a minimum set of standards were set (MoH 2012a).

While it can be argued that the current NHCP is a combination of at least four versions of basic and essential healthcare packages, there is no difference conceptually or in their application between BHCP and EHCP. Rather, it was a change of name in 1997, to give focus and emphasis to the type of services provided. The debate continues however, and the MoH, in consultation with other stakeholders, is yet to conclude the final form the EHCP will take. What seems to be of current policy interest is the debate on how the EHB relates to the benefit package of the social health insurance scheme. At least it is agreed that the overall objective of having this package is to have a set of standards that will be the cornerstone of quality healthcare service delivery in Zambia.

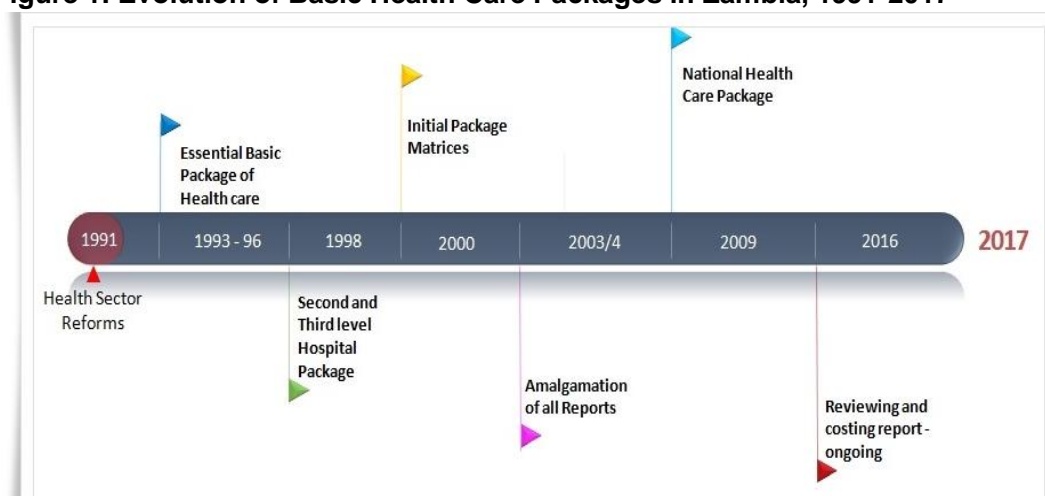
A collaborative process was established so that all stakeholders would have an opportunity to contribute their ideas and experience to the development of the NHCP. The stakeholders included the Ministry of Health, non-governmental organisations and co-operating partners in the health sector. The WHO building blocks outline the essential functions of a health system, and were therefore used as a framework for planning and priority setting in the NHCP (WHO, 2007). The World Health Organisation proposed a framework describing health systems in terms of six core components or building blocks:

- i. Service delivery
- ii. Health workforce
- iii. Health information systems
- iv. Access to essential medicines
- v. Financing
- vi. Leadership/governance

However, this effort still fell short as the process did not end up with the costing of the NHCP. In June 2016, the MoH convened a team of experts from the University of Zambia, the MoH and others to review existing work and work towards costing the BHCP/NHCP.

Table 4 and Figure 1 provide a summary of these developments of the EHBs over time, showing the different packages and their features. Figure 1 shows the timeline of the EHB or BHCP for Zambia.

Figure 1: Evolution of Basic Health Care Packages in Zambia, 1991-2017



Source: Authors

Table 4: Content of the Basic Health Care Package: 1999-2012

Year	1999-2000	2001	2003	2004	2006	2009	2012
Level of care		Level One	Level Two	All	All	All	All
Disease burden: % Share of contribution by each disease	All	No	Yes		Yes	Yes	Yes
Disease/condition by level: Disease managed at each level	Yes	No	Information not available	Yes	Yes	Yes	Yes
Use of DALYs for prioritisation	Yes	No	Na	Na	Yes	No	No
Interventions by disease or condition	Yes	No	Na	Na	Yes	Yes	Yes
Costing by input area	No	Costing done by level, area and disease	Costs by condition for treatment, lab, commodities and labour. Also by province and capital costs	Costs by input, province, capital, department district	Per capita costs only	No	No
HR requirements: by level and province	No	Yes	Yes	By province	No	No	No
Treatment protocols	No	Yes	Yes	Yes	No	No	No
Number of beds	No	No	Na	Yes	No	No	No
Admissions	No	No	Na	?	No	No	No
Referral rates from one level to another	No	No	Na	Yes	No	Yes	Yes

Source: Compiled by the authors from all BHCPs between 1999 - 2012

As noted above, the process of developing an EHB in Zambia was highly consultative. The weakness has been in failing to follow through with finishing its design and fully costing it.

4. Motivations for each phase

There were different motivations for developing the EHB at each stage, as summarised in *Table 5*, overleaf. In the build-up to the reforms, resource constraints were severe and this affected the quality and extent of healthcare services at all levels. The early 1990s and beyond saw the introduction of cost sharing for health services as stated in the policy framework paper, and later in the national health policies and strategies. The primary motivation for this at the time was to mobilise additional resources for the sector. However, the manner in which cost-sharing mechanisms developed followed neither a structured nor a linear progression. This clearly affected the process of developing EHB.

In 1993, Zambia introduced user fees for health care in public facilities at all levels as part of the macroeconomic structural adjustment programmes in the 1990s (Masiye et.al. 2008). Available data suggest that the introduction of cost-sharing measures reduced access to healthcare service, with a decline in health service utilisation and a high proportion of individuals not seeking health services when ill (Seshamani, 2003). These problems may also be a function of other factors such as declining household-income levels and declining quality of services. Vulnerable groups such as children under five and the elderly were exempted as a matter of policy from paying user fees in 1996. There were some challenges in the implementation of this exemption policy, however, given that some in the higher income groups benefited from exemptions.

As a result of poor indicators in areas such as life expectancy and mortality, the government abolished the user fee policy in government health facilities in rural areas in January 2006. This policy was extended to peri-urban and urban areas in 2007 and 2012, respectively. Currently, primary health services are provided free of cost in all public health facilities and first-level hospitals. Increased government funding has compensated the health services for lost revenue.

Table 5: Motivations in developing the EHB

PHASE	MOTIVATION
1991 Health Sector Reforms	- Addressing major health problems affecting Zambians
1993 - 96 Essential Basic Package of Health Care	- Definition of major health problems - Complete listing and selection of interventions - Calculation of cost-effectiveness and cost per capita - Ranking of interventions - Identification of critical interventions - Definition of essential health package
1998 Second- and third-level hospital package	- Development of the vision for the services, reflecting the need to complement primary healthcare as part of the National Health Reform (completed 1999) - Develop from the vision the list of services to be provided at agreed levels (completed mid-2000) - Outline methods required to develop interventions, cost scenarios, package implications in terms of human resource, infrastructure, equipment, supplies and funding (ongoing) - Manage linkage of package services to the financial management systems and hospital information systems (ongoing)
2000 Initial matrices	- To review current written documentation of the Essential Health Benefit (EHB) (primary and secondary/tertiary levels) for internal consistency - Reporting to outline findings and where necessary, make recommendations for further inclusions/exclusions or further debate if areas are unresolved by stakeholders
2003/4 Amalgamation of all reports	- Amalgamation of all reports - Costing of Essential Health Benefit
2009 National Healthcare Package	- Realigning healthcare services with the Sixth National Development Plan and the Vision 2030 - Developing the hospital elements and combining them with the EHB to create the National Healthcare Package
2016 Essential Health Benefit	- Validate and cost the Health Benefit Package - To revisit priority diseases and conditions - To revise the EHB - To cost the services that are currently provided at each level of facility - To compare the total healthcare costs with the total health budget

Source: Author's compilation from: MoH (1999; 2000; 2003a; 2003b; 2012a; 2016); Chita and Bossert (2003)

Key informants have also contributed to the understanding of the motivations for an EHB. In their view the EHB was primarily concerned with purchasing and providing healthcare for individuals. They felt that an EHB should also be linked to stewardship and financing, to encourage the

commitment of resources to healthcare, through prioritising and outlining upfront what the available funding should be spent on. In practice, the EHB was seen to act as a tool for priority setting linked to key public health priorities and interventions to address the most common causes of mortality and morbidity. It outlines the interventions, equipment, human resources, drugs and other inputs to be provided at each level of care. While in some countries, interventions in the EHB are supposed to be provided free of charge, in Zambia the EHB was used more as a tool for priority setting.

5. Stakeholder understanding of the EHB

The key informants had varying understandings of what the EHB is. Some see it as a list of diagnoses and services grouped on the basis of costs to make clinical and planning sense. For others, this is a set of health services that have been categorised and perceived as important that should be set in law or policy or as inputs for an insurance programme, where it exists. Some stakeholders, including those in the health sector, were not familiar with the EHB, but were able to contextualise the concept. They understood it as the minimum standard of healthcare provision and that it represents a fundamental health systems and public health delivery and financing model for health services. They understand that it is designed to eliminate unnecessary and unwanted conditions and diseases, without discrimination, and to guarantee access to all the population at a cost the public health system can afford.

Key informants perceive the EHB as a process for prioritising services, for defining clinical practice; to establish resource allocation principles and to regulate and guide investment decisions in a rational, coherent way. It is thus understood to mean a package or set of cost-effective and affordable interventions and strategies aimed at addressing disease burdens and health conditions in a given community. It is seen to spell out the services that can be provided at each level of care and the associated costs. Key informants see it as including healthcare benefits for second-, third- and fourth-level healthcare services, in contrast with the BHCP that encompasses primary healthcare services, including the district hospital, health centre, health post and community healthcare services.

6. The current design of the EHB

6.1 Content and policy purpose

The cost of the basic package at district level consists of the following four major cost components, i.e., cost of curative care, preventive care, labour, and administration of the services and overheads for programme activities (MoH, 2001). For each level of care, costs are calculated for human resources, medical supplies, non-medical supplies and capital costs (CBoH, 2004).

The costing of EHB began with the first two cost components (preventive and curative). Medical experts within the Ministry of Health working together with other institutions such as the University of Zambia developed treatment protocols for each disease or health condition in the package for children under-5 years of age and others above 5 years. They estimated the amount of staff time, medicines and tests used for each type of service at various health service levels. These protocols were entered into Excel spreadsheets with unit costs for each item. This enabled future changes in medical guidelines and/or unit costs. Subsequently, the two protocol Excel files of disease burden data, measured as the number of outpatient visits (OPD) and number of admissions, were extracted from Health Management Information System. Unfortunately, this data file did not split the number of OPD cases and the number of admissions between health centres and district hospitals. It was assumed, however, that all district hospital OPD cases were given first-line treatment at the health centres they were referred from, and that a fraction of the OPD cases that were seen at the health centres were referred to the district hospitals to receive second-line treatment. Of the fraction of OPD cases referred, the cases were disaggregated by disease to determine the efficacy of the first-line treatment (MoH, 2001).

The number of admissions between health centres and district hospitals were split. National statistics showed that, on average, 50% of all admissions were to second and third referral-level hospitals, 30% to health centres and 20% for district hospitals. For districts that do not have a district hospital, the costing team adjusted the figures to correctly account for the patients admitted to district hospitals. Following these assumptions, the costing team estimated the total cost of the EHB. Overhead costs, costs of running programme activities and capital costs were calculated in four separate files linked to these initial costs (MoH, 2001).

These methods used in the costing are best understood in the context of the structure of the referral system in Zambia, shown in *Section 1.3*. The referral system starts with health centres who refer to district hospitals; cases that cannot be treated at this level are referred to secondary level/general hospitals, and from there to third-level or tertiary or specialist hospitals. There are also practical issues to consider, such as the need to keep updating the EHB to improve it and provide lessons for future work. Key stakeholders and informants felt the EHCP should be updated annually. While the development and updating of the EHCP at national level was felt to not need more than 6 months to implement, carrying out cost accounting procedures in all 2,500 health facilities was perceived to take many years.

6.2 Methods and process used for design and challenges

This section outlines methods to be used to design the EHB as illustrated in the key informant interviews, which also address its costing.

Methods used to identify resources, capital and recurrent costs: A number of health facilities that encompass different levels of healthcare and geographic distribution (rural/urban split) are purposefully sampled, taking into account the spectrum of services that should be provided at each service level. In selecting these facilities, the results of the Service Availability and Readiness Assessment (SARA) and performance assessment are gathered. Facilities are selected that provide the full spectrum of services decided for each level.

Roles and facilitators in the design and costing of BHCP: In general, the key stakeholders involved in developing and implementing the BHCP in Zambia include: different departments of MoH, including provincial and district health offices and key statutory boards, hospitals (tertiary and general), PMOs, DMOs; other line ministries – defense, home affairs, community, finance, planning, local government; private sector providers; academia – research, public health, medicine, economics; donor community; community representation and consultation at some point; service provider; financing agents; beneficiaries; Ministry of Finance; Ministry of Planning and Development; co-operating partners; and Churches Health Association of Zambia and other non-state actors who report to various structures within the system and structures for the sector-wide approaches. The stakeholders involved in the design and implementation of the BHCP provide technical and secretarial support, co-ordinating the various working groups involved in the process. This consultative process is useful in that it makes the selection of interventions and contents of the benefit package transparent and consistent and forms the basis for making it more feasible to implement, and aligns it to the objectives of the health system (Glassman et al., 2017).

Some of the working groups (WGs) involved include the first, second and third level WG, the costing WG, the infrastructure and the pharmaceutical WG, and the human resources for health WG. The working groups translate the clinical and financial component of BHCP into technical and financing guidelines that form the basis of the health strategic plan and annual work plans. In addition, they define an affordable set of services, with a demarcation between publicly funded services and those funded alternatively, either by a combination of out-of-pocket and other sources. WGs provide a continuing review of the resources, clinical practices, cost-effectiveness evidence and the selection of the procedures/ interventions/ programmes and clinical practices, such as the essential drugs list, national formulary, investment plans and clinical guidelines.

Various factors facilitate this design and costing process, including the government through the Ministry of Health providing stewardship and co-ordination of the overall process and co-operating partners (external funders and international agencies) participating in the designing and costing as members of the technical working group or providing technical expertise to the process.

Key informants interviewed in the study indicated that it may be necessary to set up a national committee to be responsible for defining, costing and annually updating the national EHB, bringing in the expertise from the various institutions in the health sector. The annual update could be included as part of the budget process. The MoH should develop guidelines for cost accounting at each health facility and provide technical assistance for facility-based accounting of the diagnoses and services defined in the EHB. Key informants from the health system raised concerns, however, that a consultative EHB process is subjective and that much of the process, issues faced and experiences of practice remain undocumented. They indicate that there has always been consensus that the package would be communicated to communities and that this consultative part of the process was always deemed to be necessary to ensure that the selected priorities reflected and were acceptable to the community preferences and priorities.

Methods and processes used to identify, prioritise and consult: The initial phase in developing the BHCP begins by prioritising the diseases and conditions that need to be included. Consulting with every level of service delivery and all key institutions helps to define what methodology should be adopted. Subsequently, the health services and interventions that will target those prioritised diseases and conditions must be determined for each level of care.

To better prioritise and cost the EHB, key informants for this research advised that the MoH should consult communities and not just concentrate on their provincial and district level structures. They recommended consulting and involving relevant stakeholders, such as ministries responsible for finance, community services, local government, defense, the private sector and academia, the church and co-operating partners. A deliberate and systematic stakeholder consultative process was felt to build effectively on past efforts.

Costing and prioritising: In the next phase, the costs to provide those services are estimated. This is built on the collection of primary and secondary data from facilities on what is currently provided at each level of health facility. The services are then costed from a service provider's perspective to estimate the costs of providing the defined services at each facility level. The last phase compares the total cost required to implement the BHCP with the total national healthcare budget. A gap analysis is then conducted to investigate at which level of the healthcare budget each service package can be implemented. This information would be critical in creating an avenue to negotiate for the allocation of additional funds from the national budget to the health sector.

6.3 Costing: methods, costing findings and issues/challenges

The Ministry of Health, in conjunction with the Department of Economics of the University of Zambia and the Swedish Institute of Health Economics, costed the first BHCP using the cost of human resources, medical supplies, non-medical supplies and capital costs (CBoH, 2004). These costings were only meant for the public sector, including private not-for-profit services. Detailed and specific costing methods were used for the first, second and third levels and referral services. This review paper provides an overview of the methods and more detail can be found in sources cited. At each referral level, the costs of these medical resource requirements were estimated in two steps. First, the marginal cost of treating one patient with a specific disease according to the protocol of treatment was estimated. The marginal cost was multiplied with the estimated total number of cases that each level of care could be expected to treat in a year, according to the referral flow indicated earlier (CBoH, 2004). To calculate the costs (C) of preventive activities of programmes at the district's level, the following formula was used, where 'r' represents resource use and 'p' its price and POP targeted = the number of people targeted for preventive and/or promotional intervention.

$$C = \Sigma(r \times p \times POP \text{ targeted})$$

The three variables: r, p and POP targeted varied for the different programme activities. To get the total cost of all programme activities in district C, the costs for each programme activity were summed up (MOH, 2004). For all referral levels, cost calculations included medical supply requirements i.e., drugs, laboratory tests, diagnostic procedures and medical/surgical materials. Also included were non-medical resources for general overheads, and specifically for first level costs, this included transport and related supplies. Overhead costs were split between district health offices, district hospital and health centres and included materials not specified in the protocol, such as for maintenance of equipment and structures, office material, transportation costs, food and utility bill charges, such as electricity, water and telephones. The non-medical resources and general overheads for second and third referral calculations were based on projections on the number of bed-days that were produced at these referral levels, an average cost calculated for general overheads per bed-day. Budget cost data of non-medical supplies were used to calculate an average cost per bed-day.

Medical equipment was another important consideration. To allocate the equipment, the number of medical doctors at each district hospital was multiplied by the equipment value per medical doctor. The buildings' values were captured from the infrastructure unit within the Ministry of Health while the capital cost was defined in terms of the annual depreciation value of equipment and buildings, with the value being calculated using a simple linear depreciation model. Maintenance costs were captured from MoH estimates of district budgets and included overhead costs. No data were available on capital value of buildings and equipment; however, to allow for the estimation of the depreciation costs for second and third referral-level hospitals, an alternative approach was used to estimate the costs of capital, using the reported fraction of total costs for recurrent costs and capital costs. According to MoH budget data, general hospitals reported that capital costs on average accounted for 7.2% of total costs, with the balance of 92.8 % recurrent costs. There were, of course, large variations among the hospitals, ranging from 2% to 22% in capital costs. However, the costs of the BHCP for district hospitals showed that capital costs accounted for almost one-third of total costs, an estimate based on actual depreciation cost for building and equipment (CBoH, 2004).

The human resources requirements were estimated based on the levels of healthcare derived from set standards at the facilities level. A different approach for district hospitals and health centres used the average number of minutes a health provider would devote to a patient daily. This was weighted by the out/inpatient fractions, using health management information systems data providing a ratio of 45% to 55%, respectively, for these fractions for district hospitals and health centres. These were annualised (CBoH, 2004). At health centres, the number of clinical officers was estimated by a formula, depending on the average number of minutes a clinical officer would devote to a patient. This was weighted by the out/inpatient fractions using Health Management Information Systems data, using a ratio of 45% to 55%, respectively, with inpatients given 5 more minutes due to the assumption that they require more time than the outpatients, and these were annualised. For doctors, an average length of hospital stay of 3 days was used, and an average admittance rate at district hospital level was calculated as 2.11%. This corresponded to the fraction of admittances over OPD cases, using a prototype staffing level of a health facility and extrapolated to the rest of the facilities in the country, applying the same yearly working hours at health centre level.

The model used for staffing standards estimates at a district hospital level included one district director of health, two managers (administrator and planning and development, respectively), one health monitoring and information system officer, two accountants, one basic health programme co-ordinator, one environmental health co-ordinator and one clinical services co-ordinator. To estimate the human resource requirements of the second level hospital, it was assumed that this level must have departments with specialist-trained MDs: paediatrics, medicine, gynaecology, surgery and psychiatry. The human resource requirements for each of these different departments in both second and third level facilities were obtained using a specialised methodology, which we do not detail here.

The estimated costs were then obtained for each level of care, as below:

First referral level: The total cost of the BHCP for first level of care was estimated to be \$189,117 million, which on a per capita basis is equal to \$17.59 (MoH, 2001). The BHCP cost package by facility at first referral level assumed a 15% increase in costs between 2001 and 2003, of which 5% is the increase in volume and 10% is the increase in price. The national average per capita cost of intervention at the health centres and district hospitals estimated were thus \$7.39 and \$7.45 per capita, respectively. The average costs at national level to run the district health office and the various preventive programmes were estimated at \$0.14 per capita and \$2.61 per capita, respectively. The disease burden has an impact on this cost, with cost increases as the disease burden increases, although economies of scale can mean that OPD costs per capita decrease as the number of OPD cases increase.

Second referral level: The total BHCP costs for the second referral level were estimated to be \$27.6 million or \$2.57 per capita. Dividing the total costs by the number of admissions and the number of bed-days gives the costs per admission and per bed-day as \$314 and \$29, respectively (MoH, 2003a). The per capita costs varied among the provinces, although less so than for the districts. Differences in disease burden and access to healthcare services at provincial level were likely causes for the variation in per capita costs (MoH, 2003). For medical supplies, total costs were estimated for the different departments that were specified for second referral-level hospital, based on the marginal cost of treating one case according to the treatment protocol and the total number of cases expected to be referred to the second level hospital. The sum of cost of labour, of non-medical and medical supplies gave an estimate of total recurrent costs. This was used to estimate costs of capital by assuming that capital costs would account for one-third of the total costs. The total costs for labour, non-medical supplies, medical supplies and capital costs were estimated as \$8.26 million, \$3.79 million, \$6.47 million and \$9.13 million, respectively. The labour costs were estimated based on the labour requirements for each level of care and included staff allowances. The costs of non-medical supplies were based on the number of bed-days at second referral level, multiplied by an estimate of the unit costs per bed-day, obtained from annual budget costs. The median costs for non-medical supplies at the general hospitals were estimated to be \$3.61 per capita, with this figure updated to \$3.90 per capita to take on board the assumption of a 15% increase in costs to reflect an increase in volume and in prices.

Third referral-level annual costs for human resources: The costs of human resources were estimated as the number of staff multiplied by the average wage for the different categories of staff. The result was reported with the assessment of the total costs of allowances for the employees. The sum of basic wage and allowances constituted personal emoluments. The BHCP for third level hospitals was estimated to be \$1.47 per capita (CBoH, 2004). The cost of medical supplies at this level was estimated in two steps. First, the cost of treating one patient with a specific disease was estimated using the treatment protocol. This cost was subsequently multiplied with the estimated total cases that the third level hospital could be expected to treat in a year, according to the referral flow. The total costs of medical supplies for third referral-level hospitals were estimated at \$8.42 million, out of which \$3.08 million was for medicines, \$0.95 million for laboratory tests, \$3.92 million for diagnostic procedures and \$0.46 million for other medical materials (CBoH, 2004). These estimates were based on the number of patient bed-days for third referral level and the average cost per patient bed-day obtained from the budget for non-medical supplies, which was \$4.44. This cost was updated to \$4.90 to factor in a 15% increase in costs to reflect an increase in volume and in prices, yielding an average of \$4.66 per bed-day.

The total costs are outlined in *Table 6* overleaf. The estimated total costs of BHCP for all referral levels in Zambia was found to be \$22.70 per capita, using input prices, wages and population figures for 2003. Of these total costs, \$17.59 (77.5%) is estimated to be spent at first referral level, \$2.57 (11.3%) at second referral level and \$2.54 (11.2%) at third referral level (CBoH, 2004). As noted in *Table 6*, the costs reduce as cases are referred from first to second and from second to

third levels of care due to the reduced marginal cost of providing the services, given that they are referred and given the numbers that reach the higher level of care.

Table 6. Estimated US\$ cost per capita for EHBs

Service level	Public sector		Private not-for-profit sector		Private for-profit-sector	
	US\$/capita estimate	Year	US\$/capita estimate	Year	US\$ /capita estimate	Year
Primary (community and first level/clinic)	\$7,39	2001	NA		NA	
District hospital services	\$7,45	2001	NA		NA	
Provincial/regional referral hospital and services	\$2.57	2003	NA		NA	
Central hospital	\$1,47	2004	NA		NA	

All \$ figures in USA dollars based on conversion using exchange rate at year of costing; N/A=not available.

Source: MoH, 2004

The accuracy of the cost calculation hinges on the validity of the assumptions and on the accuracy of the input data used. An external validation of the costs calculated in Zambia compared the findings with that of another study conducted by the World Health Organisation (WHO). WHO estimated the per capita costs of an EHB for a low-income country like Zambia to be \$34 (WHO, 2003). This estimate was substantially higher than the costs calculated in the 2004 report of the Zambian Essential Health Package of \$22.70 per capita. The main reason for this difference is that the WHO estimate included the costs of providing services for HIV/AIDS, whereas the costs calculated in the 2004 Zambia estimate did not. These costs were estimated for Zambia to be about \$15 per capita (CBoH, 2004).

7. Dissemination and use of the EHB

7.1 Dissemination

The EHB aims to provide a set of standards to inform healthcare service delivery at all levels. The NHCP in Zambia thus takes into consideration the key elements of Zambia's national health priorities. These priorities are service delivery, human resources for health, essential medicines and other commodities, infrastructure and information and communication technologies, monitoring and evaluation, healthcare financing and leadership and governance (MoH, 2012a). Only by adhering to these national health priorities can the set standards be met, and this depends on dissemination of the EHB and understanding of the motivations for its use.

The motivations for developing and using the BHCP in Zambia were to:

1. Strengthen management of public health;
2. Provide evidence for optimal resource allocation, for rational clinical practices and for development of a clear process for setting priorities, equity goals and ensuring universal affordability and access;
3. Determine a set of essential services to be financed and guaranteed under the proposed social health insurance;
4. Standardise and match the health services and staff at each level of care and what each level can do with its levels of staff, equipment, medical supplies and medicines so that the cost of provision of such services can be standardised and levels of service delivery assigned for both private and public institutions;
5. Optimise healthcare coverage based on the national disease burden, cost optimisation, rational utilisation of resources, equity and justice;
6. Provide, at the national level, an evidence-based tool to support the decision of which services, diagnoses and new treatment methods should be provided.

7. Add to the standard package the resources needed to sustain the prioritised services and make clear the human/health status consequences of not doing so;
8. Support purchasing, provision, stewardship, financing, priority setting and resource allocation;
9. Provide standard methods for setting service entitlements through cost-effectiveness analysis of potential and existing interventions, or burden of disease analysis;
10. Provide a tool to monitor whether health services/treatment of diseases as defined in the EHB are conducted in an efficient way by the individual health institution, such as whether the cost at the institution is higher or lower than the average national cost for the same service/treatment
11. Spell out the services provided by government at each level of the health system for government planning and financing of services and to give communities and service users information on what services and funds to expect at each level of care, while noting that provider and human resource limitations mean that higher levels of care may be the nearest facility and first point of call for many patients.

The mode of dissemination of the EHB and its role have varied depending on the type of stakeholder in the system. *Table 7* shows the relevant evidence that is disseminated for the EHB and the mode of dissemination by stakeholder, as past practice and for future dissemination. Most of the stakeholders in *Table 7* are partners in the sector or those closely associated with it. The majority of the population are hardly aware of the intricacies of EHB's, and are mostly concerned with whether they can get to see a doctor or a nurse, regardless of the level of care.

Table 7: Dissemination of EHB

Stakeholder	Information disseminated	Mode of dissemination
Policy makers	Summary results and interpretation for rate setting and provider payment reform. The rationale was to collaborate on the acceptable level of out-of-pocket expenditure (OOP) for services and type of payment e.g., capitation or DRG	Consultative meetings (once a month)
Purchasers (insurers, employers, MoH)	Summary results and discussion of potential implications for their purchasing practices	Meetings (bi-annual)
Analysts and technical groups (peer reviewers)	Detailed costing, results and limitations.	Meetings
Provider associations	Summary results with average facility results disaggregated by key factors	Reports (as and when available)
Providers	Facility-specific results benchmarked against peer facilities, highlighting cost drivers and potential areas for improving management operations and performance	Reports/ workshops (once every two years)
Civil society, members and patients	Summary results with discussion of implications for their benefits and out-of-pocket payments	Reports/meetings (as and when available based on relevance)

Source: MoH, 2002; 2006; 2010

7.2 Implementation and issues

The NHCP is the latest version of EHB, although as noted earlier, further work is underway because the process was said not to have been consultative enough. Some key informants felt that as no other country uses the term NHCP for its EHB, there may be need to consult further on the appropriate name for it. This section discusses its implementation in the context of Zambia's national health strategic plan. This plan is based on the Ministry of Health mission statement to

provide cost effective, quality of care as close to the family as possible (MoH, 2011). The NHCP presumes a holistic healthcare system with most healthcare provided by community health assistants (CHA), health posts, health centres and first level hospitals. The referral system that exists within the health sector is intended to provide better healthcare support for the patient and foster strong communication amongst healthcare workers at different levels (MoH, 2012a).

Referral pathways: The NHCP identifies disease conditions and defines the bi-directional referral path for each condition. The existing referral mechanism dictates that a patient is referred from a lower level facility that lacks a needed service to a higher level facility offering that specific service. It presumes that an effective feedback mechanism exists between the various levels. The NHCP also presumes that health facilities offer services appropriate for their level. For example, a simple malaria preventative activity could be at community level, whereas the more complicated malaria is the higher up it goes in the referral system. Referral of patients from a lower level facility to a higher level facility should result in improved quality of care for the patient. The treatment and procedural guidelines laid out in the NHCP intend to: strengthen the referral system and help clinicians to better decide when it is appropriate to use this referral mechanism; reduce the number of patients referred to higher levels, as clinicians at each level will be better able to take responsibility for the tasks that should fall to them and their facility; improve the quality of care that a referred patient receives; and improve competencies of the referring healthcare worker, as clinician confidence levels will increase as they treat greater numbers of patients for each condition and receive feedback from higher levels regarding the cases they referred. This widens the range of healthcare services that are provided as close to the family as possible.

The following are various levels of care through which the EHB is defined.

- a. *Community-level referral pathways:* At the community level, the trained community health worker - now called CHAs - should be capable of identifying patients with conditions that require medical attention. At this level, the CHA has the authority to refer the patient to a health facility with a trained clinician, including a health post or a health centre or, if the patient's condition cannot be treated at either of these levels, directly to a level 1 health facility. When possible, confirmation of diagnosis with rapid diagnostic tests and initiation of treatment of uncomplicated cases should be done.
- b. *Health post referral pathway:* At this level, the CHA or other healthcare worker will refer the patient either to a health centre or directly to a level 1 health facility. When possible, confirmation of diagnosis with rapid diagnostic treatment and initiation of treatment of uncomplicated cases should be done.
- c. *Health centre referral pathway:* The healthcare worker at health centre level will refer the patient to the level 1 health facility.
- d. *Level 1 to level 4 referral pathways:* The NHCP presumes that the health facilities offer services appropriate for their level, and the patient is referred sequentially from one level to the next. Specimens rather than patients may also be referred to the appropriate level health facility with the laboratory capabilities to process the specimen. The referral system is generally challenged by insufficient personnel and ambulatory services to ferry patients, escalating the cost of care.

Communication and patient confidentiality: To make the referral system effective, a strong feedback mechanism, both written and verbal between health facilities and levels of care, is vital. Important aspects of this mechanism include that lower level health facilities have the means to communicate with each other and with the higher level health facility when there is need to refer a patient and that higher level health facilities communicate with lower level facilities informing the referring facilities about management of referred patients and treatment outcomes.

Patient transport system: To move patients efficiently between these levels of care, defray prohibitive transport costs that prevent patients from seeking continuing treatment, and ensure that the referral system is used effectively, several solutions are being considered.

These solutions include the possible implementation of a voucher system that patients may exchange with vendors of transport services to be taken to their next point of service. The implementation of such a system may require a public-private partnership to be established between government and local business leaders.

Mobile Health and Emergency Response Service: Within the referral system, the Mobile Health and Emergency Response Service may be used to transport patients in case of emergency or to support districts in doing so when already constrained resources are unavailable.

Some of these implementation issues require either new resources or resource shifts from existing interventions, programmes or facilities. This means that implementation of the EHB needs to be factored into resource allocation decisions and budgeting. EHB implementation also needs effective 'vehicles' to ensure that the facilities actually provide the package, including: clinical or quality assurance protocols, including for referrals; contracting providers to provide the essential package; regulation and accreditation of individual facilities; supervision; and assigning inputs to meet the infrastructure plans, essential equipment lists and other inputs needed. There must be deliberate efforts to improve access. In many rural areas, access to good quality healthcare is limited and patients face high out-of-pocket expenditures, often for ineffective treatments. Simply making an EHB available is not enough. Utilisation needs to be actively monitored to ensure that it is achieving its objectives.

In general, the key challenges in implementing the EHB in the Zambian context include: lack of funding and human resources appropriate for the level of care; inadequate or in some cases inappropriate infrastructure; shortage of essential commodities and supplies; donor dependency for some interventions; the absence of a healthcare financing strategy; non-functional community level structures coupled with lack of motivation on the few that are still functioning; and erratic funding.

Finally, implementing an EHB is not just a technical exercise – political and institutional processes need to be engaged. While political interest does not appear as big an issue as the follow through, to ensure implementation, parliamentarians need to be involved and there must be a buy-in from the person on the street. An EHB that has inadequate ownership from politicians and/or senior Ministry of Health management is unlikely to be implemented. This is particularly pertinent given the funder desire for concrete, evidence-based and costed service plans. The consultation with civil society, private and public sectors has to be meaningful and systematic. Without this, the EHB process is not owned and cannot take root. Key informants agreed that the successful development and implementation of the EHB calls for wider stakeholder consultation, gaining political buy-in, public education and participation, securing resources and ensuring strong leadership and governance.

7.3 Use in strategic purchasing, resourcing and resource allocation

Zambia's public health sector is funded from taxes and there is no social health insurance, although government is in the process of introducing it. Most health service providers are fully owned by government and churches, and government fully funds both of these categories through tax revenue applied in a global budget. Over the years, the structure of funding to districts and hospitals has remained largely the same.

As explained earlier, although the EHB has been costed in Zambia, it was never fully institutionalised at policy level, and still needs to be fully institutionalised, costed and officially disseminated. The current NHCP is not fully costed, in part due to sensitivity and need for more updated information. However, the health sector has used effective prior costing exercises for the earlier BHCP and applied this in resource allocation. The current resource allocation criteria still benefit from this past rich experience. The current practice of allocating resources date back to as early as 1994, when comprehensive criteria to develop resource allocation criteria was developed. It is in this context that this section discusses the purchasing, resourcing and resource allocation used in the earlier EHB process.

District funding

Overall, the policy intention has been to allocate 60% of resources to the districts, thereby reducing funding to hospitals on grounds of efficiency and equity. From 1994 districts have been allocated grants based on the weighted populations. The weight was determined by transaction costs as follows (MoH, 2003a):

- 10% for low population density districts
- \pm 5% according to index of fuel prices (as a proxy for cost differentials)
- + 5% in districts prone to cholera or dysentery
- + 5% in districts without a bank and/or service station as a proxy for underdevelopment

Each district was then allocated a percentage of the total grant equivalent to its weighted population. A new formula that takes into account poverty and deprivation was developed in 2003. In this formula, a deprivation index is derived to act as a weight. Variables in the analysis included poverty incidence, distance to facilities, ownership of capital, type of housing, disease burden etc. Funding to the hospitals, including first level referral, has been based on the population/bed ratio (MoH, 2000).

The first level hospitals were funded between 20-40% of the district grants. For the second level hospitals, the calculation of the provincial share was from the total provincial populations weighted by the respective average deprivation index. With regard to allocation to second and third levels, intra-provincial allocation to level 2 hospitals depended on historical intra-provincial shares calculated using the population/bed ratios. Since allocation depended on provincial population and deprivation, hospital budgets are inversely related to the number of level 2 hospitals in the province. Going forward, for the past decade work has been in progress toward an allocation criteria taking into account the workload and the unit costs of providing different types of services, and importantly, link this with the EHB process (MoH, 2000).

Hospital financing

In the past, hospitals have been funded on a historical basis or on the basis of crude bed-days. This has been an unsatisfactory framework, leading to too wide variations from hospital to hospital. A strong EHB-based formula would support more equitable distribution of resources across regions. The cost data used for the allocation formula would enable hospitals to make more informed decisions on the best and more efficient patient treatment, taking the costs of different procedures/treatment into account, given earlier note of the EHB costing based on estimates per disease, standard clinical practice, patient volume per level and overhead costs, such as equipment maintenance, administration, cleaning, transportation and utilities. Hospital financing can then include other factors like location, referral and clinical practice variations. The advantages of this funding method is that it uses cost estimates to identify budgets negotiated between the Ministry of Health and hospital management; it facilitates a smooth monitoring of hospital activity, performance and productivity; it provides a mechanism to relate funds to the output of care; and improves service accountability and the efficiency of the budgeting system (MoH, 2003a)

Even though the current NHCP is not costed, it can still provide a resource for planners and purchasers on priority needs. It informs the health planner on the care at different levels and is thus a guide to their associated cost and budget provision. For example, we do not expect to find renal services at primary healthcare level so a political decision to provide a renal dialysis machine to a small rural clinic will be deemed expensive and unrealistic. This makes defining an EHB a critical process for resource allocation and potentially for performance contracts.

7.4 Use in monitoring performance and accountability

Monitoring and accountability help to ensure that allocated resources are used for their intended purposes with regard to quantities, timing and overall efficiency. The NHCP, therefore, provides a standard by which performance can be measured and remedial actions taken in case of adverse results. Unfortunately, as the NHCP has not been costed, its use in monitoring performance has been limited.

8. Discussion

8.1 Issues in the design and costing: strengths and gaps

The cost for Zambia's BHCP was estimated in 2003 to be \$22.70 per capita, using input prices, wages and population figures for that year. Of these estimated costs, 77.5% was assumed to be spent at first referral level, 11.3% at second referral level and 11.2% at third referral level. As cases are referred, the per capita costs reduce due to the reduced marginal cost of providing referrals for services, and the numbers reaching the higher level of care also fall. These costs estimates depend on the validity of the assumptions made and accuracy of the input data used and differ depending on the methodology deployed. The BHCP costs were validated with a similar cost study of an EHB by WHO, estimating a cost of \$34 per capita for a low-income country like Zambia. This was higher than the Zambia BHP estimate of \$22.70 due to inclusion in the WHO estimate of the costs of providing HIV/AIDS services, which were estimated in 2004 to cost a further \$15 per capita in Zambia. Despite the detailed costing, this case study found a resource gap to finance the services identified in the EHB at various levels of care.

While these costings were done for the BHCP more than a decade ago, the current NHCP has not been costed. To obtain the benefits of having an EHB, it needs to be fully costed in a consultative manner and to be officially adopted at policy level. It can then be used as a planning tool to identify cost-effective interventions and inform the distribution of skilled health workers, medicines, equipment and other resources required to improve health service delivery. In part this gap is because the process in Zambia has faced challenges on what constitutes the package and what it should be called. Various names have been proposed, none has been fully accepted and there is debate on the current name. In other countries the term BHCP has been replaced by common reference to an Essential Health Benefit (EHB), while other frequently used terminologies include Essential Health Packages, Basic Health Package, Core Health Services, Package of Essential Health Services, and Minimum Health Package (MoH, 2016). Notwithstanding the difference in nomenclature, the principle is that the EHB is a policy intervention that identifies a set of services to direct resources to priority areas of health service delivery to reduce disease burdens and to ensure equity in health. An EHB is used to guide where resources should be concentrated to achieve multiple goals, including equity, efficiency, relevance, solidarity, fair process, universalism, accountability, reduced burden of disease and effective and integrated care.

8.2 Issues in the implementation and use: strengths and gaps

Key informants view the EHB as an effective and efficient way of improving health service delivery, encouraging improved efficiency, equity, accountability and more effective care, in line with Zambia's national health priorities. The benefit package should thus be a means to focus scarce resources on interventions that provide value for money. Due to the limited resources available to meet the list of public health and clinical interventions at various levels of care, however, it has been difficult to implement the services outlined. This is exacerbated by shortages of health workers and equipment to ensure adequate implementation of the services included. Shortfalls in health personnel mean, for example, that the various levels of care have to share the available personnel, compromising the ability of staff to specialise in their area and level of care.

9. Conclusions

Having EHBs as a constituent part of the health system requires a balance between competing goals within and outside the health sector, in whether the health sector should be private sector or public sector driven, or a combination of the two, with preparation to guarantee the services covered. This raises political considerations and the need for wide-scale consultation in developing the EHB. This could result in including services for widespread societal needs, such as for antiretrovirals for those who are infected with HIV. These issues are discussed in our conclusions.

Balancing competing goals: Given that EHB aims to concentrate scarce resources on interventions that provide the best 'value for money', government faces a challenge of multiple competing goals. These could include equity of access to services, improved efficiency, universal access to services and cost-effectiveness. A balance has to be struck between access to services, improved quality of care, cost-effectiveness to maximize health status improvements. Overall, the criteria for judging competing goals must be to set a standard that meets the needs of the majority.

Guaranteeing the minimum package: The EHB intends to guarantee a minimum benefit. Government thus faces a difficult choice of what services should be included where provision can be guaranteed, including for the limited list of public health and clinical interventions provided at primary and/or secondary level. The key question is whether government is able to guarantee the package or whether it should, in fact, not define it at all, because non-adherence makes the package an academic mockery. To be guaranteed, EHB services must be identified as essential in planning and budgeting, as the core of services for priority health needs. Services outside the EHB could then be justifiably accessed through out-of-pocket expenditure for fee charges or private insurance. The question remains if it should be the sole responsibility of government to guarantee this package or, given resource constraints, whether government should explore other options such as public/private partnerships and private sector funding, such as through corporate responsibility contributions. For example, mining companies may set up or support hospitals because they contribute to their profitability. Stakeholders are currently debating as to whether the benefit package for the proposed social health insurance benefits is the same as the EHCP, or how the two benefit packages relate. The Ministry of Health is yet to conclude whether these are two separate entities and the roles they should play.

Poverty and what is beyond the EHB: EHB packages should be able to enhance equity. The challenge is that the majority of people in Zambia (69%) are poor (Central Statistical Services, 2014). This means that even if the package is defined and most are given access to it, what lies outside the package still remains beyond the reach of many. Government must still design programmes that improve access for the majority to services outside the package. A good example is the antiretroviral programme for people living with HIV. The drugs are ordinarily not affordable, but governments have developed mechanisms to make these essential drugs accessible by all.

Political considerations: The context in which a particular EHB is being discussed can be aspirational, to describe what an intended EHB should eventually look like. It can also be a short-term planning tool, linked more directly to cost and affordability. An aspirational EHB is not fixed, but is something the country continues to invest in by expanding services towards achieving it. Aspirational EHBs have political ramifications. Citizens may be oblivious to it being aspirational and treat it as a promise by the political establishment that needs immediate fulfilment. Not delivering on this aspirational EHB could result in a government losing popularity. Governments, through their technocrats, could therefore choose to lean towards 'reality' and what government can presently afford to avoid overpromising, stifling the visionary aspect of an EHB. It is therefore prudent for the policy maker to be clear whether the EHB is aspirational or not.

Stakeholder engagement: Implementing an EHB is not just a technical exercise. It calls for political and institutional processes. Successful implementation involves dialogue on purpose and design, decisions on financing and delivery arrangements and adaptation over time. Without adequate national ownership, an EHB is unlikely to be implemented - no matter how popular it is (WHO, 2013).

Choosing the overall health financing model: In Zambia, as in many other countries, services are provided by government-owned or sponsored health facilities. Government is faced with the decision of how to finance health services, whether from taxes or insurance. If government chooses to finance health services through tax revenue, it accepts that the EHB describes a minimum package of services it is going to provide.

In the long term the tax base expands, but the current tax base in Zambia is very constrained, given the huge informal sector. If government adopts an insurance-based model, it needs to clarify if the EHB is the minimum package that all insurance policies must cover without or with minimal co-payment.


This discussion is ongoing and will benefit from exchanges of experience in the region. It must be pointed out, however, that introducing social health insurance (SHI) does not mean the government will stop funding services from taxes and that SHI is a supplement. What is clear is that it is important to involve the private sector in providing and funding the EHB. Depending on many factors, government may choose to have a mixed system, where insurance covers the EHB and the tax system finances everything outside it with some co-payment. It may also be vice versa, where government covers the EHB through the tax system and insurance finances everything outside it, with some co-payment.

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Acronyms

AIDS	Acquired Immune Deficiency Syndrome
BHCP	Basic Health Care Package
CBOH	Central Board of Health
CHA	Community Health Assistants
DALYs	Disability Adjusted Life Years
DHOs	District Health Offices
EHB	Essential Health Benefit
EQUINET	Regional Network for Equity in Health in East and Southern Africa
HIV	Human Immunodeficiency Virus
IHI	Ifakara Health Institute
MoF	Ministry of Finance
MoH	Ministry of Health
NHCP	National Health Care Package
NHCs	Neighbourhood Health Committees
NHSP	National Health Strategic Plan
OPD	Outpatient Department
PHC	Primary Healthcare
TARSC	Training and Research Support Centre
WHO	World Health Organisation



Equity in health implies addressing differences in health status that are unnecessary, avoidable and unfair. In southern Africa, these typically relate to disparities across racial groups, rural/urban status, socio-economic status, gender, age and geographical region. EQUINET is primarily concerned with equity motivated interventions that seek to allocate resources preferentially to those with the worst health status (vertical equity). EQUINET seeks to understand and influence the redistribution of social and economic resources for equity oriented interventions, EQUINET also seeks to understand and inform the power and ability people (and social groups) have to make choices over health inputs and their capacity to use these choices towards health.

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DTP: Blue Apple Projects

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