The Republic of the Union of Myanmar

Ministry of Health

Department of Public Health

Child Health Division

Estimated Cost

of

National Strategic Plan for Newborn and Child Health Development

(2015-2018)

World Health Organization
Country Office for Myanmar

unicef

Estimated Cost

of

National Strategic Plan

for

Newborn

and

Child Health Development

(2015-2018)

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Executive Summary

Ministry of Health Myanmar, has recently developed a 4 year strategic plan on newborn, child health and development 2015 to 2018. The Ministry, in collaboration with UNICEF organized a study to estimate the financial costs of this strategic plan.

This report presents the process of costing and cost of the Newborn, Child Health and Development Strategic Plan.

The costing was carried out using the One Health tool. One Health Tool is a strategic planning, costing and impact assessment tool developed by WHO and several other UN agencies. One Health Tool adopts a holistic approach of estimating cost of health programs through simultaneous consideration of all health system block related costs.

Based on the strategic plan contents, information obtained from a desk review and discussions held with program managers, UNICEF health specialists, and a wider group of stakeholders, Costing Consultant defined a basic costing framework related to the strategic plan. All the interventions related to newborn, child health and development in Myanmar was identified. The target populations, populations in need of these interventions and their baseline/target coverages were identified. Treatment inputs consumed for each intervention and their unit costs were determined. Delivery channels through, which these interventions wereimplemented identified. Type of health personnel contributing to the newborn and child program activities were identified, along with their current numbers, remunerations, training costs.Targets for human resource development were determined. Cost parameters related to infrastructure set up involved in newborn and child care provision were identified. Logistic and health information system components contributing to newborn and child care were also enumerated, their unit costs and development targets were determined.

This data gathering was conducted by the Costing Consultant in collaboration with Program Mangers, Program personnel, UNICEF health specialists. All costing parameters were further reviewed and validated in a national level stakeholder consultation. Finally, using this data, the consultant created a One Health cost projection on the Newborn, Child Health and Development Strategic Plan 2015-2018.

The cost of newborn and child health interventions were estimated considering several different angles. At the first attempt, the cost of implementing all newborn and child health interventions packaged as antenatal, Intra natal, Essential newborn care, Care of sick newborn, Care of premature & LBW, Nutrition, Immunization, Care of sick infants and newborns, ECCD and WASH was estimated. This estimate reflects the cost of entire newborn and child care program thrust in the country. Costs of different intervention sub packages were also determined.

The total cost of all types of newborn care interventions (interventions packaged as antenatal, Intra natal, Essential newborn care, Care of sick newborn, Care of premature & LBW, Nutrition, Immunization, Care of sick infants and newborns, ECCD and WASH) over next 4 years (2015 to 2018) in Myanmar was around 522 Billion Kyats. This amounted to a per capita cost of 2435 kyats. The cost of direct newborn & child care interventions alone was around 368 Billion kyats. Delivering Newborn care interventions alone (i.e. Interventions packaged as Essential newborn care, Care of sick newborn, Care of premature & LBW) will cost around 25 billion Kyats over the period. The cost of child care intervention alone (i.e*Care of sick infants and newborns, ECCD)* was around 342 Billion Kyats.

Impact estimates indicated that all 3 impact indicators proposed in the strategic plan is achievable, conditional upon successful implementation.

1 Background

National census 2014, Myanmar enumerated51,486,253 people. The annual birth cohort of the country is around 875,472 births. This population comprises 4,186,013 under five children. As an important prerequisite to the process of programming towards improved newborn and child wellbeing of the country and realizing MDGs, the Ministry of Health, Myanmar recently developed a 4 year strategic plan titled "Newborn and Child Health and Development Strategic Plan": 2015-2018 (NCHDSP).

The NCHDSP strives to reduce newborn and child mortality and improve their wellbeing by making available evidenced based, better quality,family oriented community based services, population oriented scheduled services in equitable manner.

The plan emphasizes on 3 main thrust areas: newborn care, management of common illness and engaging communities/ communications for child survival and cross sectoral coordination.
The strategies of the plan have been broadly identified in line with AAAQ framework and within a health systems strengthening framework. The strategies are as follows:

1. Strengthening health systems for provision of newborn and child health services- the sub-strategies include enabling environment, availability of skilled providers and supplies & increase availability and utilization of management information
2. Improving access to quality newborn and child health services- sub-strategies include prioritizing underserved/ HTR areas; task shifting, increasing financial access; improving performance and strengthening referral
3. Improving demand and utilization by engaging families and communities- sub-strategies include implantation of overarching child survival BCC plan; community mobilization and support to community volunteers
4. Ensuring effective response for newborn and child health in humanitarian situations – includes provision of life saving supplies with essential health care for children and disseminating key health messages on life threatening conditions

Responding to above strategic directions requires implementation of a large number of interventions andtherefore involves a considerable amount of financial inputs. It is important to meet these financial requirements in an un-interrupted manner. The Ministry of Health deemed that having a prior insight on the cost of NCHDSP would ensure efficient financial allocations and fund mobilizations. Hence, the Ministry organized this study to estimate the financial cost of the NCHDSP. This document presents the methodology and findings of the study.

2 Aims and scope of costing

The aim of this cost assessment was to estimate the financial cost of the NCHDSP(2015-2018). Overall cost, cost by health system blocks components and cost by sub program packages (newborn, child care, etc..)were calculated. Per capita costs of newborn and child care were also calculated.

The cost study separately focused the following cost elements.

i. Cost of providing drugs, supplies, equipment and investigations related to newborn and child health interventions proposed in the NCHDSP
ii. Cost of program management activities that facilitates the smooth and effective intervention delivery (e.g. Advocacy & awareness (C4D), Develop & disseminate guidelines, In service training, IEC material development, Supervision, monitoring and evaluation and research etc…)
iii. Health system costs: cost of human resource (wages and pre service training costs), infrastructure (Constructions, maintenance, utilities, equipment, furniture and vehicles), logistics, and health information systems.

3 Methodology of costing

This cost estimate was conducted using the One Health Tool (OHT). OHT is a software program developed for costing and impact assessment of health programs. OHT also provides interim outputs such as staff time adequacy and utilization patterns, bed day's capacity assessments, training details, health system element summaries by project periods, financial space analysis and budget mappings.The following account briefly introduces the OHT. References to technical manuals that provide detailed accounts on the methods of OHT calculations are given in the section of references.

3.1 One Health Tool and costing approaches

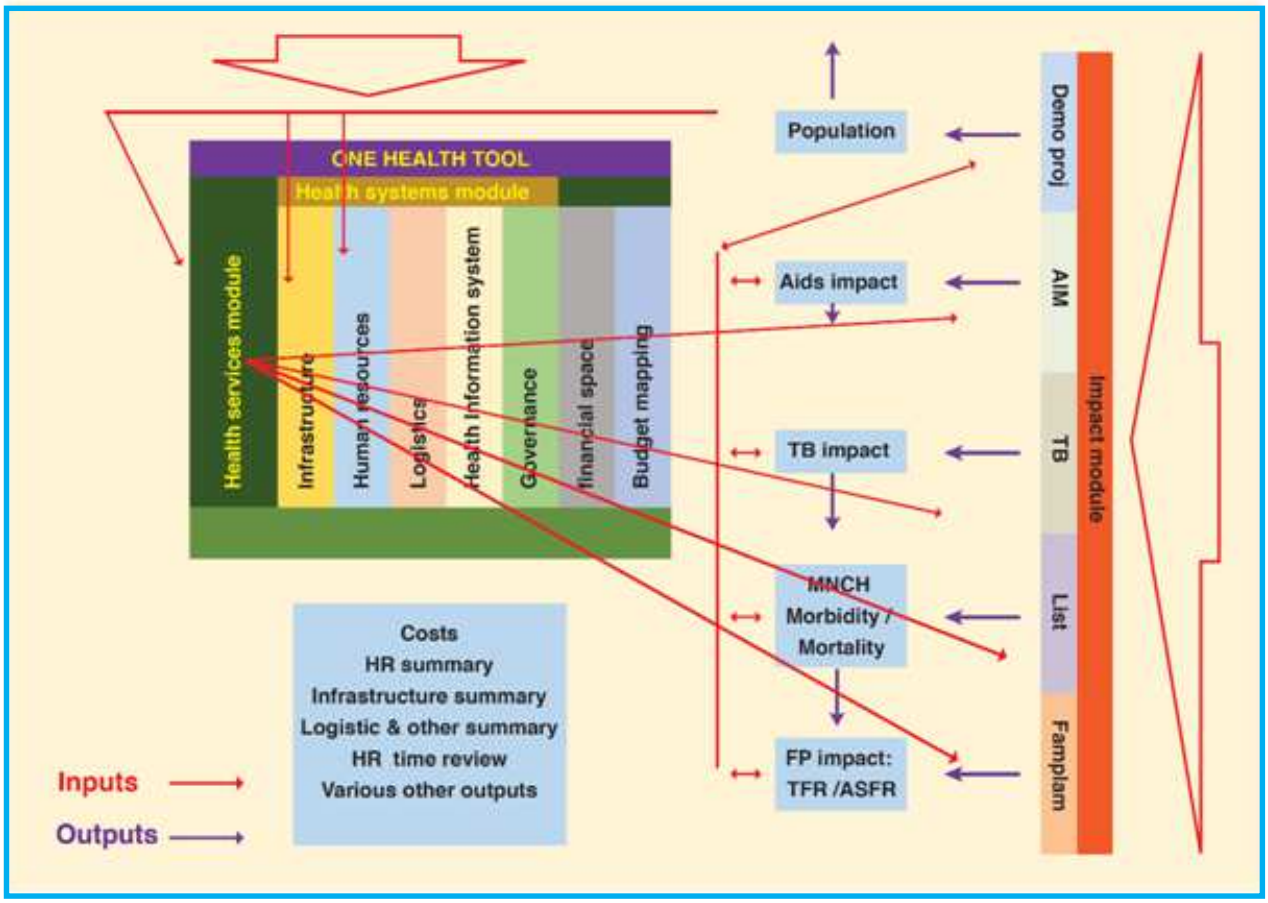
OHTis primarily organized in to 3 main modules (Figure 1):a) Health services module b) Health systems modules, c) Impact modules.

Health Service Module: The health services module estimates the costs of items that vary by the number of intervention recipients. These items include drugs, commodities and other supplies such as nutrient supplements and medical investigations. The tool utilizes user defined inputs such as type of interventions, target populations that interventions focus, populations in need of interven-

tions (i.e. proportions of target populations that actually eligible for interventions), percentage coverage of intervention and the delivery channel.

In addition, various treatment inputs (Drugs, injection supplies, blood or urine tests etc...) related to interventions that are provided by different types of health staff have to be specified to the tool. The unit costs of these items also have to be indicated. The average time spent by each type of staff involved in providing an intervention also required for computation of staff time utilization patterns and assessment of staff time adequacy.

Figure 1 Schematic representation of OneHealth Tool organization



OHT estimate the size of the target population to be used in the costing using DemProj software integrated in to it. The number of target recipients (cases) for each intervention in a particular delivery channel at a given year , who actually receive an intervention, is calculated by serial multiplications of the respective target population, the percent of population who requires the intervention, the intervention coverage and the percent of interventions delivered by a particular delivery channel.

The total material cost of providing a particular intervention in a given delivery channel, at a given year, is obtained by the multiplication of the number of recipientsof an intervention and the

average cost of providing treatment inputs for that intervention to a recipient .

Health systems module: Health systems module consists of several sub modules. They include;infrastructure module, human resource module, logistic module, health information systems module and governance module.

Infrastructure module: Infrastructure module estimates the cost incurred on buildings (construction, rehabilitation/maintenance, and utility costs). It also estimates the cost involved in vehicles (purchase, maintenance and operational costs) and the cost ofICT equipment (purchase, and maintenance costs). The user has to specify the baseline number of institutions, and other baseline parameters used for assessing the cost (average construction, maintenance, utility costs) of infrastructure components as well as targets for infrastructure developments. Infrastructure development targets could be based on existing plans or population norms. This study targets were based on existing plans. Similar parameters related to vehicles and ICT equipment also have to be specified.

Human resource module:Human resource module calculates the cost of paying emoluments to health staff, cost of preservice training and cost of providing retention incentives. Context specific human resource types have to be specified by the user. The staff baseline, staff distribution by various levels of care, annual salary, incentives and increment patterns and numbers and unit costs related to preservice training of different types of staff have to be indicated. The human resource targets can be specified, either according to the existing plans or based on population norms. This study chose the existing plans to set the human resource targets. As many types of staff involved in newborn and child care activities also contribute to the care of older population, the baseline salaries and other payments had to be adjusted to reflect their actual contribution to the newborn and child care. The proxies used for these adjustments are explained below.

Logistic Module:Logistic module estimates the expenditure incurred on logistic activities related to a health program. The module estimates the cost of warehouses (construction, maintenance and utilities), cost of transport (vehicle purchase, maintenance and operational cost, third party contracts) and the cost of paying warehouse workers (e.g. managers, store keepers, clerks, drivers, manual laborers etc…). In addition the cost incurred on the material items that are usually not based on the target recipients also considered in this module. For example, items given to health staff, (e.g. uniforms, midwife kits, bicycles etc...) could be costed in this section. As in the case of infrastructure and human resource modules, the baseline levels and future targets of each cost element and their unit costs have to be pre specified by the user.

Health information system module: Health information system (HIS) module is designed to estimate the cost of developing and maintaining the management information system related to a health program. HIS related cost components include the cost of personnel involved in information management, costof printingformats, cost of ICT equipment's, and cost of software development and application.Health information systems also involve several management functions such as training, supervision, review and updating of the information systems etc.

The present organization of the baseline and target setting sections of the HIS module of the OHT is not well geared for these cost elements. Therefore all HIS specific cost elements of the NCHDSP had to be considered as line items of the program management editor of the HIS module.

Governance module: This module is meant for estimating the cost of governance activities such as the development or review of strategic vision and ethics, improving responsiveness, participation and consensus, carrying out legal reforms and maintaining the transparency and accountability of health programs. TheNCHDSPfocuses a very limited activities related to these items. Hence,these items were considered as program management functions and accordingly included as components of the program costing module of the health service module.

Program management costing modules: Program management /cost modules of OHT are used to cost the program management activities such as advocacy, awareness building, in-service training, development of guidelines, supervision, health system development exercises, monitoring and evaluation and research. Separate program management modules are linked to all modules of the OHT (E.g.program cost sub module in the health services, program management sub modules of the infrastructure, human resource, logistic and HIS modules, administration sub module of the governance modules).

The user has to identify and specify the relevant program activities along with their unit costs. These modules can also be used to calculate the cost of program specific human resources such as project consultants who may not be permanent employees of the health system.

OHT is originally developed for costing entire health systems at national level. However, it can be adapted to cost sub programs or costing sub national levels programs provided careful context specific adjustments are made to costing parameters so that generic costing calculations could be used to achieve the cost objectives related to specific program contexts.

3.2 Gathering of costing parameters

Costing the NCHDSP using OHT required a considerable amount of health system related information. This data gathering exercise was conducted in a stepwise manner.

As the first step the Costing Consultant prepared a list of all different types of data that will be required for cost projection related to NCHDSP and their potential means of verification. This list is included in the appendix 1. Then, this list was shared with program managers and their advice was sought on refining the means of verifications and gathering the documents that might contain such data.

Subsequently, a desk review was conducted using documents identified by the program manager of the Department of Child Health and Development (DCHD) and UNICEF health specialist (MNCH) toorganize required costing parameters. In addition, internet search was conducted to review Myanmar health system details.

The costing parameters identified through literature review was recorded in an excel file organized according to the data requirements of different modules of the OHT. These files were very useful for the continuous review of data gathering process.

Once information was gathered to a reasonable level, where the Newborn and Child Health System of Myanmar can be comprehended and intervention hierarchy can be mapped, Costing Consultant started creating aOHT cost projection related to the NCHDSP.

At this time, Costing Consultant paid his first visit to Myanmar to gather remaining data required for costing. Several methods were used to gather the relevant details. Discussions were held with ProgramDirector: Child Health Development, Assistant Director:Child Health Development and Health Specialist (MNCH) –UNICEF. During these discussions the aims and objectives of the cost study were further clarified, data sources were identified and plans for gathering various data items were made. Requests were sent for relevant department heads to provide data. Program manager and UNICEF MNCH specialist provided several documents that included past and present strategic plans related to newborn and child health, government statistics reports, training manuals, technical guidelines and related cost studies. Costing Consultant perused these documents and updated data sheets and the projection. Then Costing Consultant met relevant program personnel such as EPI program manager to discuss about the relevant interventions and costing details. A meeting was also held with the Director Planning at the Ministry of Health who had already used the OHT in

Myanmar to cost the Essential Health Care Package. This meeting was very useful to gather basic health system parameters required for costing. The program manger organized the gathering of details on unit costs related to drugs, salaries, utility costs, construction costs, and other relevant purchase costs from the various sections of the Ministry.

Initial discussions and desk review resulted in gathering of a considerable portion of data required for cost exercise. Using this information, Costing Consultant prepared a list of interventions to be considered in the cost exercise. He also identified the health system components (infrastructure, human resources, logistics, and program activities etc...) based on NCHDSP.

In the next step, a national consultative workshop was conducted to furtherrefine the baseline data gathered so far and to arrive at a consensus on proposed costing parameters. The meeting was conducted with a wider participation of stakeholders (Higher personnel from Ministry of Health, Personnel from the Department of Health (CHD, EPI, Nutrition, and CMSD), members of Child Health Technical Working Group, Health teams from township level, representatives from SR and District level, NGO and INGO representatives. In the meeting, the purpose of the costing and costing focus was clarified. Costing process and data requirements were explained. These activities were followed by a group work, where participants worked in groups to review the data (costing parameters) so far gathered by the Costing Consultant and filled the gaps. The work groups were identified according to health system blocks (Interventions, Human resources, Infrastructure, logistics, Program costing, MIS etc.). For group work Costing Consultant has prepared excel based data sheets, which provided a basic framework in which already collected data were included. Participants were briefed on how to review these data and review. After deliberating for about 120 minutes, each group was asked to present their observations and data additions they made. Others were requested to make their observations. A consensus was arrived on issues raised. The workshop observations were used to further refine the projection.

Following the national stakeholder meeting Costing Consultant made debriefing sessions with program manager and UNICEF health specialist and final adjustments to data were carried out. Costing Consultant also met the Deputy Minister of Health to obtain her views and advice on the costing process.

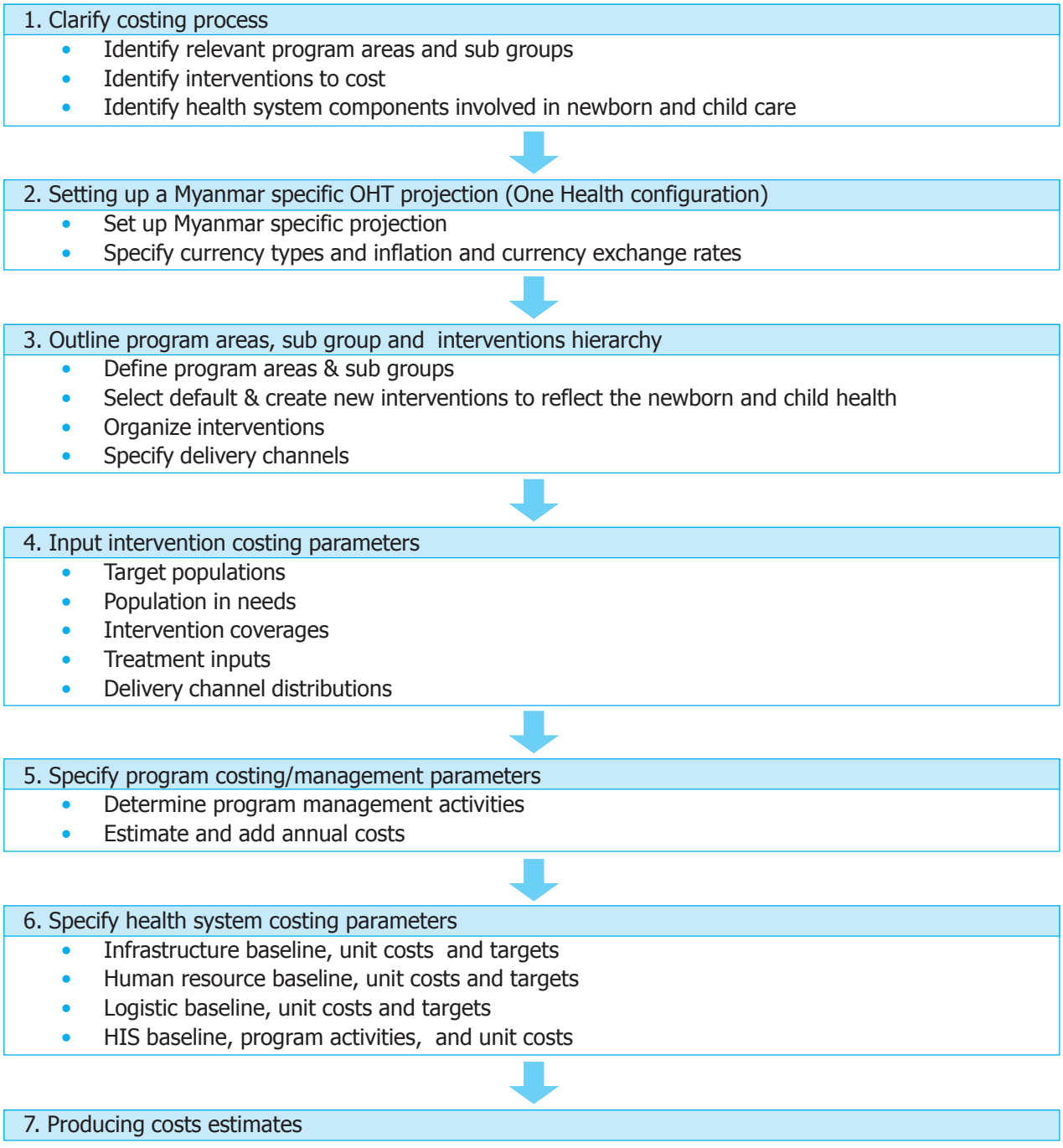
Subsequently Costing Consultant reviewed all different sources of information obtained through desk reviews, individual discussions, and stakeholder meetings and prepared triangulated versions of data sheets. This information was used to prepare the first draft of the OHT projection of the NCHDSP.

A draft presentation on the estimated cost of NCHDSP was subsequently presented in another national stakeholder meeting. The responses made by this national stakeholder meeting was used to further revise the cost estimates.

3.3 Costing process

Adaptation of OHT to cost the NCHDSP required an adoption of a systematic process. Figure 2 present this process as a flow diagramwhich consists of 7 steps.Following sections describes how each step was conducted and relevant assumptions and cost parameters.

Figure 2 OHT costing protocol



3.3.1 Costing focus

The very first important task of sub program costing is the delineation of relevant health program components to be considered for a particular cost projection.

Review of NCHDSP 2015-18 indicated that it has purposefully excluded some of high impact interventions (e.g. Interventions antenatal, intra natal, immunization, and nutrition) as they are already being included under Reproductive Health and Nutrition strategic plans. However, program managers and some of the stakeholders were interested in knowing the cost of these activities as well. Hence, it was decided to cost a broader set of interventions that include all child related interventions included in various sub programs such as, child health and development, nutrition, EPI Malaria and HIV as the first scenario of costing.

Then,the total cost was further disaggregated in to cost of the following intervention packages, which reflect the various combinations of interventions so that cost of newborn and child health interventions in Myanmar can be understood in different angles.

The following diagram (figure 3) shows the various combinations of intervention packages that were considered for sub package costing. The interventions packaged in to each package is also presented in the relevant section.

Figure 3 Matrix describing various combination of intervention packages used for the costs estimates.

Intervention subgroups	Intervention packages considered for disaggregated costing
1. Antenatal	Cost of Antenatal interventions having effects on newborn health
2. Intra-natal (institutional)	
3. Intra-natal (home)	
4. Essential newborn care	Cost of direct newborn care interventions
5. Premature & Low birth weight care	
6. Care of sick newborns	
7. Child nutrition	Cost of direct child health interventions
8. Immunization	
9. Care of sick infants and children	
10. ECCD	
11. Family planning	Cost of Family planning interventions
12. WASH	

As indicated in the figure 3, cost projections were presented as 4 separate combinations of intervention packages. They included:

(a) **Antenatal interventions affecting newborn health**: The interventions that are implemented in antenatal period was packaged in to this component. They were further categorized as antenatal interventions subgroup, Intra natal interventions (Institutional) subgroup and Intra natal interventions (home).

(b) **Direct newborn care interventions**: interventions directly implemented among new borns are included in this component. They were further categories as Essential new born care subgroup, Premature /Low birth weight care subgroup, Care of sick newborns subgroup

(c) **Direct child care interventions**: These interventions further categorized as nutrition interventions subgroup, immunization interventions subgroup and care of sick infant and children sub group and care of premature & low birth weight children and WASH program interventions.

(d) **Family planning interventions**

The list of all the interventions identified under these packages is given in the appendix 2.

Estimates of the following combinations of newborn and child care intervention packages were computed in the analysis.

1. Cost of overall package of newborn and child health interventions
2. Cost of direct newborn and child health interventions
3. Cost of newborn care interventions
4. Cost of child care interventions
5. Cost of antenatal interventions affecting newborn health
6. Cost of family planning interventions.

3.3.2 Setting up a Myanmar specific OHT projection

Basic configuration of the OHT projection was initiated with the creation of a country specific projection. A projection was created by loading Myanmar country specific information that were already included in the OHT. The currency type was specified to MMK and estimated inflation and dollar conversion rates were taken from the default inputs. These values were derived from the estimates of the World Economic Outlook, 2013 version and inflation rates were estimated as 4.2 in 2015 and 4.8 in 2018.

3.3.3 Outline program interventions hierarchy

Considering the existing program set up and intervention packages and the default setting of the OHT, the following **program, and sub group hierarchy** was deemed to be appropriate for packaging interventions in the OHT projection of the NCHDSP 2015-18.

1. New born Health Program

a. Antenatal care sub group
b. Intra natal care (Facility) sub group
c. Intra natal care (Home) sub group
d. Essential New born Care sub group
e. Care of sick newborns sub group
f. Care of LBW/Premature newborns

2. Child health program

a. Nutrition sub group
b. Immunization sub group
c. Care of sick infants and children sub group
d. Early child care and development sub group

3. Family Planning Program

4. WASH program

The program details extracted from documents, discussions held with program personnel and the inputs obtained inthe first national stakeholder meeting were used to prepare this list. When customizing the OHT projection, the interventions that were already available from the default intervention list of OHT were selected first. The remaining items were defined as new interventions. Then these interventions were appropriately organized in to the program, sub group structure created for the projection. Then respective delivery channels through which these interventions were delivered were specified to the projection.

A complete list of interventions selected for costing and their delivery channels are presented in the appendix 2.

3.3.4 Enter intervention costing parameters:

Intervention costing required several parameters to be pre-specified. Firstly, target populationsrelevant to interventionshad to be identified. In OHT terms, target population (TP) means, population group for which a particular intervention is intended. For example, TP for the early initiation of breast feeding would be all newborn children (i.e.births).Depending on the nature of the intervention at focus, theTP may vary. Sometimes it can be entire population of the country or a sub population of it. All target populations relevant to selected interventions were identified after considering the current implementation guidelines of the country. The next parameter to be specified was the population in need (PIN). PIN is defined as the share of the TP that will actually receive the intervention. For example, PIN for early initiation of breast feeding is 100 % of the TP, as allnewborns should be offered early breast feeds. All PINs related to interventions were determined based on the local intervention delivery guidelines. The third parameter to be specified were current and target coverages for all selected interventions. Most of these coverages were already presented in the strategic plan. Remaining coverage values were identified through program statistics. The targets for improving the coverage with the strategic plan period were mainly taken from the NCHDSP and Reproductive Health Strategic plans. The fourth parameter to be stated was the treatment inputs of all interventions. In this step all the drugs, supplies, investigations, and other material items provided to intervention recipients, while the intervention being delivered were stipulated. These items were identified after perusing the treatment and program guidelines of the newborn and child health program. Treatment inputs already associated with some of the default interventions were reviewed for their compatibility with the local treatment protocols. The treatment inputs for other interventions were defined based on local guidelines. In addition unit costs of all these items had to be specified. The unit costs provided by the CMSD, UNICEF supply unit, and other programunits were used for this purpose. Some of the unit costs were already available, in the form of per client costs,from the cost projections included in the Five year Strategic plan for reproductive health (2010-2014), Essential Newborn Care cost assessments, and Essential Health Care Cost projections.The fifth parameter used in the intervention costing was the specification of the delivery channel percentages. This means the proportional distribution of number of interventions by different delivery channels. In OHT these channels are identified as Community, Outreach, clinic and hospital. This information could be extracted from theNCHDSP. The finalization of delivery channels were made in consultation of local experts.

The values used for TP, PIN, Coverages, and treatment inputs were presented in the appendix 3 & 4.

3.3.5 Specify program activity cost parameters

Program activity costs can be defined as those activities required for smooth functioning of a program. Some of the examples of program activities are advocacy and awareness program, develop, revise policies, strategies and guidelines, in service training, supervision, monitoring and evaluation and research.

The NCHDSP 2015-18 explicitly identified several of such program activities. In addition several other program activities were deemed to be mandatory to ensure realization of strategic objectives. Costing consultant after reviewing the NCHDSP has enumerated a series of program activities that are deemed to be indispensable for the successful realization of the objectives of the NCHDSP. These program activities were reviewed in the national stakeholder workshop and relevant revisions were made based on stakeholder comments. The corresponding unit cost of program activities were decided after perusing the past budgets of the MOH and by perusing the unit costs used in related recent cost assessments: cost reports of the reproductive health strategic plan and EPI strategy.

The program activities were classified, as In-service training including curriculum development, IECmaterial development, advocacy programs, planning, monitoring and review meetings, communication for development activities (C4D), supervision and research & evaluations. Stakeholder workshop emphasized that training planning should take in to account the capacity of the center to cover all townships and managing the training time of basic health staff without disrupting their routine work. Considering the number of potential trainers at national level and staff time management it was decided to focus 82 Townships per year. In this manner all 330 townships will be focused during the project period. Appendix 3 include a detailed list of program activities included in this cost exercise.

3.3.6 Specifying health system elements, health system strengthening targets and other cost variables

Next step in the OHT cost projection was to specify the health system components involved in newborn and child care and stipulate their baseline numbers, unit costs and targets for developments during the 4 year period from 2015 to 2018. OHT health system sub modules include infrastructure, human resources, logistic, health information system were used in this study. Governance activities related to the NCHDSP was also considered with in the program cost module.

Infrastructure costing

Infrastructure cost included construction, maintenance and replacement of equipment and utility cost of newborn and child care units of the Myanmar health system. They included pediatric units of Central (n=23), State regional (n= 37), district (n=65), Township (n= 330) and Station hospitals (n=609) and Rural (n=1696), Urban (n=87) and Sub rural (n=8640) health centers. Twenty five percent of total cost of each institution was considered as the as the newborn and child health specific shared contribution of these costs.

Total number of each type of these units were obtained from the Ministry of health publications. The unit costs pertaining to construction, refurbishment, and utility costs were determined based on the information provided by the relevant departments of the Ministry of Health. A standard list of medical equipment and furniture list required for a newborn care unit was developed along with their unit costs. Considering the average life span of equipment as 5 years, one fifth of their total purchase cost was assumed as the annual estimated replacement cost.

Available utility costs were extracted from the past budgetary experiences. Twenty five percent of the total annual utility cost of a curative institution was considered be attributable for newborn and child care related service provision. Half of the total cost was considered in attribution annual utility cost of Rural, Urban and Sub rural health centers. These proportions were based on the expert opinion and decided and agreed in the national workshop.

There was no specific numbered targets in the NCHDSP in relation to infrastructure development. However, the planinspires for improving newborn care facilities at township level hospitals. Hence, infrastructure targets were set to develop new newborn care facilities in the township and station hospitals situated in Myanmar with in the course of strategic plan. . This required refurbishment of approximately 939 newborn care units around the country. The newborn unit scale up plan was equally distributed across 4 year period from 2015 to 2018.

Provision of new 939 ambulances to all station and township hospitals were also factored in to the cost. Twenty five percent of the total cost was used to reflect the newborn and child health related contribution of these ambulances. This action was aimed to improve the referral facilities at township levels so that newborns and mothers who need institutionalized care will get to these institutions without undue delays.

OHT default assessments have been programmed in such a way that the tool purchases all the vehicles planned to be purchased in the second year of the plan. Further, OHT is also programmed

to purchase a number of vehicles equal to the number that is obtained after dividing the existing number of vehicles in a particular year by the life span of a vehicle. This is done to replace condemned vehicles in the long run. However, as this projection specifically considered only the cost of new vehicles to be purchased during this project period, the replacement cost were removed from the final cost tables.

Human resource costing

Human resource sub module provides provisions to estimate the cost of paying the salaries and other incentives to health staff and the cost of basic training of health staff. Ministry of Health information revealed around 122,165 paid personnel from various units provide contributionsto newborn and child care. Most of these personnel's contributions are partial as newborn and child care is only a portion of their routine work, while a smaller proportion of them(e.g. pediatricians) devote their complete contribution to newborn and child care. The type of personnel whose contribution was considered for this costing exercise included;

DDG - Public Health Service (n=1), Directors (n=3) , assistant directors (n=3), MOs (6), clerical (n=12) personnel at the DOH (n=), Pediatricians (n=350) , Obstetricians (n= 350), MO (n= 12800), THA (n= 330), THN (n=330), Nurses (n= 28254) , Pharmacist (n= 1064), Lab Tech (n=1064) , Radiographers (n=1064) , Dressers (n=939), Menial Workers (n = 4256), HA (n= 2013) , PHS1 (n=677) , PHS2 (n=1850) , LHV (n= 3397) , MW (n= 20617), Watchman (n= 1064).
Basic training costs of only CHW and AMW were considered for the costing. It was considered around 20 CHW and 10 AMWs will be trained for each township annually. These numbers were based on township past experiences and provided in national stakeholder meetings. Unit costs of basic training of these staff was available from the training institutions.

Human resource targets were not specifically identified in the draft NCHDSP. The information provided in the NCHSP 2015-18 showed that health staff in the country was gradually increased over the past years. Review of these numbers showed that the number of staff were increased in liner fashion. These past trends in the increase of number of different types of staffs were used to predict their number during next 4 years.

Values for salaries and other payments were based on the present pay circulars of the Ministry of Health.

Contribution of shared staff was determine by expert opinion. The time and logistics did not permit exact assessment relative contributions to newborn and child care interventions by reviewing the

actual time spent on each intervention. Program managers estimated, based on their experience approximately 25% of total contribution of shared staff can be attributed to newborn and child health interventions of all main interventions sub groups. The relative contributions between sub-groups were assumed to be proportional to the number of total annual client contact points for each type of intervention with in a sub groups. These number of contact could be estimated from OHT outputs.

Logistic cost

At present logistics related to newborn and child health activities also handled by the general logistic department of the Ministry of Health. The logistic system comprises of a central medical stores (CMSD), 2 sub depots and 11 transit camps. The cost of human resources, infrastructure and transport related to the whole logistic system was obtained and their values were reduced to 25 % to reflect the contribution made to new born and child health. This percentage was based on the expert opinion.

The cost of items directly given to health care providers (i.e. Midwife kits, CHW kits) were also directly added to the cost of logistics. EPI Cold chain logistics cost were also separately added.

Health information system

Cost variables were identified to assess the newborn and child care related cost of HMIS system. Staff types who completely devote their time to HMIS system at central, State regional, district, and township levels were considered in this section. This information was obtained from the HIMIS department and discussed in the national stakeholder workshop. The payments related to health workers, who routinely gather HMIS data were already considered in the human resource module. The cost of ICT formats of the HIMIS system, system development and training were also considered in this section. The cost of establishing an electronic based information system also factored in to the cost. The plan was set to expand the current DHISII project to add another 80 townships within the strategic plan period. The total estimated costs of these items were also adjusted for newborn and child health related contributions by reducing it to 25 % of the total cost.

3.3.7 Disaggregation of subcomponent costs

Further disaggregation of overall cost of NCHDSP in to its component intervention packages (Ante-natal interventions, Direct newborn care interventions, Direct child care interventions, Family planning interventions) was carried out.

Only the drugs & supply cost related to these component packages could be directly calculated. Other costs (i.e. program costs and health system costs) had to be assigned, based on proxies that reflect the relative contributions of these costs to the component intervention packages. These disaggregation of health system component costs of across sub packages were based on the proportional distributions of number of total client contacts pertaining to interventions packaged in to sub groups considered for costing. These number of client contacts with health system could be easily deduced using the OHT (number of services output). The analysis showed the following proportional distributions of client contacts by different packages.

Table 1 Percentage of number of client contacts with health system by intervention packages

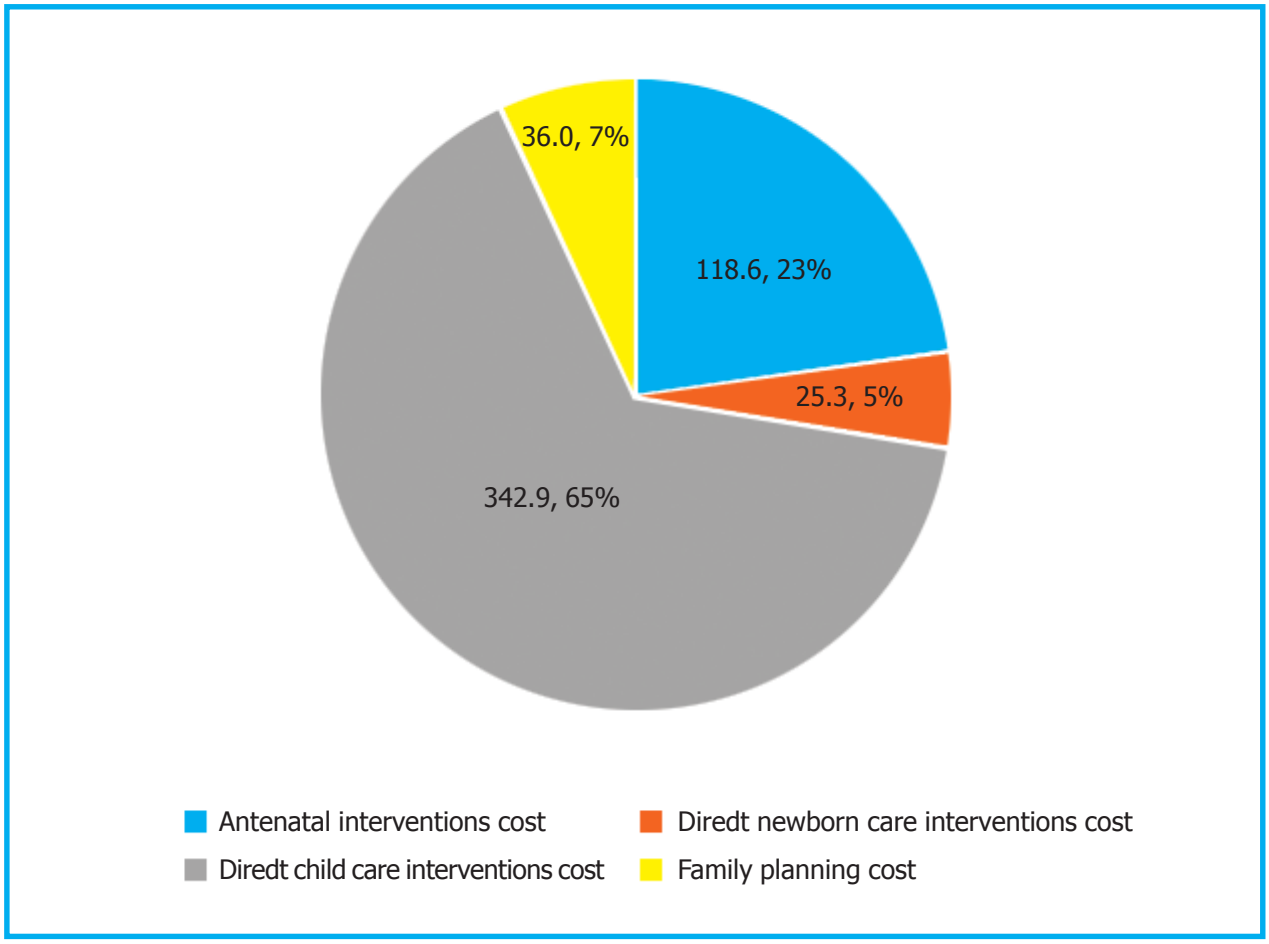
Intervention package	% of client contacts
Antenatal interventions	19.0
Direct newborn care interventions	7.0
Direct child care interventions	69.0
Family planning interventions	5.0
All	100.0

4 Cost of the NCHDSP 2015 - 2018

4.1 Total aggregate cost of newborn and child care interventionsand its proportional distribution by component intervention packages

The overall cost of all interventions packages contribution to newborn and child health in Myanmar, was equal to 522.7 Billion Kyats. Figure 3 presents the relative distribution of the total cost by component packages.

Figure 3 Distribution of cost of newborn and child health interventions in Myanmar by component packages of interventions (in Billion Kyats)



Out of the total cost of 522.7 billion Kyats, 25 Billion (5%) could be attributed as direct newborn care costs. The direct child care interventions costed around 342.9 Billion Kyats (65%). The costs of antenatal interventions and family planning interventions were around 118.6 billion (23%) and 36 billion (7%) kyats respectively.The relative sizes of component costs were depended on actual drug and supply costs related to each item and number of target recipients and the patterns of health system contacts associated with different interventions. The following table presents to the total and per capita costs of different packages of interventions

Table 1 Aggregate total cost of NCHDSP 2015-2018 and per capita cost by different intervention packages

Intervention package description	Total cost per the period 2015-2018	Per capita cost
Package 1- Cost of all Newborn child care interventions in Myanmar *Includes: interventions (appendix 2) related to antenatal, Intra natal, Essential newborn care, Care of sick newborn, Care of premature & LBW, Nutrition, Immunization, Care of sick infants and children, ECCD , Family Planning and WASH*	522,728,658 (Kyats 1000s)	2435 (Kyats)
Package 2 : Direct newborn and Direct child care costs*Includes: interventions (appendix 2) related to Essential newborn care, Care of sick newborn, Care of premature & LBW, Care of sick infants and Children s, ECCD and WASH*	368,202,536 (Kyats 1000s)	1716 (Kyats)
Package 3:Newborn care package*Includes: interventions (appendix 2) related to Essential newborn care, Care of sick newborn, Care of premature & LBW,*	25,258,516 (Kayts1000s)	118 (Kyats)
Package 4: Child care package *Includes: interventions (Appendix 2) related to Care of sick infants and children, ECCD*	342,944,020 (kyats 1000s)	1598(Kyats)
Package 5: Antenatal interventions *Includes: interventions (appendix 2) related to antenatal, Intra natal*	118,570,536 (kyats 1000s)	552 (Kyats)
Package 6 : Family planning interventions (Appendix 2**)**	35,955,587 (kyats 1000s)	167 (Kyats)

These costs represent the aggregate cost of drugs and supplies, human resource, infrastructure, logistics, health information system and programme cost related to each of the intervention packages.

4.2 Cost of all newborn and child care interventions disaggregated by health system block components

Table 2 presents how the cost of all newborn and child care interventions varies across the strategic planning years by their allocation to different health system blocks. The interventions include the interventions packaged in to sub groups *antenatal, Intra natal, Essential newborn care, Care of sick newborn, Care of premature & LBW, Nutrition, Immunization, Care of sick infants and children, ECCD and WASH (see appendix 2).*

Table 2 Cost of all Newborn child care interventions in Myanmar (in 1000 Kyats)

Health system component	2015	2016	2017	2018	Total	%
Programme Costs	2,042,876	1,696,136	1,718,148	1,691,159	7,148,319	1.4
Human resources cost	45,713,835	50,653,981	52,738,051	54,858,910	203,964,776	39.0
Infrastructure cost	9,397,250	27,543,730	11,111,230	11,111,230	59,163,441	11.3
Logistics cost	7,379,257	7,413,642	7,819,589	7,494,086	30,106,574	5.8
Medicines, commodities, and supplies (Program)	51,840,606	48,008,346	48,598,478	69,406,721	217,854,152	41.7
Medicines, commodities, and supplies (other)	849,601	849,601	849,601	849,601	3,398,404	0.7
Health information systems cost	273,211	273,236	273,260	273,285	1,092,993	0.2
Total cost	117,496,636	136,438,672	123,108,357	145,684,992	522,728,659	100.0

The largest cost driver was found to be the cost incurred on drugs, commodities and supplies (42%). The second highest cost was incurred for paying human resources (39%). Infrastructure cost accounted for 11 % of total costs. The lowest percentage of cost was attributed on the management information system(0.2%) (Figure 3).

Tables 3 to 6 presents the cost of different sub interventional packages focused for costing. They included

1. Cost of direct newborn care interventions

a. Essential newborn care sub group
b. Care of sick newborns sub group
c. Care of LBW/Premature newborns sub group

2. Cost of child care interventions

a. Nutrition sub group
b. Immunization sub group
c. Care of sick infants and children sub group
d. Early child care and development sub group
e. WASH interventions

3. Cost of antenatal interventions

a. Antenatal care sub group
b. Intra natal care (Facility) sub group
c. Intra natal care (Home) sub group

4. Cost of family planning interventions

4.3 Cost of direct newborn care interventions by health system blocks across years

Interventions packaged as *Essential newborn care, Care of sick newborn, Care of premature & LBW, were* considered as direct newborn care interventions. Table 3 shows that cost direct newborn care was around 25 billion Kyats. The highest percentage of direct newborn care expenditure was attributed for human resource costs (57%). The second highest expenses was for Medicines

and supplies (both program and other) human resources (16.4%). Table 3 presents how its total cost was distributed across various health system blocks.

Table 3 Cost of direct Newborn care interventions (in 1000 Kyats)

Health system component	2015	2016	2017	2018	Total	%
Programme Costs	143,001	118,730	120,270	118,381	500,382	2.0
Human resources cost	3,199,968	3,545,779	3,691,664	3,840,124	14,277,534	56.5
Infrastructure cost	657,808	1,928,061	777,786	777,786	4,141,441	16.4
Logistics cost	516,548	518,955	547,371	524,586	2,107,460	8.3
Medicines, commodities, and supplies (Program)	819,595	933,879	1,036,163	1,127,663	3,917,300	15.5
Medicines, commodities, and supplies (other)	59,472	59,472	59,472	59,472	237,888	0.9
Health information systems cost	19,125	19,127	19,128	19,130	76,509	0.3
Grand Total	5,415,517	7,124,003	6,251,854	6,467,142	25,258,514	100.0

4.4 Cost of child care interventions by health system blocks across years

Table 4 shows the cost of direct child care intervention package that included interventions grouped as *Care of sick infants and children, ECCD and WASH.* Total cost of this package was around 343 billion Kyats.

Table 4 Cost of direct child care interventions(in 1000 Kyats)

Health system component	2015	2016	2017	2018	Total	%
Programme Costs	1,409,585	1,170,334	1,185,522	1,166,900	4,932,340	1.4
Human resources cost	31,542,546	34,951,247	36,389,255	37,852,648	140,735,695	41.0
Infrastructure cost	6,484,103	19,005,174	7,666,749	7,666,749	40,822,774	11.9
Logistics cost	5,091,687	5,115,413	5,395,516	5,170,919	20,773,536	6.1
Medicines, commodities, and supplies (Program)	30,404,021	30,583,598	29,969,348	41,623,644	132,580,611	38.7
Medicines, commodities, and supplies (other)	586,225	586,225	586,225	586,225	2,344,899	0.7
Health information systems cost	188,516	188,533	188,550	188,567	754,165	0.2
Grand Total	75,706,683	91,600,524	81,381,165	94,255,652	342,944,020	100.0

4.5 Cost of antenatal interventions that affect newborn health by health system blocks across years

Table 5 presents the cost of interventions that effect on newborn health. OHT projection classified them as Antenatal *care interventions, intra natal interventions (facility) and Intra natal interventions (home) (Appendix 2).* Approximately 118.6 billion kyats were attributed to this package of interventions.

Table 5 Cost of antenatal care interventions effecting newborn health (in 1000 Kyats)

Health system component	2015	2016	2017	2018	Total	%
Programme Costs	388,146	322,266	326,448	321,320	1,358,181	1.1
Human resources cost	8,685,629	9,624,256	10,020,230	10,423,193	38,753,307	32.7
Infrastructure cost	1,785,478	5,233,309	2,111,134	2,111,134	11,241,054	9.5
Logistics cost	1,402,059	1,408,592	1,485,722	1,423,876	5,720,249	4.8
Medicines, commodities, and supplies (Program)	15,697,764	11,392,345	12,327,659	21,226,610	60,644,379	51.1
Medicines, commodities, and supplies (other)	161,424	161,424	161,424	161,424	645,697	0.5
Health information systems cost	51,910	51,915	51,919	51,924	207,669	0.2
Grand Total	28,172,410	28,194,107	26,484,536	35,719,481	118,570,536	100.0

4.6 Cost of family planning interventionsby health system blocks across years

Cost of providing family planning interventions for reproductive age women was costed in this section.

Table 6 Cost of family planning interventions(in 1000 Kyats)

Health system component	2015	2016	2017	2018	Total	%
Programme Costs	102,144	84,807	85,907	84,558	357,416	1.0
Human resources cost	2,285,692	2,532,699	2,636,903	2,742,945	10,198,239	28.4
Infrastructure cost	469,863	1,377,187	555,562	555,562	2,958,172	8.2
Logistics cost	368,963	370,682	390,979	374,704	1,505,329	4.2
Medicines, commodities, and supplies (Program)	4,919,225	5,098,524	5,265,308	5,428,804	20,711,861	57.6
Medicines, commodities, and supplies (other)	42,480	42,480	42,480	42,480	169,920	0.5
Health information systems cost	13,661	13,662	13,663	13,664	54,650	0.2
Grand Total	8,202,028	9,520,041	8,990,802	9,242,717	35,955,587	100.0

4.7 Detailed cost compositions of cost elements

This section describes the composition of different cost elements: Health system costs, Infrastructure costs, Logistic costs, cost of medicines and other supplies, health information system, costs and program management costs. Please note descriptions are based on the total aggregated cost of all newborn and child care interventions (i.e. the decomposition of total cost of interventions related *antenatal, Intra natal, Essential newborn care, Care of sick newborn, Care of premature & LBW, Nutrition, Immunization, Care of sick infants and children, ECCD , Family Planning and WASH subgroups)*

4.7.1 Human resource cost composition

Of the total human resource cost of around 203billion Kyats, 197billion (97%) is attributed to the salaries and incentives of the health staff at various levels of the health system. Nearly 6.9 billion kyats (3%) is estimated to be invested on pre service training of AMWs and CHWs. The pre-service training cost of other types of staff could not be considered in this study as it was not possible to find out the basic unit cost of training programs.

As already explained the attribution of the human resource cost across other scenarios were made to be proportional to the number of times newborns or children come in to contact with the times. Hence composition of the cost remained to be similar in all scenarios.

4.7.2 Infrastructure cost composition

Total estimated infrastructure cost of the 4 year strategic plan was around 59 billion kyats. Maintenance and operating cost of buildings and vehicles account for 30 % of this amount. Around 25 billion kyat will be required for improvement of newborn care units in township and station hospitals across the country. Approximately 16 billion could be attributed to the newborn and child care shareof ambulance purchase cost to strengthen the referral system.

4.7.3 Logistics cost composition

The total cost of logistics management for the strategic plan from 2015-2018 was estimated to be around 30 billion kyats (Cost adjusted for the newborn and child health related share: 25%) . This amount is distributed for the following activities.

Table 7 Distribution of estimated logistic costs of NCHDSP 2015-18

Cost item	**Total cost for the plan period 2015 -2018**
Construction cost of a new MCH supplies stores	360,000,000
Warehouse operating cost	38,000,000
Workers salary	150,443,912
Transport costs	26,878,196,037
EPI related logistic system strengthening/cold chain maintenance	2,679,934,000

Largest amount of logistic cost is utilized on transport of drugs and commodities across the country.

4.7.4 Cost of medicines, commodities, and supplies

The largest estimated cost of NCHDSP was for purchase of drugs and other supplies utilized for interventions aimed at newborns and children and supplies given for health workers. Total cost for the 4 year period is estimated as 221 billion kyats. Of this amount 217 billion kyats (98%) is to be invested in purchasing drugs and supplies required for interventions. The rest, will be used for the purchase of materials provided for health workers. It should be noted the drugs and commodity cost vary over the program period depending on the changes in intervention recipients due to increased coverages, change in the incidence of illness due to the program impact and also due to demographic changes. Tables8-10 presents the detailed cost of drugs and supplies of the interventions that utilizes the supplies. It should be noted that not all interventions require drugs or commodities. e.g. Breastfeeding counselling, KMC

Table 8 Detailed cost of drugs and supplies by program year (New Born health) (Kyats 1000s)

Program area & intervention	2015	2016	2017	2018	Total
Newborn Health					
Antenatal care					
Tetanus toxoid (pregnant women)	244,235	254,252	262,326	268,894	1,029,707
Syphilis detection and treatment (pregnant women)	441,218	571,246	690,327	798,814	2,501,604
Basic ANC (iron, folate, vitamin B, urine and blood tests)	1,936,094	2,381,335	2,786,866	3,154,725	10,259,020
Insecticide treated materials	8,062,280	2,731,966	2,750,124	10,828,830	24,373,201
Treatment of malaria (pregnant women)	746,345	955,793	1,147,419	1,321,865	4,171,422
Intra natal care (Facility)					
Labor and delivery management (drugs & supplies)	865,778	896,740	921,122	940,481	3,624,121
Active management of the 3rd stage of labor (drugs & supplies)	103,682	201,356	291,996	375,427	972,462
Management of eclampsia (Magnesium sulphate)	20,658	30,090	38,786	46,752	136,287
Management of obstructed labor (LSCS consumables)	2,259,011	2,193,562	2,120,661	2,044,941	8,618,175
Antenatal corticosteroids for preterm labor	218,849	318,762	410,892	495,275	1,443,778
Antibiotics for pPRoM	6,365	9,271	11,951	14,405	41,992
Induction of labor (beyond 41 weeks)	35,362	51,507	66,393	80,029	233,291
Management of pre-eclampsia (Magnesium sulphate)	75,844	110,469	142,397	171,641	500,351
Intra natal care (Home)					
Clean practices at delivery(home)Includes delivery kits	562,592	562,773	560,054	555,525	2,240,944
Chlorhexidine (A component of clean practices at delivery, Separately added to enable impact calculation)	119,450	123,222	126,343	129,007	498,023
Essential newborn care					
Neonatal resuscitation (institutional)	440	455	467	476	1,837
Provision of thermal care at birth	No drugs used				

Early initiation of breast feeding Hygienic cord and skin care	No drugs used				
Neonatal resuscitation (home)	284,400	293,713	300,931	306,575	1,185,620
Vitamin K (only in hospitals)	19,754	19,761	19,665	19,506	78,687
Care of sick newborns	5,863	8,531	10,987	13,233	38,615
Newborn sepsis - Full supportive care (plus antibiotics)	208,260	269,352	325,209	376,035	1,178,858
Clean postnatal practices (Plus iron &VIt B)	286,875	323,958	357,039	386,554	1,354,426
Treatment of local infections (Newborn)	14,002	18,110	21,865	25,282	79,259
Care of LBW/Pre mature					
Kangaroo mother care	No drugs used				
Total	16,517,357	12,326,224	13,363,820	22,354,272	64,561,680

Table 9 Detailed cost of drugs and supplies by program year (Child health) (Kyats 1000s)

Program area & intervention	2015	2,016.00	2,017.00	2,018.00	Total
Child health					
Nutrition					
Home fortification of food with multiple micronutrient powders (children 6-23 months)	480,910	640,856	778,459	904,182	2,804,408
Vitamin A supplementation in infants and children 6-59 months	270,212	316,184	357,516	395,364	1,339,276
Management of severe malnutrition (children)	10,004,436	9,404,949	8,343,909	6,930,342	34,683,635
Management of moderate acute malnutrition (children)	1,462,848	1,444,610	1,370,829	1,255,483	5,533,770
Infant feeding counselling and support in the context of HIV	No drugs needed	No drugs needed	No drugs needed	No drugs needed	No drugs needed
Nutritional care and support (HIV+ children)	No drugs needed	No drugs needed	No drugs needed	No drugs needed	No drugs needed
Mastitis	379,749	429,753	474,398	514,257	1,798,157
Nutritional care and support for pregnant and lactating women in emergencies	3,885,488	4,192,129	4,458,089	4,689,718	17,225,424
Nutritional care and support (HIV+ pregnant and lactating women)	No drugs needed	No drugs needed	No drugs needed	No drugs needed	No drugs needed
Immunization					
Rotavirus vaccine	Not introduced yet	68,691	132,907	192,414	394,012
Measles vaccine	208,823	202,558	195,650	188,523	795,553
Pentavalent vaccine	2,367,627	2,357,513	2,335,938	15,088,214	22,149,292
Hep B vaccine to prevent liver cancer	471,986	457,831	442,218	426,110	1,798,145
Polio vaccine	941,953	913,702	882,544	850,395	3,588,594
BCG vaccine	397,608	385,683	372,531	358,960	1,514,781
Pneumococcal vaccine	Not introduced yet	206,074	398,721	577,241	1,182,036

MR vaccine	197,302	196,459	194,662	192,294	780,717
IPV vaccine	Not introduced yet	68,870	133,042	192,294	394,205
JE vaccine	200,028	200,028	200,028	200,028	800,112
Care of sick infants and children					
Vitamin A supplementation for treatment of xerophthalmia in children	1,155	1,320	1,465	1,597	5,537
Deworming (children)	50,186	52,564	54,271	55,659	212,679
ORS	3,907,027	3,752,525	3,528,757	3,275,106	14,463,415
Zinc (diarrhea treatment)	436,537	435,228	422,449	402,881	1,697,095
Antibiotics for treatment of dysentery	58,280	60,932	61,447	60,432	241,092
Treatment of severe diarrhea	284,101	283,249	274,933	262,197	1,104,480
Pneumonia treatment (children)	2,577,013	2,743,771	2,868,634	2,990,218	11,179,637
Treatment of severe pneumonia	374,305	407,657	434,572	460,691	1,677,225
Malaria treatment (children)	37,155	39,085	40,364	41,114	157,717
Treatment of severe malaria (children)	17,211	18,105	18,698	19,045	73,059
Vitamin A for measles treatment (children)	15,280	15,181	14,820	14,387	59,668
Treatment of severe measles	4,776	4,745	4,632	4,497	18,649
PMTCT	73,132	67,389	61,355	55,209	257,086
Cotrimoxazole for children	17,362	17,200	16,936	16,729	68,228
Pediatric ART	1,281,533	1,473,524	1,626,202	1,777,717	6,158,975
Early child care & Development					
Psycho social stimulation of children	No drugs needed	No drugs needed	No drugs needed	No drugs needed	No drugs needed
Total 30,404,023	30,404,023	30,858,365	30,500,976	42,393,298	134,156,659

Table 10 Detailed cost (MMK) of drugs and supplies by program year (Family planning)
(Kyats 1000s)

Program area & intervention	2015	2016	2017	2018	Total
Family planning					
Condom	50,786	52,637	54,362	56,052	213,837
Injectable	3,655,305	3,788,535	3,912,707	4,034,318	15,390,864
IUD	8,437	8,745	8,932	9,162	35,276
Implant	23,907	24,779	25,367	26,048	100,101
Pill	1,180,790	1,223,828	1,263,940	1,303,224	4,971,782
Total	4,919,225	5,098,524	5,265,308	5,428,804	20,711,861

4.7.5 Health information system costs

The expenses attributed to the management information system of the NCHDSP which was around 1 billion Kyats. Nine percent of this amount (100 million Kyats) wasattributed to the printing cost of various formats in the information system that were related to newborn and child care. Remaining money was assigned on paying salaries of the MIS personal (19%), e based system development and (71%) and other program management costs (1%).

4.7.6 Program management costs

The total program cost of the NCHDSP approximates 7 billion Kyats. Based on the suggestions made by stakeholder meeting and the NCHSP proposals it was decided to cover around 82 townships per year with in-service training programs. In this manner all 330 townships will be covered with the strategic plan period of 4 years. Each in-service training program was planned to be preceded by a Master training. At least 4 master trainers from a township will be included in the master training. Considering the training capacity at the center the in-service training were limited to 4 types. They included, refresher training for VHW (60 personnel from a township), refresher training for MW (35 personnel from a township), Facility IMNCI training (10 personnel from a townships) and ECD training for BHS (90 personnel from a township). It was decided to integrate all relevant newborn and child care inputs to these 4 trainings while developing training curricular. The calculations were based on a per person/ per day unit cost of 3500 Kyats for refresher trainings of VHW.MW and ECD training of BHS. The rate for Facility INMCI and Master trainings were set at 13000 Kyats per person per day.

Table 6 presents a detailed list of these cost by implementation years.

Table 11 Program management activity costing details (Kyats 1000s)

Cost item	2015	2016	2017	2018
In service training (Assumption 82 Townships will be covered in a year)				
Master training				
Master training for refresher training of VHW	12,792,000.00			
Master training for refresher training MW	21,320,000.00			
Master training for facility IMNCI training	29,848,000.00			
Master training for ECD training	12,792,000.00			
Participant training				
Refresher training for VHW	51660	51660	51660	51660
Refresher training for MW	50225	50225	50225	50225
Facility INMCI training	74620	74620	74620	74620
ECD training for BHS	81795	81795	81795	81795
Capacity building on vaccine and cold chain management	18,0000	36,000	36,000,	36,000,
Development of training materials				
Curriculum development for ECD training	10000	-	-	-
Curriculum development for refresher training	10000	-	-	-
Review and update pre service curriculum in relation to Community and facility level newborn care and INMCI components	10000	-	-	-
Facility INMCI training package	-	10,000	-	-
Refresher (2) training package for AMW/CHW	5,000	-	-	-
Refresher (1) training package for MW	10,000	-	-	-
Early child care training package for VHW, ,Auxiliary midwives & Midwives		5000	-	

Advocacy				
Develop advocacy materials and conduct meetings at the National/ Region/State/ District/Township/ levels for promoting Child Health. (Parliamentarians, Non state actors)	20,000	15,000	15,000	15,000
Advocacy meetings for strengthen coordination with Regional/ State governments and other institutions , NGOs for implementing the CH strategy	6,000	6,000	6,000	6,000
Advocacy & awareness campaigns to promote volunteer recruitment & support	10,000	10,000	10,000	10,000
Communication and media activities				
Media advocacy on breast feeding promotion	10,000	10,000	10,000	10,000
Media advocacy based on improving key family practices identified in the Overarching Communication Strategy and Action Plan on Child Survival	20,000,000.00	20,000,000.00	20,000,000.00	20,000,000.00
Development of child survival BCC strategy	75,000	50,000	50,000	50,000
Mass media campaigns	20000	20000	20000	20000
Communication activities to increase update of immunization actions (40 TSP) year	200,000	200,000	200,000,	200,000,
Printed materials	152,000		60,000	
MCH booklet	900,000,	900,000	900,000	900,000,
Program communication and guideline development				
Develop integrated service delivery plan at township level for all CH components (EPI, Nutrition, malaria, RH etc.).	10,000,	5,000,	5,000,	5,000,

Development of human resource improvement plan for NCH	10,000	-	-	-
Development of infrastructure development plan for NCH	10,000	900,000	-	-
Development of quality assurance package	15,000,	50,000,	50,000,	50,000,
Development of SOPs/guidelines for Hospital case management on NBC, care of sick newborns, infants and children	15,000,	10,000	-	-
Development of guidelines on baby friendly health initiative	2,000,	-	-	-
Review and update of supervision tools	5,000,	3,000,	3,000,	3,000,
Development of newborn and child death audit system	15,000	-	-	-
Expand RH logistic MIS to include child health	2,000,	-	-	-
Planning & review meetings				
Stakeholder joint operational planning meeting (integrated operational planning of the NSPNCH)	2,000,	2,000,	2,000,	2,000,
Stakeholder joint monitoring & evaluation meetings	6,000,	6,000,	6,000,	6,000,
National level NCHDSP monitoring meetings	6,000,	6,000,	6,000,	6,000,
NGO collaboration building meetings Planning meetings on setting up information corners in markets, religious places, and	2,000 2,000,	2,000,	2,000,	2,000,
Conduct bi annual child survival forums	6,000,	6,000,	6,000,	6,000,
Brest feeding code monitoring meetings	4,000,	4,000,	4,000,	4,000,

Review & implement functional availability , roles, system support and create task shifting plan for CHW	10,000,	5,000	5,000,	-
Review operational policies for Child Health to further strengthen the enabling regulatory framework through Technical Strategic Group suggested in SPR	15,000,	-	15,000,	-
Integration and monitoring meet-ings of newborn and child death audit system	2,000,	2,000	2,000,	2,000,
Research & evaluations				
Mid-term evaluation of the NSPNCH	-	-	12,000,	-
Evaluation of NCSP 2015-18	-	-	-	75,000,
Evaluation of community INMCI program	-	-	10,000,	-
EPI impact assessment	-	10,000,	-	-
EPI disease burden study	10,000,	-	-	-
Facility assessment of infrastructure and equipment's	30,000,	-	-	-
Review and update HMIS system to cover Newborn and child care	-	15,000,	-	-
Data Quality Audit (DQA) for HMIS	-	15,000,	-	15,000
Conduct mapping of the HTR areas by each Rural Health Centre (RHC) and include in township annual plan	15,000	-	-	15,000,
Supervision				
Supervision visits to SR level/ district/townships from center Central	400	400	400	400
Supervision visits to district/ townships from SR level	33500	33500	33500	33500
Supervision visits to townships from District level	6240	6240	6240	6240
Supervision visits to RHC/SHC from township level	20100	20100	20100	20100

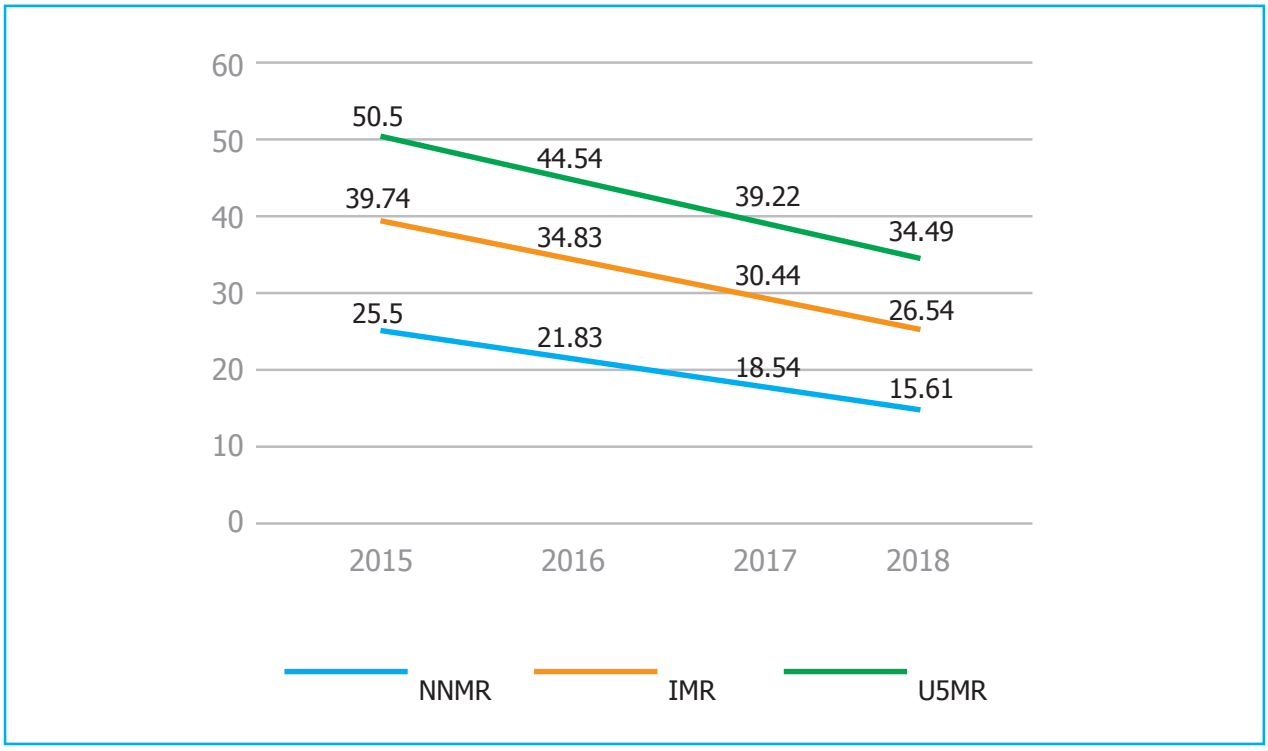
5 Impact of the Strategic plan

NCHDSP 2015-2018 proposes a considerable intervention scale up aiming at impact targets of

1. Reduce the Under-five Mortality Rate from 52 /1000 live births to 39 /1,000 live births by 2018 (Vision 2030)
2. Reduce Infant Mortality Rate from 41/ 1000 live births to 30 /1,000 live births by 2018 (Vision 2030)
3. Reduce Neonatal Mortality Rate from 30/1000 live births to 16/1,000 live births by 2018 (RH plan)

The following graph shows the projected neonatal, infant and under five mortality rates conditional up on the intervention scale up given in the NCHDSP. Projections were carried out using the List module of the OHT.

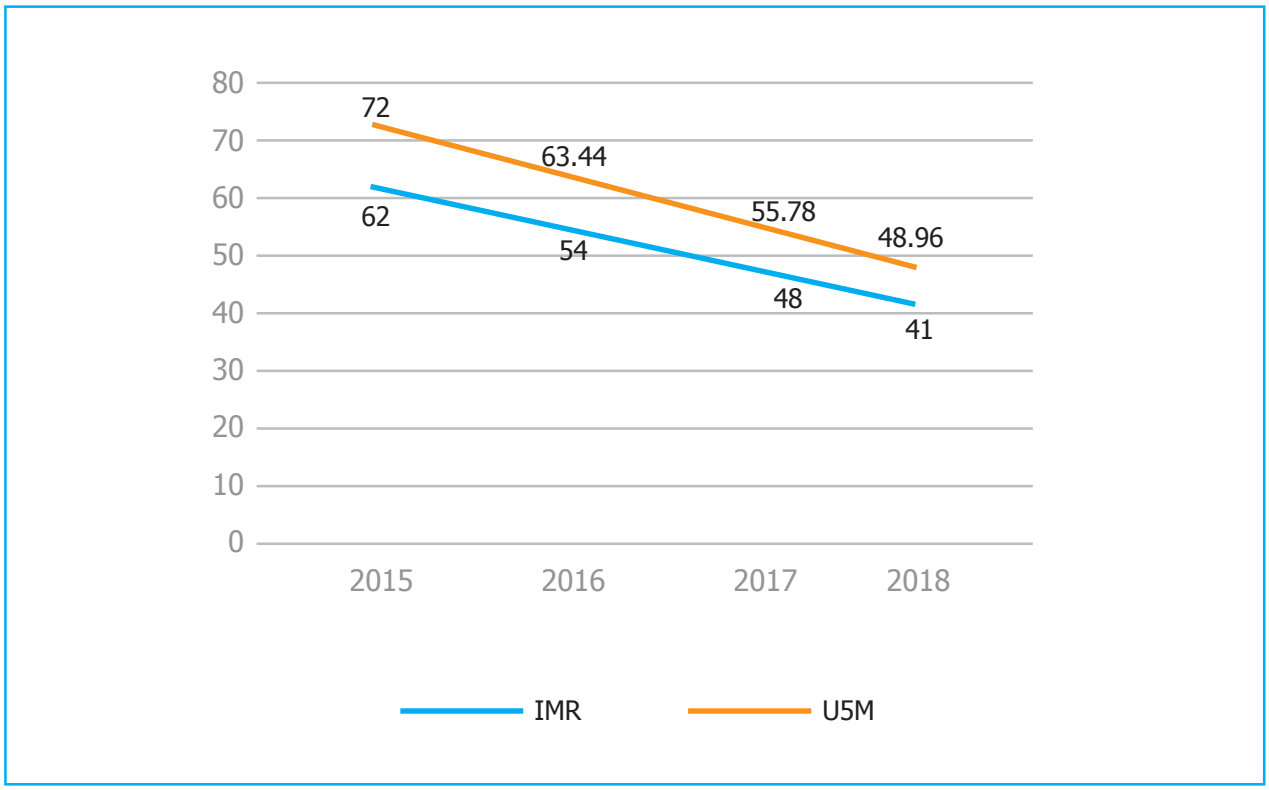
Figure 4 Projected neonatal, infant and under five mortality rates /1000 live births from 2015 to 2018



The graph shows all impact targets are expected to be achieved by 2018 implying that the proposed activities in the NCHDSP are meaningful.

The census report Myanmar 2014, which was released after the development of NCHDSP reported a high child mortality rates. Figure 5 presents the adjusted program impact for the revised IMR (62/1000LB) and Under 5 mortality rates (72/1000 LB).

Figure 5 Projected neonatal, infant and under five mortality rates /1000 live births from 2015 to 2018 (based revised IMR & U5MR)



Based on revised estimates the proposed strategic actions are expected to bring down the U5MR of 72/1000 LB to 49/1000 LB and IMR to 41/1000 LB.

6 References

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8. Expanded program of immunization multiyear plan 2012-2016, Central Expanded program on immunization, DOH, MOH The Republic of Union of Myanmar

9. Implementation plan for child health development strategy in Myanmar 2011-2012, DOH,MOH Women and child health development section , Unicef, WHO

10. Costed national action plan for food and nutrition 2011-2015 , National nutrition center DOH,MOH

11. National strategy and 5 year plan of action for IYCF in Myanmar 2011/2-2015/16

7 Appendix

7.1 Appendix 1: Information requirements for costing NSPNCH 2015 to 2018.

Information	Potential means of verification
1. Description of the newborn and child health program structure in Myanmar and a comprehensive details on the types of interventions and related supplies (drugs, commodities, investigations) that are associated with interventions.	Extracted from the NSPNCH 2015-2018Review and update in consultation with program manager (child development/ Maternal health/ immunization, nutrition, UNICEF MNCH expert) and field implementers Consensus building on the findings in a national level stakeholder meeting with a wider group of implementers and other relevant stakeholders
2. Unit costs of drugs and supplies	Form national drug supply division or other relevant officials UNICEF supply division Related cost studies (RH, immunization, newborn cost studies)
3. Details on the process of proposed intervention delivery. (Who will deliver what and where etc.).	Program managers could help to find this information Finalized in the National stakeholder meeting
4. Current coverages of already exiting interventions included in the NSPNCH 2015-2018	Extracted from the NSPNCH 2015-2018/ RH strategic plan 2014-18Health system information, could be obtained through relevant department DHS survey, MCIS surveys, Census report 2014
5. Intervention inputs for each type of interventions	Treatment/intervention guidelines of the MOHDiscussion with program managers and providers Discussions with individual departments (CD, Maternal care, Nutrition, Immunization INMCI guidelines,& other program guidelines
6. Prevalence of illnesses (e.g malaria, Pneumonia, diarrhea , malnutrition)	National public health statistics, program statistics, OHT manuals
7. Types of different categories of staff / personnel involved in intervention delivery and nature of their involvement	Discussions with program managers Discussions with implementers Review in the National Stakeholder workshop
8. Present and projected numbers, their annual salaries & other incentives of each type of	To be obtained from the relevant human resource and accounts departments

staff /personnel involved in the delivery of interventions of interventions Segregated by program areas, and types institutions at different levels	Review in the National Stakeholder workshop
9. Proportional contribution of all types of staff/ personnel to new-born and child health activities (Some will be exclusively providing New-born and child health, others will have other responsibilities as well.)	Program managers could help to find this informationDiscussion with each types of implementersAnalysis of work diaries Expert opinion Review in the National Stakeholder workshop
10. Details of pre-service training of New-born and child health staff -Number of usual intake of each type of staff, -Duration of training- Average cost for training a person	Data from training institutes Review in the National Stakeholder workshop
11. Average time spent by each type of involved health personnel in service delivery	Observations of activities and timing them Discussing with service providers Estimated by program personnel
12. Types of institutions involved in the Newborn and child health care - Types of institutions- current and proposed numbers of each type - average cost of construction of a new institution (each type) - average maintenance cost, - Average utility cost of each institution	Review of NSPNCH 2015-2018Obtained from building departments, BOQs of past constructions Study of actual utility costs (electricity, water, cleaning etc.) of each type of institution. Review in the National Stakeholder workshop
13. List of standard medical equipment of each different types of institution involved in Newborn and child care	Program guidelines Onsite observation and preparing a list by local staff Discussion with institution personnel
14. List of standard furniture used in each different types of institution involved in Newborn and child care	Program guidelinesOnsite observation by local staff Discussion with institution personnel
15. List of standard ICT equipment used in the each types of institution involved in Newborn and child care	Program guidelinesOnsite observation and preparing a list by local staff Discussion with institution personnel
16. List of standard types of vehicles used in the each types of institution involved in Newborn	Program guidelinesOnsite observation and preparing a list by local staff Discussion with

and child care - Present and proposed number of vehicles - Purchasing costs, - Fuel cost in Myanmar	institution personnel Review in the National Stakeholder workshop
17. Details on the logistic arrangements on the delivery of drugs and supplies related to new - born and child care. - Current and proposed number of ware houses, - Their construction and utility costs - number of vehicles involved in the logistic program - number and types of staff involved the logistic work	Discussion with logistic personnel Department accounts reports Review in the National Stakeholder workshop
18. Details on the management information system related to new-born and child health system - Organization - personnel involved (Number & salaries) - information flows - ICT equipment - degree of involvement - Shared contribution of the MIS system to New-born and child health	Discussion with Program personnel Reports describing the system Review in the National Stakeholder workshop
19. Details on the governance and administration - Number administrators, salaries, their shared contribution to new-born and child care, - cost of governance activities such as policy planning, maintaining planning etc.	Discussion with Program Mangers Reports describing the system Review in the National Stakeholder workshop
20. Program management information - Proposed advocacy/awareness programs - number over project period, - average cost, - Proposed in-service trainings - number over project period,	Discussion with Program Mangers Program details / reports Review in the National Stakeholder workshop

- average cost, - number of staff to be trained over the period - average cost of the training - training details - Research projects identified over the period - Evaluations to be commissioned	

7.2 Appendix 2: List of interventions considered in costing and their delivery channels

Intervention	Delivery channels			
Newborn Health	**Community**	**Out reach**	**Health Centre**	**Hospital**
Antenatal care				
Tetanus toxoid (pregnant women)				
Syphilis detection and treatment (pregnant women)				
Iron supplementation				
Folic acid supplementation				
Vitamin B supplementation				
Mebandazole				
MMN supplementation				
Urine examination				
Hb examination				
Insecticide treated nets				
Treatment of malaria (pregnant women)				
Intranatal care (Facility)				
Labor and delivery management				
Active management of the 3rd stage of labour				
Management of eclampsia (Magnesium sulphate)				
Management of obstructed labor				
Antenatal corticosteroids for preterm labor				
Antibiotics for pPRoM				

Induction of labor (beyond 41 weeks)				
Management of pre-eclampsia (Magnesium sulphate)				
Intranatal care (Home)				
Clean practices of delivery and immediate essential newborn care (home delivery)				
Chlorhexidine				
Essential newborn care				
Neonatal resuscitation (institutional)				
Provision of thermal care at birth				
Early initiation of breast feeding				
Hygienic code and skin care (chlorhexidine)				
Neonatal resuscitation (home)				
Vitamin K				
Clean postnatal practices				
Care of sick newborns				
Newborn sepsis - Full supportive care				
Newborn sepsis - Injectable antibiotics				
Treatment of local infections (Newborn)				
Neonatal Jaundice				
Care of LBW/Pre mature				
Kangaroo mother care				
Child health				
Nutrition				
Daily iron and folic acid supplementation (pregnant women)				
Feeding counselling and support for low-birth-weight infants				
Breastfeeding counselling and support				
Complementary feeding counselling and support				
Home fortification of food with multiple micronutrient powders (children 6-23 months)				
Vitamin A supplementation in infants and children 6-59 months				
Post-natal vitamin B				
Management of severe malnutrition (children)				
Management of moderate acute malnutrition (children)				

Infant feeding counselling and support in the context of HIV				
Nutritional care and support (HIV+ children)				
Mastitis				
Nutritional care and support for pregnant and lactating women in emergencies				
Nutritional care and support (HIV+ pregnant and lactating women)				
Immunization				
Rotavirus vaccine				
Measles vaccine				
Pentavalent vaccine				
Hep B vaccine to prevent liver cancer				
Polio vaccine				
BCG vaccine				
Pneumococcal vaccine				
MR vaccine				
IPV vaccine				
Care of sick infants and children				
Vitamin A supplementation for treatment of xe-rophthalmia in children				
Deworming (children)				
ORS				
Zinc (diarrhea treatment)				
Antibiotics for treatment of dysentery				
Treatment of severe diarrhea				
Pneumonia treatment (children)				
Treatment of severe pneumonia				
Malaria treatment (children)				
Treatment of severe malaria (children)				
Vitamin A for measles treatment (children)				
Treatment of severe measles				
PMTCT				
Cotrimoxazole for children				
Pediatric ART				
Early child care & Development				

Psycho social stimulation of children					
Family planning					
Modern FP methods					
WASH					
Use of improved water source within 30 minutes					
Use of water connection in the home					
Improved excreta disposal (latrine/toilet)					
Hand washing with soap					
Hygienic disposal of children's stools					

7.2.1 Appendix 3 Target populations (TP), Population and needs (PIN) and Coverages of interventions

Intervention	Target population	PIN				Coverage	
		2015	2015	2015	2015	Baseline coverage (2015)	Target coverage (2018)
Newborn Health							
Antenatal interventions							
Tetanus toxoid (pregnant women)	Pregnant women	100	100	100	100	74	90
Syphilis detection and treatment (pregnant women)	Pregnant women	100	100	100	100	25	50
Basic ANC (iron, folate, MMN, mebandazole, Hb& Urine tests,	Pregnant women	100	100	100	100	50	90
Vitamin B for mothers	Pregnant women	100	100	100	100	46	90
Insecticide treated materials	Number of households	71	71	71	71	25	50
Treatment of malaria (pregnant women)	Pregnant women	71	71	71	71	46	90
Intra natal care (Facility)							
Labor and delivery management (institutional)	Pregnant women	25	27	28	30	100	100
Active management of the 3rd stage of labour	Pregnant women	25	27	28	30	5	20

Management of eclampsia (Magnesium sulphate)	Pregnant women	1	1	1	1	40	100
Management of obstructed labor	Pregnant women	10	10	10	10	100	100
Antenatal corticosteroids for preterm labor	Pregnant women	12	12	12	12	40	100
Antibiotics for pPRoM	Pregnant women	5	5	5	5	40	100
Induction of labor (beyond 41 weeks)	Pregnant women	5	5	5	5	40	100
Management of pre-eclampsia (Magnesium sulphate)	Pregnant women	3	3	3	3	40	100
Intra natal care (Home)							
Clean practices of delivery and immediate essential newborn care (home)	Births	64	66	68	70	100	100
Chlorhexidine	Births	64	66	68	70	100	100
Essential newborn care							
Neonatal resuscitation (institutional)	Births	1	1	1	1	25	30
Provision of thermal care at birth	Births	100	100	100	100	67	80
Early initiation of breast feeding	Births	100	100	100	100	67	80
Hygienic code and skin care	Births	100	100	100	100	67	80
Neonatal resuscitation (home)	Births	5	5	5	5	64	70
Vitamin K	Births	100	100	100	100	10	25
Care of sick newborns							
Newborn sepsis - Full supportive care	Births	9	9	9	9	25	50
Newborn sepsis - Inject-able antibiotics	Births	9	9	9	9	25	50
Clean postnatal practices	Births	100	100	100	100	67	100
Treatment of local infections (Newborn)	Births	10	10	10	10	25	50
Neonatal Jaundice	Births	60	60	60	60	25	50
Care of LBW/Pre mature							

Kangaroo mother care	Births	12	12	12	12	20	40
Child health							
Nutrition							
Feeding counselling and support for low-birth-weight infants	Births	9	8	8	7	60	80
Breastfeeding counselling and support	Births	100	100	100	100	30	60
Complementary feeding counselling and support	Births	100	100	100	100	60	80
Home fortification of food with multiple micronutrient powders (children 6-23 months)	Children 6-23 months	100	100	100	100	20	40
Vitamin A supplementation in infants and children 6-59 months	Children 6-59 months	100	100	100	100	60	90
Post-natal vitamin B	Post-natal mothers	100	100	100	100	60	90
Management of severe malnutrition (children)	Children 0-59 months	6	5	4	3	60	80
Management of moderate acute malnutrition (children)	Children 0-59 months	23	20	18	15	60	80
Infant feeding counselling and support in the context of HIV	Pregnant women	1	1	1	1	40	60
Nutritional care and support (HIV+ children)	HIV+ children	100	100	100	100	40	60
Mastitis	Births	10	10	10	10	40	60
Nutritional care and support for pregnant and lactating women in emergencies	Pregnant women	100	100	100	100	60	80
Nutritional care and support (HIV+ pregnant and lactating women)	Pregnant women	1	1	1	1	40	60
Immunization							
Rotavirus vaccine	Births	100	100	100	100	0	95
Measles vaccine	Births	100	100	100	100	82	90

Pentavalent vaccine	Births	400	400	400	400	88	95
Hep. B vaccine to prevent liver cancer	Births	100	100	100	100	20	20
Polio vaccine	Births	300	300	300	300	88	95
BCG vaccine	Births	100	100	100	100	93	95
Pneumococcal vaccine	Births	100	100	100	100	0	95
MR vaccine	Births	100	100	100	100	88	95
IPV vaccine	Births	100	100	100	100	0	95
JE vaccine	Direct entry	100	100	100	100	100	100
Care of sick infants and children							
Vitamin A supplementation for treatment of xe-rophthalmia in children	Children 6-59 months	1	1	1	1	60	85
Deworming (children)	Children 12-59 months	100	100	100	100	80	90
ORS	Children 0-59 months	236	207	181	157	66	80
Zinc (diarrhea treatment)	Children 1-59 months	236	207	181	157	30	40
Antibiotics for treatment of dysentery	Children 1-59 months	12	10	9	8	60	90
Treatment of severe diarrhea	Children 1-59 months	2	2	2	2	60	80
Pneumonia treatment (children)	Children 1-59 months	31	31	30	30	66	80
Treatment of severe pneumonia	Children 1-59 months	1	1	1	1	70	90
Malaria treatment (children)	Children 0-14	0.25	0.23	0.22	0.21	60	80
Treatment of severe malaria (children)	Children 0-14	0.03	0.028	0.026	0.025	60	80
Vitamin A for measles treatment (children)	Children 1-59 months	4	4	3	3	66	66
Treatment of severe measles	Children 1-59 months	0.04	0.04	0.04	0.04	66	66
PMTCT	Women in need of PMTCT	100	100	100	100	100	100

Cotrimoxazole for children Pediatric ART	HIV+ children	100	100	100	100	17	20
Early child care & Development	Number of children needing ART	100	100	100	100	69	98
Psycho social stimulation of children	Children 0-59 months	100	100	100	100	10	40
Family planning							
Family planning	Women in reproductive age in union	FAMPLAN default values were used				Modern methods CPR 45.6	50
WASH							
Use of improved water source within 30 minutes	Number of households	100 100	100	100	86	90	
Use of water connection in the home	Number of households	100 100	100	100	8	15	
Improved excreta disposal (latrine/toilet)	Number of households	100 100	100	100	77	80	
Hand washing with soap	Number of households	100 100	100	100	17	40	
Hygienic disposal of children's stools	Number of households	100 100	100	100	17	40	

7.2.2 Appendix 4 Treatment inputs (types of drugs/supplies used in interventions and average unit costs for patients/client)

Program area : subgroup	Treatment inputs (types)	Unit cost per subject (MMK)
Newborn Health		
Antenatal interventions		
Tetanus toxoid (pregnant women)	Tetanus toxoid, injectionSyringe, needle + swab	280
Syphilis detection and treatment (pregnant women)	*Screening*Blood collecting tube, 5 mlGloves, exam, latex, disposable, pairSyringe, needle + swabTest, Rapid plasma reagin (RPR) *Treatment*Benzathine benzylpenicillin, powder for injection, 2.4 million IUSyringe, needle + swabWater for injection, 5 ml ampoule	2138.92
Basic ANC (iron, folate, MMN, mebandazole, Hb& Urine tests,	Ferrous salt, tablets, 60 mgFolic acid, tablet, 5 mgMebendazole, chewable tablet, 500 mgTest,	

	hemoglobinTest strips, urine analysisMMN TabletsThiamine (vitamin B1), 100 mg	3285.00
Insecticide treated materials	ITN	4100.82
Treatment of malaria (pregnant women)	*Diagnosis*Malaria test kit (RDT)Slide and stain for microscopy*Treatment*Artemether + Lumefantrine, tablets, 20 + 120 mg, 6 x 1 blisterArtesunate + Amodiaquine, tablets, 50 mg + 153 mg, 3 + 3 blisterArtesunate + SP, tablets, 50 mg + 500 mg + 25 mg, 3 + 1 blister	1943.51
Intra natal care (Facility)		
Labor and delivery management (institutional)	Clean delivery kitDelivery recordGloves, surgeon's, latex, disposable, sterile, pairParacetamol, tablet, 500 mgPartographPovidone iodine, solution, 10 %, 5 ml per injection	2937.96
Active management of the 3rd stage of labour	Oxytocin, injection, 10 IU in 1 ml ampouleSyringe, needle + swabMisoprostol, tablet, 200 mcg	1759.19
Management of eclampsia (Magnesium sulphate)	Severe pre-eclampsiaBag, urine, collecting, 2000 mlFoley catheterTest strips, urine analysisHigh blood pressure (if diastolic BP > 0mmHg)Hydralazine, powder for injection, 20 mg ampouleIV giving/ infusion set, with needleSodium lactate injection (Ringer's), 500 ml, with giving setIf pregnancy > 7 months and sign of fetal compromise, expedite deliveryMisoprostol, tablet, 200 mcgOxytocin, injection, 10 IU in 1 ml ampouleSodium chloride, injectable solution, 0,9 %, 500 mlConvulsionsMagnesium sulfate, injection, 500 mg/ ml in 10-ml ampouleSodium lactate injection (Ringer's), 500 ml, with giving setSyringe, needle + swabWater for injection, 10 ml ampouleIf pregnancy < 7 months monitor blood pressure and urine)Test strips, urine analysisContinued convulsionsLidocaine HCl (in dextrose 7.5%), ampoule 2 mlMagnesium sulfate, injection, 500 mg/ml in 10-ml ampouleDelayed labor or late referralLidocaine HCl (in dextrose 7.5%), ampoule 2 mlMagnesium sulfate, injection, 500 mg/ml in 10-ml ampouleRecurring conversionsMagnesium sulfate, injection, 500 mg/ml in 10-ml ampoule	RHC 291.13,Hospital 5744.86

Management of obstructed labor	GeneralGloves, surgeon's, latex, disposable, sterile, pairSpinal anesthesiaIV giving/infusion set, with needleLidocaine HCl (in dextrose 7.5%), ampoule 2 mlSodium lactate injection (Ringer's), 500 ml, with giving setSyringe, needle + swabEpinephrine, ampoule, 1 mg/mlAnd if necessarySyringe, needle + swabEpinephrine, ampoule, 1 mg/mlGeneral anesthesiaAtropine sulphate, injection, 1 mg in 1 ml ampouleIV giving/infusion set, with needleSodium lactate injection (Ringer's), 500 ml, with giving setSyringe, needle + swabKetamine, 10 ml vial, 50 mg/mlProphylactic antibioticsAmpicillin, powder for injection, 500 mg, vialCefazolin, ampoule, 500 mgOtherBag, urine, collecting, 2000 mlFoley catheterProcedureGauze pad, 10 x 10 cm, sterileNeedle, suture, assorted sizes, round bodyPovidone iodine, solution, 10 %, 5 ml per injectionSuture, catgut, chromic, 0, 150 cmSuture, non-absorbable, synthetic, 3/0, curved needleBlade, surgical, no. 22, sterile, disposableIf signs of infectionAmpicillin, powder for injection, 500 mg, vialGentamycin, injection, 40 mg/ml in 2 ml vialIV giving/infusion set, with needleMetronidazole, injection, 500 mg in 100 ml vialSodium chloride, injectable solution, 0,9 %, 500 mlAfter deliveryIV giving/infusion set, with needleOxytocin, injection, 10 IU in 1 ml ampouleParacetamol, tablet, 500 mgPethidine, 50 mg/ml, 2 ml ampouleSodium lactate injection (Ringer's), 500 ml, with giving setSyringe, needle + swab	25,552.64
Antenatal corticosteroids for preterm labor	Dexamethasone, 1 ml injection, 4 mg/mlIV giving/ infusion set, with needleSodium chloride, injectable solution, 0,9 %, 500 mlSyringe, needle + swabNifedipine	3867.96
Antibiotics for pPRoM	Erythromycin, tablet, 250 mg	269.99
Induction of labor (beyond 41 weeks)	Misoprostol, tablet, 200 mcg,	1500.00
Management of pre-eclampsia (Magnesium sulphate)	Severe pre-eclampsiaBag, urine, collecting, 2000 mlFoley catheterTest strips, urine analysisHigh blood pressure (if diastolic BP > 0mmHg)Hydralazine,	

	powder for injection, 20 mg ampouleIV giving/infusion set, with needleSodium lactate injection (Ringer's), 500 ml, with giving setIf pregnancy > 7 months and sign of fetal compromise, expedite deliveryMisoprostol, tablet, 200 mcgOxytocin, injection, 10 IU in 1 ml ampouleSodium chloride, injectable solution, 0,9 %, 500 mlConvulsionsMagnesium sulfate, injection, 500 mg/ml in 10-ml ampouleSodium lactate injection (Ringer's), 500 ml, with giving setSyringe, needle + swabWater for injection, 10 ml ampouleIf pregnancy < 7 months monitor blood pressure and urine)Test strips, urine analysisContinued convulsionsLidocaine HCl (in dextrose 7.5%), ampoule 2 mlMagnesium sulfate, injection, 500 mg/ml in 10-ml ampouleDelayed labor or late referralLidocaine HCl (in dextrose 7.5%), ampoule 2 mlMagnesium sulfate, injection, 500 mg/ml in 10-ml ampouleRecurring conversionsMagnesium sulfate, injection, 500 mg/ml in 10-ml ampoule	5744.86
Intra natal care (Home)		
Clean practices of delivery and immediate essential newborn care (home)	Home delivery kit	1500.00
Chlorhexidine	Chlorhexidine digluconate (10 ml bottle)	331.75
Essential newborn care		
Neonatal resuscitation (institutional)	Mucous extractor	200.00
Provision of thermal care at birth	No drugs and supplies used	-
Early initiation of breast feeding	No drugs and supplies used	
Hygienic code and skin care	Sterile glouse, chlorhexidine	482.88
Neonatal resuscitation (home)	Mucous extractor, Sterile glouse	487.00
Vitamin K	Per child	290.00
Care of sick newborns		
Newborn sepsis - Full supportive care (Including antibiotics)	Blood cultureChest X-rayGentamycin, injection, 40 mg/ml in 2 ml vialIV giving/infusion set, with needleOxygen, 1000 liters, primarily with oxygen cylindersAmpicillin, powder for injection, 500 mg, vialCefataxime (250)	10529.57

Treatment of local infections (Newborn)	Tetracycline eye ointment, 1 %, tube 5 mgGentian violet, powder 25 mgGloves, exam, latex, disposable, pair	637.15
Care of LBW/Pre mature		
Kangaroo mother care	No drugs used	
Child health		
Nutrition		
Feeding counselling and support for low-birth-weight infants	No drugs used	
Breastfeeding counselling and support	No drugs used	
Complementary feeding counselling and support	No drugs used	
Home fortification of food with multiple micronutrient powders (children 6-23 months)	MMN per child	1913.10
Vitamin A supplementation in infants and children 6-59 months	Vitamin A caplets (100000, 200000)	23.04, 35.94
Post-natal vitamin B	Vitamin B 100 mg.	400.00
Management of severe malnutrition (children)	Average cost of nutrients per subject	71130.00
Management of moderate acute malnutrition (children)	Average cost of nutrients per subject	433.00,
Infant feeding counselling and support in the context of HIV	No drugs used	
Nutritional care and support (HIV+ children)	No drugs used	
Mastitis	No drugs used	
Nutritional care and support for pregnant and lactating women in emergencies	No drugs used	
Nutritional care and support (HIV+ pregnant and lactating women)	No drugs used	
Immunization		
Rotavirus vaccine	Rotavirus vaccine Syringe, auto-disposable, 0.5 ml, with needle Safety box for used syringes/needles, 5 liter	276.23
Measles vaccine	Measles vaccine Syringe, auto-disposable, 0.5 ml,with needle Safety box for used syringes/needles, 5liter	276.23

Pentavalent vaccine	Pentavalent vaccine (DPT, Hep B, Hib)Syringe, auto-disposable, 0.5 ml, with needle Safety box for used syringes/needles, 5 liter	765.17 (Fullcourse)
Hep. B vaccine to prevent liver cancer	Hepatitis B vaccine Syringe, auto-disposable, 0.5 ml, with needle Safety box for used syringes/needles, 5 liter	745.73
Polio vaccine	Polio vaccine	469.98(Full course)
BCG vaccine	BCG vaccine Syringe, autodisposable, BCG, 0.1 ml, with needle Safety box for used syringes/needles, 5 liter	525.95
Pneumococcal vaccine	Pneumococcal vaccine Syringe, auto-disposable, 0.5 ml, with needle Safety box for used syringes/needles, 5 liter	765.17
MR vaccine	MR vaacine Syringe, auto-disposable, 0.5 ml, with needle Safety box for used syringes/needles, 5 liter	255.06
IPV vaccine	IPV vaccine Syringe, auto-disposable, 0.5 ml, with needle Safety box for used syringes/needles, 5 liter	255.06
JE vaccine	JE vaccine Syringe, auto-disposable, 0.5 ml, with needle Safety box for used syringes/needles, 5 liter	400.06
Care of sick infants and children		
Vitamin A supplementation for treatment of xerophthalmia in children	Vitamin A, caplet, 50,000 IUChildren 6-11 months Vitamin A, caplet, 100,000 IU Children 12-59 months Vitamin A, caplet, 200,000 IU	102.29(Wtdavg per under 5 child)
Deworming (children)	Mebandazole 500 mg	15.00
ORS	ORS sachet	600.00
Zinc (diarrhea treatment)	Zinc sulphate	150.00
Antibiotics for treatment of dysentery	Ciprofloxacin 250 MG (per case)	200.00
Treatment of severe diarrhea	ORS, sachetIV giving/infusion set, with needle Saline solution Cotton swab	4881.03
Pneumonia treatment (children)	Amoxicillin, caplet, 250 mg Paracetamol, tablet, 500 mg	3060.21
Treatment of severe pneumonia	Ampicillin, powder for injection, 500 mg, vialGentamicininj 10 mg/ml 2 ml ampNasogastric tube, CH12, 125 cm, disposable Oxygen, 1000 liters, primarily with oxygen concentrators Prednisolone, tablet, 5 mg Salbutamol, syrup, 2 mg/5 ml Syringe, needle + swab Amoxicillin, caplet, 250 mg	16763.56

Malaria treatment (children)	Diagnosis Malaria test kit (RDT)Slide and stain for microscopy Treatment Artemether + Lumefantrine, tablets, 20 + 120 mg, 6 x 1 blisterArtesunate + Amodiaquine, tablets, 50 mg + 153 mg, 3 + 3 blister Artesunate + SP, tablets, 50 mg + 500 mg + 25 mg, 3 + 1 blister	1943.51
Treatment of severe malaria (children)	Blood, one unitGlucose inj 5 %, 500 ml with giving setIV giving/infusion set, with needleOxygen, 1000 liters, primarily with oxygen concentrators Quinine, injection, 300 mg/ml, 2 ml ampoule Blood glucose level testArtusenate, 20 mg/ml, 1 ml ampoule Nasal prongs	7562.40
Vitamin A for measles treatment (children)	Vitamin A, caplet, 100,000 IU Paracetamol, tablet, 500 mg Vitamin A, caplet, 200,000 IU Vitamin A, caplet, 50,000 IU	142(wtdavg under 5 child)
Treatment of severe measles	Amoxicillin, caplet, 250 mg Paracetamol, tablet, 500 mg Vitamin A, caplet, 100,000 IU Gentian violet, powder 25 mg	4451.00
PMTCT	TestingBlood collecting tube, 5 mlGloves, exam, latex, disposable, pairHIV rapid test kitSyringe, needle + swabInfant - Single dose nevirapineNevirapine, oral solution, 10 mg/mlNevirapine, oral solution, 10 mg/ mlMother - Single dose nevirapineNevirapine, tablet, 200 mgMother - Dual therapyZidovudine (AZT), capsule, 300 mgMother - Option A - BreastfeedingZidovudine (AZT), capsule, 300 mgMother - Option A - Non-breastfeedingZidovudine (AZT), capsule, 300 mg	23292.67
Cotrimoxazole for children	Sulfamethoxazole + trimethropin, oral suspension, 240 mg, 100 mlSulfamethoxazole + trimethropin, tablet 400 mg + 80 mg	8889.97
Pediatric ART	0-11 monthsAZT (60 mg) + 3TC (30 mg) + NVP (50 mg)AZT 10 mg/ml + 3TC 10 mg/ml + LPV/r (80 + 20 mg/ml)12-23 monthsAZT (60 mg) + 3TC (30 mg) + NVP (50 mg)24-59 monthsAZT (60 mg) + 3TC (30 mg) + NVP (50 mg)60 months-7 years, 11 monthsAZT (60 mg) + 3TC (30 mg) + NVP (50 mg)8 years-14 years, 11 monthsAZT + 3TC + NVP	309675.68 (wtdavg per under 5 child)
Early child care & Development		

Psycho social stimulation of children	No drugs used	
Family planning		
Family planning	Condom	5,469.66
	Injectable	2,863.11
	IUD	353.130915
	Implant	17,805.11
	Female sterilization	4,817.26
	Male sterilization	2,306.83
	Pill	23,038.29
		4,423.35
WASH		
Use of improved water source	No drugs used	
within 30 minutes		
Use of water connection in the	No drugs used	
home		
Improved excreta disposal (latrine/	No drugs used	
toilet)		
Hand washing with soap	No drugs used	
Hygienic disposal of children's	No drugs used	
stools		