Ministry of Public Health

General Directorate of Policy and Planning

Health Economics and Financing Directorate

Normative Costing of the Integrated Package of Essential Health Services (IPEHS)

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Executive Summary

Providing sufficient resources to finance implementation of the IPEHS is a key challenge. A key challenge in raising more domestic revenue is that investment in health is not seen as a key component of macro-economic policies to foster economic growth. To facilitate the implementation of a financially sustainable IPEHS, the Health Economics and Financing Directorate (HEFD) of the MoPH costed services at 5 different levels of the health system in the IEPHS. This is helping identify areas where greater efficiency might be achieved, as well as informing the quantity of domestic and donor funding that it requires to offer IPEHS services at a level of access and quality sufficient to meet the basic health needs of the population and provide financial protection for the poor and vulnerable.

The objective of this costing exercises is to identify the estimates of individual services costs, individual program cost, individual health facility total cost as well as the total cost of the IPEHS aiming to inform efficiency and support contracting for the IPEHS services, demonstrating value for money, planning the allocation of resources and advocating for government and donor financing.

The HEFD used the cost and revenue analysis tool, CORE Plus, to undertake the cost analysis of the IPEHS. CORE Plus is a Microsoft Excel based dynamic costing tool developed by the Management Sciences for Health (MSH). It is specifically designed for costing primary health care facilities and has been validated by the WHO and used in many countries. The tool allows users to calculate the total cost of a health facility broken down by individual service, programme, service category and resource type. CORE Plus uses a method of bottom-up costing to determine the actual and normative costs. Costs are estimated under two different scenarios: (1) actual services and actual costs; (2) actual services and normative costs

However, we used CORE Plus tool to estimate direct cost of IPEHS all services for MHT, HSC, BHC, CHC, and DH. Provincial hospital cost was estimated using HOSPICAL which is specifically developed for hospital costing. Total direct cost of IPEHS all services calculated in CORE Plus estimated to be 193,482,470 USD for actual scenario (Scenario A) and 563,205,788 USD for normative scenario (Scenario B). It is realized that standard cost reflected in scenario B is almost three times higher comparing the actual cost presented in scenario A. Undepreciated capital cost, all health posts total cost and provincial hospitals cost were added to the total direct cost of IPEHS in order to estimate the total IPEHS cost. Total IPEHS cost estimated to be 225,887,986 USD for Scenario A and 654,218,875 USD for scenario B. Again estimates show that total normative cost of IPEHS is almost three times higher than actual cost.

Analysis illustrates that total direct cost of services provided at the health facility level constitutes 87% of total health facility cost. Undepreciated capital cost account for 7.3% of the cost and CHW program cost that is mostly linked with number of HPs in each health facility account for 5.7% of total health facility cost. As well as analysis of total cost by health facility type shows that, HSC with USD 31,236 has the lowest actual cost among all health facility types. While DH with 443,412 USD and provincial hospital with 1,246,366USD have the highest total actual cost respectively.

Based on our analysis provincial hospital total actual cost is more than twice the DH cost. Our analysis using normative scenario indicates that it costs us approximately USD 86,450 to operate one HCS and USD 3,500,503 to run a provincial hospital.

We also analysed the total cost to identify share of each health facility type in total IPEHS cost. In addition to health facility size, the current number of each type were factors associated with their comparative share in total IPEHS cost. As indicated above, CHC with 28% has the highest share in IPEHS total cost followed by BHC with 23% under the actual cost scenario. Using standard/ normative approach, our analysis indicates that it requires us almost three times the actual cost to run the same number of CHCs.

All health services provided in the framework of IPEHS can be categorized in three types: curative services, preventive and promotional. Analysis of share of service cost categories in IPEHS total indicates that, actual curative services with 57% of total IPEHS cost has the higher share and followed by preventive care with 32% share in total IPEHS cost. Share of promotional services is around 2% of total IPEHS cost. In normative cost scenario share of curative services increased by 10%. However, the share of preventive and promotional services has reduced by 9% and 1% respectively.

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Finally, we extend our appreciation to David Collin, from Management Science for Health for his valuable guidance and contributions during the study and finalization of this report. It is appreciated his willingness to assist in all steps of this study.

Regards,

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1. Introduction

After decades of conflict, health indicators in Afghanistan were extremely poor. To rebuild the country's health system and improve the country health outcomes, the Ministry of Public Health of the Government of Afghanistan implemented the Basic Package of Health Services (BPHS) as core strategy to provide a standardized package of primary health care services across the country. This was complemented by the Essential Package of Hospital Services (EPHS), which provides secondary care to the population, to increase referrals and access to hospital services. The BPHS and EPHS, designed in 2003 and 2005, respectively, have served as cornerstones in establishing the Afghanistan health system.

There has been a marked change in the causes of illness and death in Afghanistan since the design of the BPHS and EPHS. The primary focus 2002 onwards was on the control and prevention of communicable diseases and reducing the very high mortality among mothers and children.

Recently Ministry of Public Health (MoPH) launched Integrated Package of Essential Health Services 2019 (IPEHS) that is a re-design of, and builds upon what is already being done through the 2003 Basic Package of Health Services (BPHS) and the 2005 Essential Package of Hospital Services (EPHS). The re-design has been done to better reflect the current epidemiological profile, and health needs and demands in the country. This package, has health, clinical and surgical interventions. There are a total of 164 different types of interventions of which 84 are highlighted as the highest priority.

As a step towards universal health coverage, whether urban or rural, the interventions have been streamlined across 7 levels of the health facilities from the community level through to the provincial hospital (PH). Among other things this highlights the role and responsibilities of health service providers at each of the 7 levels. Different types of health, medical and surgical interventions are listed under the nine health service headings:1) Reproductive, maternal, and newborn; 2) Child and adolescent health development; 3) Infectious diseases; 4) Chronic, non-communicable diseases; 5) Mental, neurological and substance use disorders; 6) Emergency care; 7) Surgery; 8) Palliative care, and 9) Rehabilitation[1].

Providing sufficient resources to finance implementation of the IPEHS is a key challenge. A key challenge in raising more domestic revenue is that investment in health is not seen as a key component of macro-economic policies to foster economic growth. To facilitate the implementation of a financially sustainable IPEHS, the Health Economics and Financing Directorate (HEFD) of the MoPH costed services at 5 different levels of the health system in the IEPHS. This is helping identify areas where greater efficiency might be achieved, as well as informing the quantity of domestic and donor funding that it requires to offer IPEHS services at a level of access and quality sufficient to meet the basic health needs of the population and provide financial protection for the poor and vulnerable.

[1] Integrated Package of Essential Health Services (IPEHS) 2019

2. Objective

The objective of this costing exercises is to identify the estimates of individual services costs, individual program cost, individual health facility total cost as well as the total cost of the IPEHS aiming to inform efficiency and support contracting for the IPEHS services, demonstrating value for money, planning the allocation of resources and advocating for government and donor financing.

3. Method

3.1. Data Analysis Tool

The HEFD used the cost and revenue analysis tool, CORE Plus, to undertake the cost analysis of the IPEHS. CORE Plus is a Microsoft Excel based dynamic costing tool developed by the Management Sciences for Health (MSH). It is specifically designed for costing primary health care facilities and has been validated by the WHO and used in many countries.

The tool allows users to calculate the total cost of a health facility broken down by individual service, programme, service category and resource type. CORE Plus uses a method of bottom-up costing to determine the actual and normative costs. Costs are estimated under two different scenarios: (1) actual services and actual costs; (2) actual services and normative costs.

Provincial hospital (PH) cost data was obtained from reanalysis of Essential Package of Hospital Services (EPHS) costing conducted by HEFD in 2013.

3.1. Reclassification of Services

This costing exercise used health facility utilization data for the year 2018 from the MoPH data warehouse, DHIS2. The list of priority conditions for outpatient and inpatient admissions were retrieved from the monthly integrated activity report and the hospital monthly integrated report. However, these are useful in indicating morbidity conditions, they are not specific enough for costing individual services. A further breakdown of morbidity into specific services was therefore required. In addition, utilization rates were estimated for the newly added health services of IPEHS that are not yet implemented in the country which required assumptions to make in consultation with relevant MoPH departments.

In order to agree on reasonable assumptions, a panel was convened. It included doctors, midwives and nurses representing health workers in existing health facilities. The panel helped establish standard treatment guidelines (STGs) for each disaggregated outpatient intervention. The panel reclassified 31 priority conditions for outpatient morbidity into a total of 89 interventions including ‘other unlisted diseases. After including newly added interventions into the IPEHS, 103 outpatient services were costed.

A separate panel was convened to develop standard treatment guidelines for each disaggregated inpatient service. The panel was comprised of surgeons, general physicians, midwives and nurses representing health personnel in district hospitals. The panel reclassified 44 inpatient morbidity conditions included in the hospital monthly integrated report into 70 inpatient services

including ‘all other new inpatient cases. The same approach was applied for the list of new services in consultation with relevant departments,

3.2. Development and allocation of costs

The direct costs of services were estimated based on the STGs developed in consultation with the two panels of health personnel. The guidelines for each service are comprised of the quantities of resources required to provide a good quality service. These quantities are then multiplied by the price of each resource to produce a total cost for each service. For each service, members of the two panels determined which facility staff member is expected to provide the service and how much of their time is needed.

The two panels also determined which medicines, supplies and laboratory tests are commonly required to diagnose and treat each condition. All the standard treatment guidelines developed for the services are considered established norms for the purposes of the specific application of the data analysis tool CORE Plus.

As required by the data analysis tool the following steps have been taken:

- Classification of each intervention under relevant programmes based on the type of interventions included in the costing;
- Identification of the type of service (curative, preventive, surgical etc.), the target population, and the level of service delivery (primary and secondary) for each intervention;
- Identification of age distribution among health facility catchment population based on national level data provided by the Afghanistan National Statistics and Information Authority (NSIA).

The costing comprises total costs from the provider perspective which are financial costs incurred by the providers. However, endeavoured to identify the true cost of donations to the health facilities, due to associated difficulties that made it almost impossible to draw the true picture of donations to health facilities, we excluded the cost of donations for medicines, medical supplies and laboratory tests for the actual cost scenario. Recurrent costs were included in the modelling since these are directly relate to the on-going costs of service provision. The average annual capital costs by facility type, which obtained from the Expenditure Management Information System (EMIS), were later added to the health facility total cost. Lastly, the cost of the Health Post (HP) providing community based services was obtained from the Evaluation of the Community Based Health System study in Afghanistan[2] and was added to the total cost produced by CORE Plus.

3.3. Sample of health facilities

In consultation with the MoPH Grant and Contract Management Unit, the geographic distribution of provinces and shared borders with other provinces with similar context was considered as criteria for the selection of target provinces. This resulted in 15 out of 34 provinces being included in the costing sample. To ensure completeness of data and that selected health facilities represent

[2] Evaluation of the Community Based Health System study in Afghanistan, MoPH, Afghanistan.

similar types of health facilities in a province, health facilities were listed based on completeness of their health management information system (HMIS) quarterly reports.

As a second step in getting a sample of health facilities one health facility with history of good reporting was randomly selected from each type to get a total of five health facilities per province. This resulted in a total sample of 67 health facilities, including 15 sub-health centres, 15 basic health centres, 15 comprehensive health centres, 15 district hospitals, and seven mobile health teams. Separate CORE Plus models were established for each facility type to reflect the different package of services that should be provided at each one.

All over the country there are totally 26 provincial hospitals where the total cost was included in this costing study. These hospitals are functional and running by Non-Governmental Organizations (NGO), Hospital Reform Project and MoPH Strengthening Mechanism (SM). Average PH total cost was estimated in EPHS costing 2013 were used as actual PH total cost and multiplied by the number of provincial hospitals to obtain the total cost for all EPHS hospitals. To estimate total normative cost at PH level, an allocation factor was generated using ratio of normative and actual cost estimated at DH level.

3.4. Data Collection and Organization

A semi-structured questionnaire was developed and shared with the government contracted health service providers in the sampled provinces. The service providers gave general information on health facilities while data on salaries, drug costs and operating costs were obtained using Expenditure Management Information System (EMIS for 2018. Average supply and lab test unit prices was based on data collected from implementer NGOs. Pharmaceutical and Logistics Information System (PLIS) 2016 median scores was used to allocate each drug unit price for the analysis.

4. Result

4.1. Basic Statistics

In addition to the estimate of costs, the CORE Plus tool provide us with basic statistics for MHT, HSC, BHC, CHC, and DH. A HSC is intended to cover a population of about 3,000 to 7,000, The catchment population for a BHC should be within the range of 15,000 to 30,000 people, a CHC should cover a catchment area of about 30,000 to 60,000 people, while a DH should cover a population of 100,000 to 300, 000 people.

Table 01 indicates basic statistics by type of health facility. Overall the average of catchment population for a HSC is within the range of rule, while, BHC and DH with 13,201 and 59,237 people in the coverage area are not within the range of proposed in the strategies. CHC has the lowest range of proposed population. Total Type of Services in full package is based on number of services identified to be provided by each health facility type while number of all services delivered from the package denotes number of services actually provide by the health facility against full package. Except DH, all other health facility types have not provided total types of

services based on the full package. Different reasons can cause for lower level of services coverage from the package.

Table 1: Average statistics for each type of facility

Indicator	Facility Type	Actual Scenario
Catchment Population	MHT	7,500
	HSC	6,561
	BHC	13,201
	CHC	30,123
	DH	59,237
Total Type of Services in Full Package	MHT	79
	HSC	81
	BHC	83
	CHC	86
	DH	155
Number of all Services Delivered from the Package	MHT	41
	HSC	45
	BHC	47
	CHC	68
	DH	155
Number of all Services Provided	MHT	33,542
	HSC	18,971
	BHC	30,747
	CHC	56,077
	DH	127,264
Number of Services Per Capita	MHT	4
	HSC	3
	BHC	2
	CHC	2
	DH	2

The average number of services per capita are 4 and 3 for MHT and HSC. The rest of the health facilities provided same number of services per capita.

Table 02 in the bellow shows total number of services and number of services per capita by service type namely, curative, preventive and promotional services. As analysis show on average more preventive services provided per capita comparing to curatives and promotional services. Service utilization for promotional services represent number of health education conducted.

Table 2: Total Number of Services and Number of Services per Capita by Service Type

Indicator	Facility Type	Actual Scenario
Curative Services	MHT	11,558
	HSC	7,607
	BHC	13,079
	CHC	26,598
	DH	55,881
Number of Curative services Per capita	MHT	1.54
	HSC	1.16
	BHC	0.98
	CHC	0.88
	DH	0.90
Preventive Services	MHT	21,684
	HSC	10,765
	BHC	16,867
	CHC	28,480
	DH	69,382
Number of Preventive services Per capita	MHT	2.89
	HSC	1.64
	BHC	1.28
	CHC	0.95
	DH	1.17
Promotional Services	MHT	300.00
	HSC	600.00
	BHC	800.00
	CHC	1,000.00
	DH	2,000.00
Number of Promotional Services per Capita	MHT	0.04
	HSC	0.09
	BHC	0.06
	CHC	0.03
	DH	0.03

Different types of health, medical and surgical interventions in IPEHS and associated costs under the actual and normative cost scenarios are listed under the following 9 health service headings:

1. Reproductive, maternal, and newborn

2. Child and adolescent health development

3. Infectious diseases

4. Chronic, non-communicable diseases

5. Mental, neurological and substance use disorders

6. Emergency care

7. Surgical

8. Palliative care

9. Rehabilitation

In order to estimate cost per health education group talks at facility level, we added promotional services program that was not among the list of 9 health service headings of the IPEHS.

Findings in table 03 shows that child and adolescent health and development program had the highest number of utilization in all health facility types followed by reproductive, maternal, and newborn Health and infectious disease. According to IPEHS surgical interventions only provided at DH level. Palliative care program with low number of interventions had the lowest number of services utilization. Physiotherapist will be available only at DH level while none of the DH reported to provide rehabilitation services.

Table 3: Total Number of Services Provided by Program

Indicator	Facility Type	Actual Scenario
Reproductive, Maternal, and Newborn Health	MHT	4,238
	HSC	2,838
	BHC	5,295
	CHC	9,504
	DH	25,606
Child and Adolescent Health and Development	MHT	23,665
	HSC	10,850
	BHC	17,766
	CHC	29,645
	DH	64,896
Infectious Diseases	MHT	751
	HSC	379
	BHC	481
	CHC	1,730
	DH	3,240
Chronic non-communicable diseases	MHT	4,405
	HSC	4,006
	BHC	5,628
	CHC	12,312

	DH	24,046
	MHT	30
	HSC	98.53
Mental, Neurological, and Substance Use Disorders	BHC	212
	CHC	581
	DH	471
	MHT	153
	HSC	200
Emergency care	BHC	512
	CHC	1,301
	DH	1,924
	MHT	0
	HSC	0.00
Palliative care	BHC	2
	CHC	4
	DH	8
	MHT	0
	HSC	0
Rehabilitation	BHC	0
	CHC	0
	DH	0
	MHT	300
	HSC	600
Information, Education and Communication	BHC	800
	CHC	1,000
	DH	2,000
	MHT	0
	HSC	0
Surgical	BHC	0
	CHC	0
	DH	5,071

All staff at all health facility types can be categorized in to two categories: admin staff and technical staff. Table 04 provide summary of technical staff at all health facility types in two scenarios. As data show there is required more staff at MHT, HSC, BHC and CHC for provision of services in accordance to standard treatment guidelines while, total number of staff in normative scenario is lower comparing to the actual scenario at DH level. On average number of services per technical staff per day is higher in actual scenario for MHT, HSC, BHC and CHC. In contrast average number of services per technical staff per day is reduced in normative scenario comparing to actual scenario at DH level. Average pay per technical staff per year is higher among HSC, CHC and MHT comparing to DH and BHC.

Table 4: Summary and Averages Number of Services and Annual Cost per Technical staff

Indicator	Facility Type	Scenario A	Scenario B
Total Number of Technical Staff	MHT	4	6
	HSC	4	6
	BHC	5	12
	CHC	11	21
	DH	30	24
Average Number of Services Per Technical Staff Per Day	MHT	29	18
	HSC	14	11
	BHC	21	9
	CHC	17	8
	DH	14	17
Average Pay Per Technical Staff Per Year	MHT	3,265	4,422
	HSC	3,724	4,693
	BHC	4,354	3,192
	CHC	5,613	4,457
	DH	6,640	3,512

4.2. Costs

However, we used CORE Plus tool to estimate direct cost of IPEHS all services for MHT, HSC, BHC, CHC, and DH. Provincial hospital cost was estimated using HOSPICAL which is specifically developed for hospital costing. Total direct cost of IPEHS all services calculated in CORE Plus estimated to be 168,396,278 USD for Scenario A and 490,390,587 USD for scenario B. It is realized that standard cost reflected in scenario B is almost three times higher comparing the actual cost presented in scenario A. Undepreciated capital cost, all health posts total cost and provincial hospitals cost were added to the total direct cost of IPEHS in order to estimate the total IPEHS cost. Table 05 provide IPEHS total cost by scenario.

Table 5: IPEHS Total Cost by Scenarios

Cost Category	Scenario A	Scenario B
Total Direct Cost of All Services (CORE Plus)	168,396,278	490,390,587
Total Capital Cost	14,110,081	40,742,186
CHW Program Cost	10,976,112	32,073,016
Total IPEHS Cost (MHT-DH)	193,482,470	563,205,788

Provincial Hospitals Cost	32,405,529	91,013,124
Total IPEHS Cost	225,887,999	654,218,912

Total IPEHS cost estimated to be 225,887, 999 USD for Scenario A and 654,218, 912 USD for scenario B. Estimates show that total normative cost of IPEHS is almost three times higher than actual cost.

Figure 1: Total services cost vs. capital and community level health services for MHT-DH

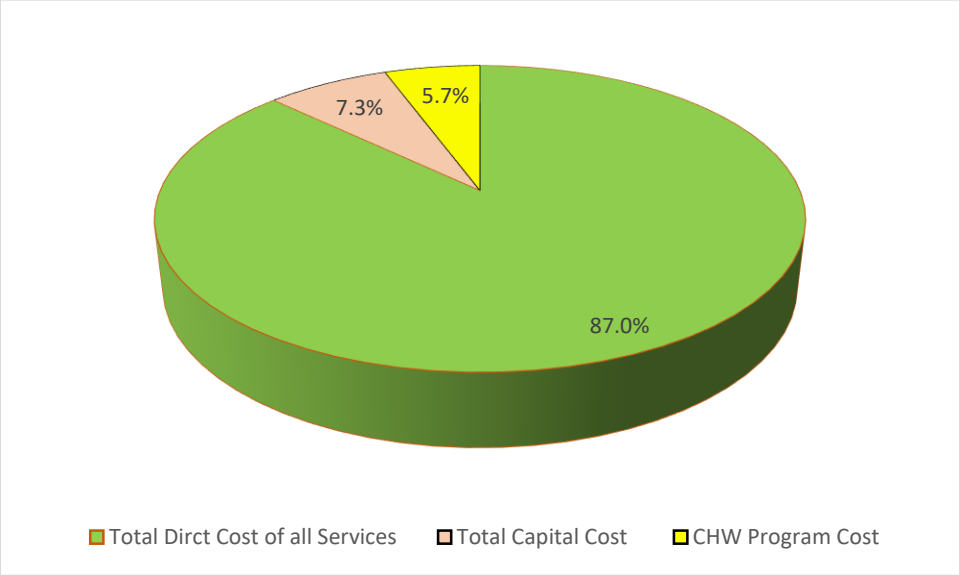


Figure 01 illustrates that total direct cost of services provided at the health facility level constitutes 87% of total health facility cost. Undepreciated capital cost account for 7.3% of the cost and CHW program cost that is mostly linked with number of HPs in each health facility account for 5.7% of total health facility cost. As indicated in the methodology the total cost of CHWs was obtained from Evaluation of the Community Based Health System study in Afghanistan report.

Table 6: Total Health Facility Cost by Scenario

Cost Category	Scenario	
	A	B
MHT	42,956	137,388
HSC	31,236	86,450
BHC	56,075	169,338
CHC	142,781	413,766
DH	443,412	1,245,353
PH	1,246,367	3,500,503

Table 06 above shows total actual and total normative costs by health facility type. HSC with USD 31,236 has the lowest actual cost among all health facility types. While DH with 443,412 USD and

provincial hospital with 1,246,367 USD have the highest total actual cost respectively. Based on our analysis provincial hospital total actual cost is more than twice the DH cost. Our analysis using normative scenario indicates that it costs us approximately USD 86,450 to operate one HCS and USD 3,500,503 to run a provincial hospital.

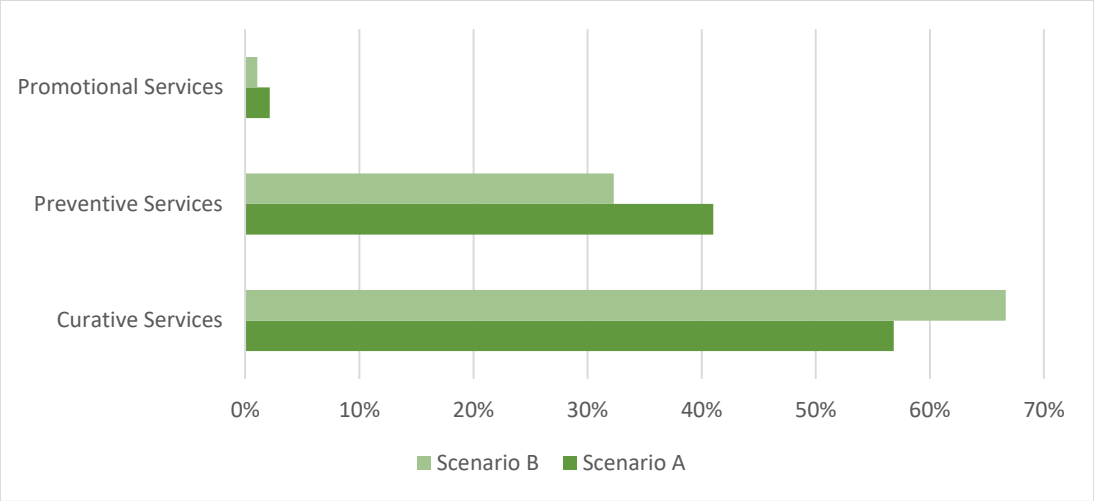
We also analysed the total cost to identify share of each health facility type in total IPEHS cost - Table 07. In addition to health facility size, the current number of each type were factors associated with their comparative share in total IPEHS cost.

Table 7: Share of Health Facilities Cost in IPEHS Total Cost by Health Facility Type

Cost Category	Scenario	
	A	B
Share of MHTs Cost in Total IPEHS Cost	6%	6%
Share of HSCs Cost in Total IPEHS Cost	14%	13%
Share of BHCs Cost in Total IPEHS Cost	22%	23%
Share of CHCs Cost in Total IPEHS Cost	27%	27%
Share of DHs Cost in Total IPEHS Cost	17%	16%
Share of PHs Cost in Total IPEHS Cost	14%	14%

As indicated above, CHC with 27% has the highest share in IPEHS total cost followed by BHC with 22% under the actual cost scenario. Using standard/ normative approach, our analysis indicates that it requires us almost three times the actual cost to run the same number of CHCs. All health services provided in the framework of IPEHS can be categorized in three types: curative services, preventive and promotional. Since, we have detailed cost only for DH and lower level, therefore what is presented as findings in the rest of the report are only applicable for DH and lower level of health facilities. Figure 02 shows share of service cost categories in IPEHS total cost. Actual curative services with 57% of total IPEHS cost has the higher share and followed by preventive care with 41% share in total IPEHS cost. Share of promotional services is around 2% of total IPEHS cost. In normative cost scenario share of curative services increased by 10%. However, the share of preventive and promotional services has reduced by 9% and 1% respectively.

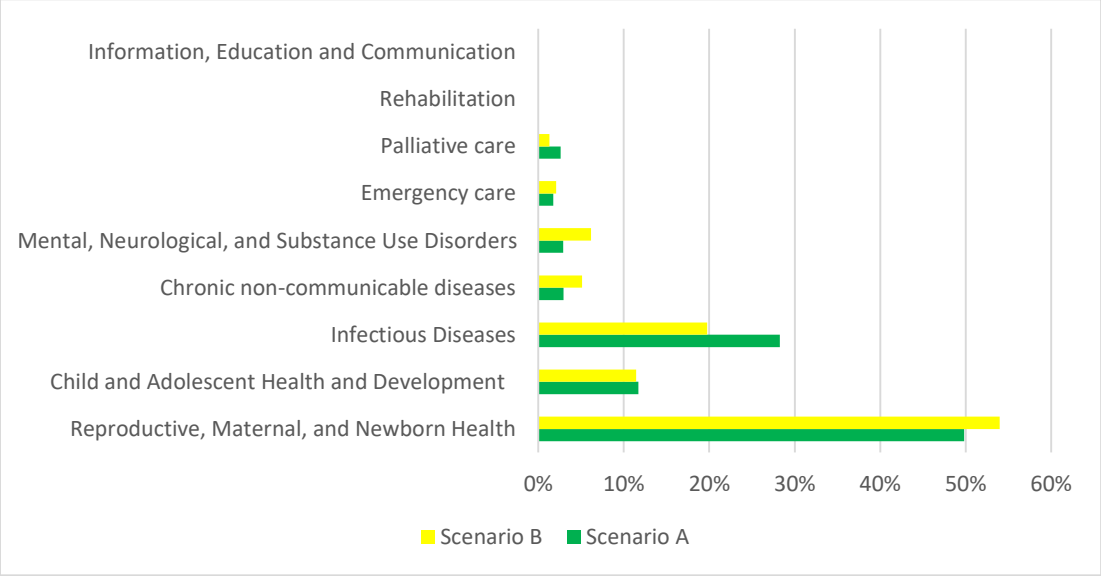
Figure 2: Share of Service Category as % of Total IPHES Cost by Scenario



As mentioned before different types of health, medical and surgical interventions in IPEHS and associated costs under the actual and normative cost scenarios are listed under the 9 health service headings

In order to estimate cost per health education group talks at facility level, we added promotional services program that was not among the list of 9 health service headings of the IPEHS.

Figure 3: Share of Program as % of Total Cost by Scenario at MHT-CHC level



According to the IPEHS, surgical program interventions only provided at DH level so we are presenting programs costs share in IPHES in to two graphs: share of programs costs in MHT up to CHC level and at DH level. Figure 03 provides percentage share of each program in total IPEHS cost at MHT-CHC level. Child and adolescent health and development with 50% share in

total IPEHS cost constituted the main portion of the cost among other programs followed by reproductive, maternal, and new-born health with 28% share in total IPEHS actual cost.

Figure 4: Share of Program Cost as Percent of Total DH Cost

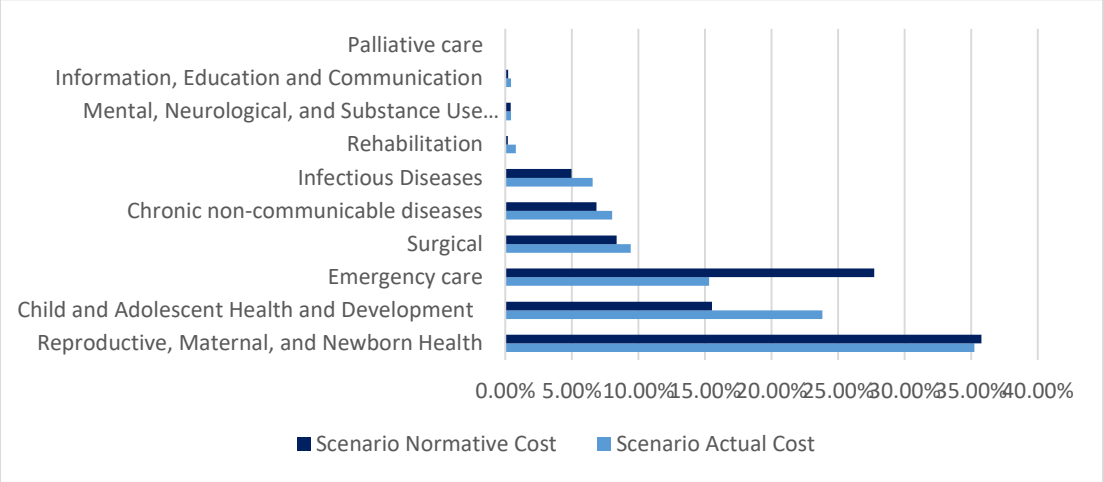


Figure 04 provides percentage share of each program in total DH actual and normative costs. Reproductive, maternal, and new-born with 35% share in total DH cost constituted the main portion of the cost among other programs followed by Child and adolescent health and development with 23% share in total DH cost. None of the DHs reported rehabilitation services so the cost for this program is 0%. Palliative care with 0.01% cost constitute the lowest share comparing to other programs.

Table 8: Share of Service Type as % of Total IPHES Cost by Scenario

Service Type	HF Type	Scenario A	Scenario B
Total Cost of all Primary (Ambulatory) Services	MHT	100%	100%
	HSC	93%	84%
	BHC	86%	84%
	CHC	80%	73%
	DH	46%	36%
Total Cost of all Secondary (Hospitalization) Services	MHT	0%	0%
	HSC	7%	16%
	BHC	14%	16%
	CHC	20%	27%
	DH	54%	64%

Using the CORE Plus tool we identified the share of primary and secondary level services in total cost. Based on the analysis displayed in table 08, all cost at MHT level allocated to provide the primary level sevices. As we move to the higher level of health facilities the share of scondary level services cost increases. Share of secondary health services cost in total cost are 7 %, 14 %, 20 % and 54 % for HSC, BHC, CHC and DH level respectivelty.

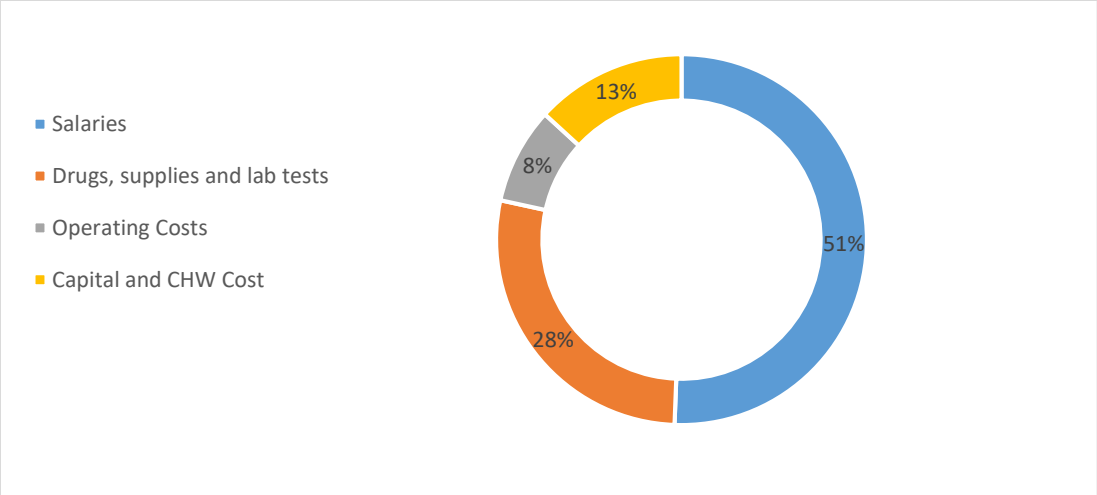
Table 09 shows average cost per service and average cost per capita by health facility type for both scenarios. Overall average per service and per capita cost for scenario A are USD 2.7 and USD 6.5 respectively. However, the same costs for scenario B are approximately three times higher than scenario A at USD 7.7 and USD 18.6 respectively. District hospitals with USD 3.5 has the highest actual cost per service. However, per service cost for MHT is the lowest of all at USD 1.3, its per capita cost is the second highest at USD 5.7 after DH at USD 8.4. Worth mentioning that, PH hospitals cost is not included in overall average cost per service and average cost per capita.

Table 9: Average Cost Per Service and Average Cost Per Capita by HF Type and Scenario

Service Type	HF Type	Scenario	
		A	B
Cost Per Service	MHT	1.3	4.1
	HSC	1.6	4.6
	BHC	1.8	5.5
	CHC	2.5	7.4
	DH	3.5	9.8
Cost Per Capita	MHT	5.7	18.3
	HSC	4.8	13.2
	BHC	4.2	12.8
	CHC	4.7	13.7
	DH	8.4	23.6
Overall Average Cost Per Service		2.7	7.7
Overall Average Cost Per Capita		6.5	18.6

Normative cost per services and per capita are much higher than actual cost for all health facility types. Higher cost per service and cost per capita in DH might be due to the influence of inpatient services costs.

Figure 5: Break-down of Total IPEHS Direct Services and Indirect Costs in Actual Cost Scenario



Using the CORE Plus we could also calculate the estimations for a health facility total cost broken down by staff cost, drugs, supplies and lab test cost. Undepreciated capital cost was estimated separately using EMIS data for the year 2018. Cost of Community Health Workers (CHW) activities at community level and Health Post (HP) level were projected for each health facility using HP evaluation report[3]. Figure 05 shows break-down of total direct service cost and indirect services in actual cost scenario.

Figure 6: Break-down of Total IPEHS Direct Services and Indirect Costs in Normative Cost Scenario

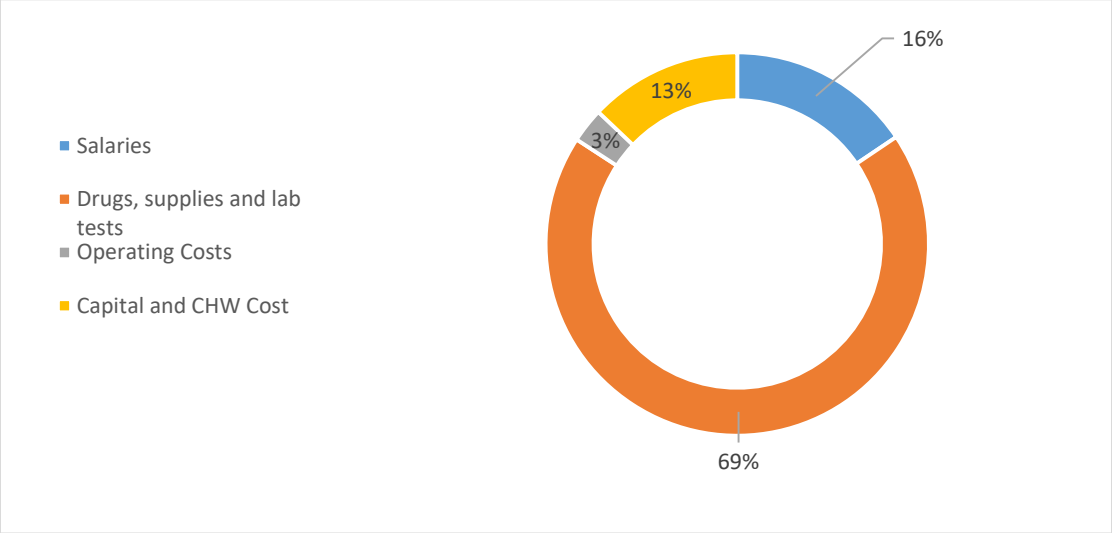
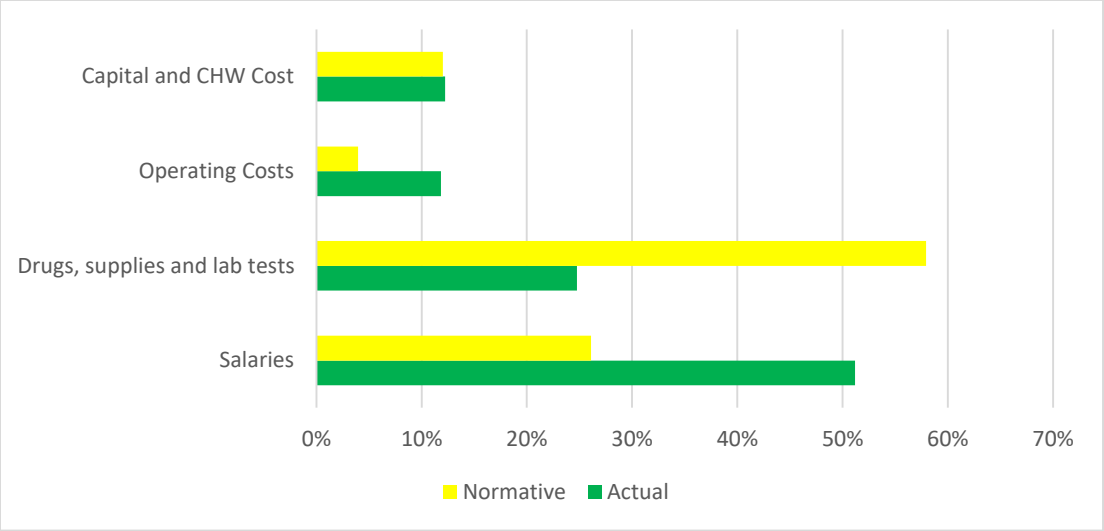


Figure 06 in the above shows break-down of total direct services and indirect services costs in normative cost scenario. Share of drugs, supplies and lab test cost get increasing from 28% in total actual cost to 69% in total normative cost scenario. Providing standard treatment services causes higher cost of drugs, supplies and lab tests in normative cost scenario. In contrast, total salaries decreased from 51% in total actual cost to 16% in normative costs scenario. While share of operating cost decreased by 5% and capital and community level cost remained the same. Capital cost was projected for each scenario based on share of capital cost in total health facility cost that was provided by EMIS. Community based health services cost was projected for each health facility type based on total number of health post (HP) in each health facility type and cost per HP using allocation factor extracted from ratio of normative and actual cost created by CORE Plus tool.

[3] Evaluation of the Community Based Health System study in Afghanistan, MoPH, Afghanistan

Figure 7: Break-down of Total Direct Services and Indirect Costs in Actual and Normative Cost Scenario (MHT-CHC)



Since, summary of staff analysis showed that in normative scenario there is need for less number of technical staff at DH level so to avoid effect of it on breakdown of total IPEHS cost, we are presenting breakdown of total MHT up to CHC and DH in separate figures.

Figure 07 indicates break-down of total direct services and indirect costs in actual and normative cost scenarios for MHT, HSC, BHC and CHC. Analysis show there is huge difference between actual and normative cost scenarios in share of drug, supplies and lab test, salaries and operating cost. Share of drugs, supplies and lab test cost increased by 33% in normative scenario while share of staff salaries decreased by 25%. Providing services in standard manner requires additional drugs and supplies as well as required lab tests. Overall increase in drugs, supplies and lab tests cost affects share of salaries and share of operating cost (decreased by 8%) in total cost.

Figure 8: Break-down of Total Direct Services and Indirect Costs in Normative Cost Scenario (Only DH)

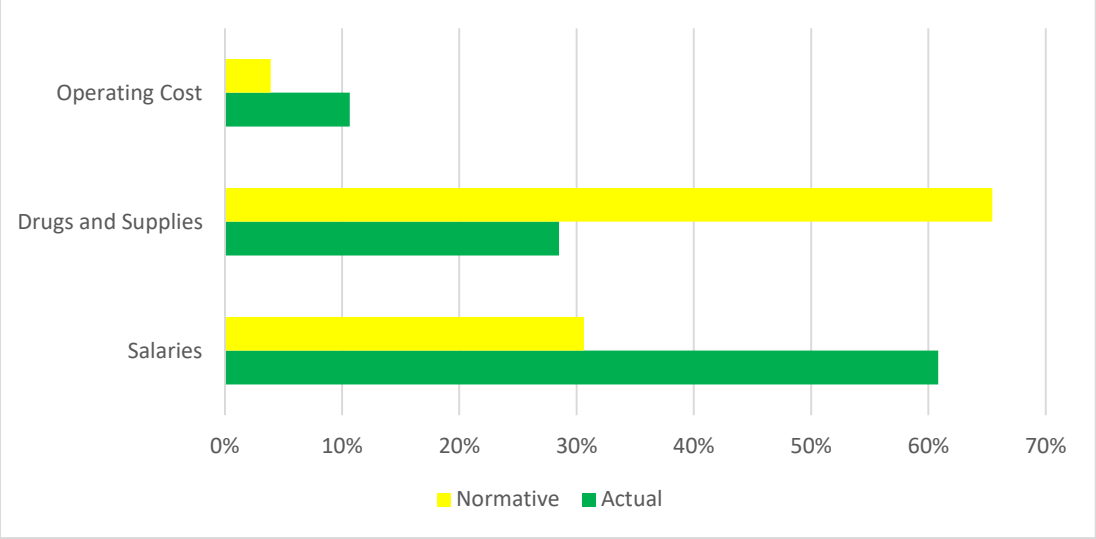


Figure 08 provides break-down of total direct services and indirect costs in actual and normative cost scenarios for DH. Similar to the other type of health facilities there is huge difference between actual and normative cost scenarios in share of drug, supplies and lab test, salaries and operating cost at DH level as well. Share of drugs, supplies and lab test cost increased by 37% in normative scenario while share of staff salaries decreased by 30%.

Table 10: Average Cost per Service Type and by type of Health Facility

Indicator	Facility Type	Scenario	
		A	B
Average Cost Per Curative Service	MHT	2.04	8.55
	HSC	1.41	4.76
	BHC	1.45	5.62
	CHC	3.05	9.78
	DH	5.10	16.11
Average Cost Per Preventive Service	MHT	0.74	1.36
	HSC	1.56	3.82
	BHC	1.27	3.43
	CHC	1.39	3.26
	DH	5.51	15.53
Average Cost Per Promotional Service	MHT	1.60	2.01
	HSC	0.89	1.80
	BHC	3.55	4.45
	CHC	1.48	2.25
	DH	0.77	1.24

On average curative services has the highest cost per service followed by preventive services. Curative and preventive services have the highest cost per service at DH level while promotional services has the lowest cost per services at DH level.

Table 11: Average Cost by Program and by Type Health Facility

Indicator	Facility Type	Scenario	
		A	B
Reproductive, Maternal, and Newborn Health	MHT	1.3	2.3
	HSC	4.1	3.9
	BHC	2.5	4.4
	CHC	3.8	9.9
	DH	4.8	13.7
Child and Adolescent Health and Development	MHT	1.2	4.5
	HSC	1.1	4.9
	BHC	1.4	5.2
	CHC	1.4	3.6
	DH	1.3	2.3

Infectious Diseases	MHT	1.1	1.7
	HSC	0.7	2.0
	BHC	1.3	3.8
	CHC	5.7	10.6
	DH	7.0	15.0
Chronic non-communicable diseases	MHT	0.9	2.1
	HSC	0.7	2.4
	BHC	0.7	2.3
	CHC	2.0	7.5
	DH	1.2	2.8
Mental, Neurological, and Substance Use Disorders	MHT	5.3	7.8
	HSC	6.6	9.5
	BHC	3.2	8.8
	CHC	6.9	12.9
	DH	3.2	8.1
Emergency care	MHT	1.9	10.9
	HSC	1.8	8.1
	BHC	1.9	9.6
	CHC	4.7	29.7
	DH	27.5	141.2
Palliative care	MHT	0	0
	HSC	0	0
	BHC	3.2	37.8
	CHC	3.7	31.7
	DH	10.0	41.3
Rehabilitation	MHT	0	0
	HSC	0	0
	BHC	0	0
	CHC	0	0
	DH	0	0
Information, Education and Communication	MHT	1.6	2.0
	HSC	0.9	1.8
	BHC	3.6	4.5
	CHC	1.6	2.5
	DH	0.7	1.0
Surgical	MHT	0	0
	HSC	0	0
	BHC	0	0
	CHC	0	0
	DH	6.4	16.2

Different types of health, medical and surgical interventions in IPEHS and associated costs under the actual and normative cost scenarios are analyzed for 9 health service headings. None of the DHs reported to provide rehabilitation services. Surgeries services only provided at DH level.

5. Study Limitation

Some challenges and limitations have been experienced in this costing study that should be acknowledged. These limitations include the followings:

a. The standard operating costs and administrative staff salaries were not available so the actual operating and admin staff salaries costs used for normative scenario as well. This might cause some lower operating and staff cost in normative cost scenario.

b. However, endeavored to identify the true cost of donations to the health facilities, due to associated difficulties that made it almost impossible to draw the true picture of donations to health facilities, we excluded the cost of donations for medicines, medical supplies and laboratory tests for both actual and normative costs.

c. Undepreciated capital cost was estimated separately using EMIS data for the year 2018 that might be overestimated to some degree.

d. the tool has no capacity to estimate Community Based Health Services (CBHC) cost. Estimates form the Evaluation of the Community Based Health System study in Afghanistan, MoPH, Afghanistan used to project cost of CHBC at health facility level.

e. Due to unavailability of incidence and prevalence rates we couldn't estimate projected costs for full and target coverage.

f. Utilization data for the new services was IPEHS estimated based on discussion with relevant departments that might be over or under estimates.

g. Since most of the BHCs and all HSCs and MHTs are not providing lab test facilities, therefore lab test cost for BHC and lower level health facilities have not been considered in this costing study.

e. All detailed analysis are available only for DH and lower level of health facilities. Provincial hospital cost analyzed in HOSPICAL tool, doesn't provide us with detailed cost as CORE Plus.

6. Discussion

This costing study demonstrates some potential areas where improvements in resource allocation could lead to more qualified health service provision within the framework of IPEHS. The study found that total direct cost of IPEHS all services calculated in CORE Plus estimated to be 193,482,470 USD for actual scenario and 563,205,788 USD for normative scenario. After adding undepreciated capital cost, all health posts total cost and provincial hospitals cost to the total direct cost of IPEHS in order to estimate total IPEHS cost, findings show that we will need an amount of 225,887,986 USD for actual scenario and 654,218,875 USD for normative scenario. It is realized that standard cost reflected in normative scenario is almost three times higher comparing the actual cost presented in actual scenario. There is huge difference between available funding and our need for providing standard health services.

Analysis show that HSC with USD 31,236 has the lowest actual cost among all health facility types while, DH with 443,412 USD and provincial hospital with 1,246,366USD have the highest total actual cost respectively. Based on analysis provincial hospital total actual cost is more than twice the DH cost. Our estimates using normative scenario indicates that it costs us approximately USD 86,450 to operate one HCS and over USD 3,500,503 to run a provincial hospital. Further analysis was done to identify share of each health facility type in total IPEHS cost. CHC with 27% has the highest share in IPEHS total cost followed by BHC with 22% under the actual cost scenario. Using normative approach, our findings indicates that it requires us almost three times the actual cost to run the same number of CHCs. In addition to health facility size, the current number of each type were factors associated with their comparative share in total IPEHS cost.

All health services provided in the framework of IPEHS can be categorized in three types: curative services, preventive and promotional. Actual curative services with 57% of total IPEHS cost has the higher share and followed by preventive care with 32% share in total IPEHS cost. Share of promotional services is around 2% of total IPEHS cost. In normative cost scenario share of curative services increased by 10%. However, the share of preventive and promotional services has reduced by 9% and 1% respectively.

Comparison analysis of share of each program in total IPEHS cost at (MHT-CHC level) indicates that child and adolescent health and development with 50% share in total IPEHS cost constituted the main portion of the cost among other programs followed by reproductive, maternal, and new-born health with 28% share in total IPEHS actual cost. While the same analysis at DH level indicates that reproductive, maternal, and new-born with 35% share in total DH cost constituted the main portion of the cost among other programs followed by Child and adolescent health and development with 23% share in total DH cost. We assume that inpatient services provided for reproductive health at DH level caused higher cost of the program in DH level.

Comparison analysis of share of primary and secondary level services in total IPEHS cost shows that, all cost at MHT level allocated to provide the primary level services while share of secondary level services found to be 54%. As we move to the higher level of health facilities the share of secondary level services cost increases.

Overall average cost per service and average cost per capita for actual scenario are USD 2.7 and USD 6.5 respectively. However, the same costs for normative scenario are approximately three

times higher than actual scenario at USD 7.7 and USD 18.6 respectively. District hospitals with USD 3.5 has the highest actual cost per service. However, per service cost for MHT is the lowest of all at USD 1.3, its per capita cost is the second highest at USD 5.7 after DH at USD 8.4.

Total cost breakdown by cost categories (at MHT-CHC level) show there is huge difference between actual and normative cost scenarios in share of drug, supplies and lab test, salaries and operating cost. Share of drugs, supplies and lab test cost increased by 33% in normative scenario while share of staff salaries decreased by 25%. Providing services in standard manner requires additional drugs and supplies as well as required lab tests. Overall increase in drugs, supplies and lab tests cost affects share of salaries and share of operating cost in total cost. Since, summary of staff analysis showed that in normative scenario there is need for less number of technical staff at DH level so we analyzed cost breakdown for DH separately as the analysis of total DH cost breakdown show that share of staff cost decreased to a considerable manner.

7. Conclusion and Recommendations

For full implementation of the IPEHS overall resource requirement estimated to be 225,887,986 USD for actual scenario and 654,218,875 USD for normative scenario. It is realized that standard cost reflected in normative scenario is almost three times higher comparing the actual cost presented in actual scenario. Considering prevailing financing scenario, relatively huge amount of funding gap is foreseen for implementing of IPEHS in standard scenario. Total estimated gap is 428,330,889 USD.

By cost category, the largest share of the fund is estimated to be required for the salaries which is 51% of total cost in actual scenario. This category includes all kinds of directs costs on human resources including salary and benefits. Drug, supplies and lab test comprise the second largest component in terms of resource requirement accounting for 28% of total resource requirement for the same scenario which, comprises of all kinds of pharmaceutical products, commodities and supplies necessary for the delivery of health interventions. In normative scenario human resources accounts only for 16% of total IPEHS cost in contrast Drug, supplies and lab test estimated to be 69% of total IPEHS cost in normative scenario. Other two major categories of costs are capital and community based health services through health posts and operational costs which respectively demand 13% and 3% of the total costs.

Based on these findings, we consider the following points as some areas to be improved:

- The findings of the costing provide evidences to raise awareness on importance of considering the health sector in national planning and of using national health plans as a mechanism for coordination and for ensuring that funding harmonized with the MoPH priorities.
- The findings show a big funding gap between required budget for the implementation of the IPEHS in standard approach and the available resources. MoPH needs to work on advocacy for increasing the share of health budget from national budget and work on other resource generation strategies for health. The current health indicators and the estimated required resources for implementation of the IPEHS, urges policy maker to take proper measures for ensuring sufficient fund in order to get to the possible impact.

- Findings helps to make the planning more realistic, as opposed to setting very ambitious targets that may not achievable or over costed. Thus improves budget planning, and execution.
- Findings support better-coordinated and more comprehensive planning process and potentially improved health outcomes due to evidence-based decision making. The different programs have to align their strategies and mobilized resources with findings from IPEHS costing study and overall MoPH strategic framework.
- Considering the significant share of maternal and child health services in total IPEHS cost the MoPH needs to improve the coverage of key maternal and child health service
- Health promotional services should be promoted.
- Improve absorptive capacity of donor funding for full filling the gap.

8. Annexes:

8.1. Annex A: MHT Costs:

Table 01: MHT Total Costs by Scenario

Cost Category	Scenario	
	A	B
Total Direct Cost of All Services (CORE Plus)	40,287	128,851
Share of Capita Cost	1,905	6,092
Share of CHW Cost	764	2,444
Total Cost	42,956	137,388
Share of MHTs Cost in IPEHS	13,273,539	42,452,752

Figure 01: Breakdown of Total Cost by Service Type and Scenario

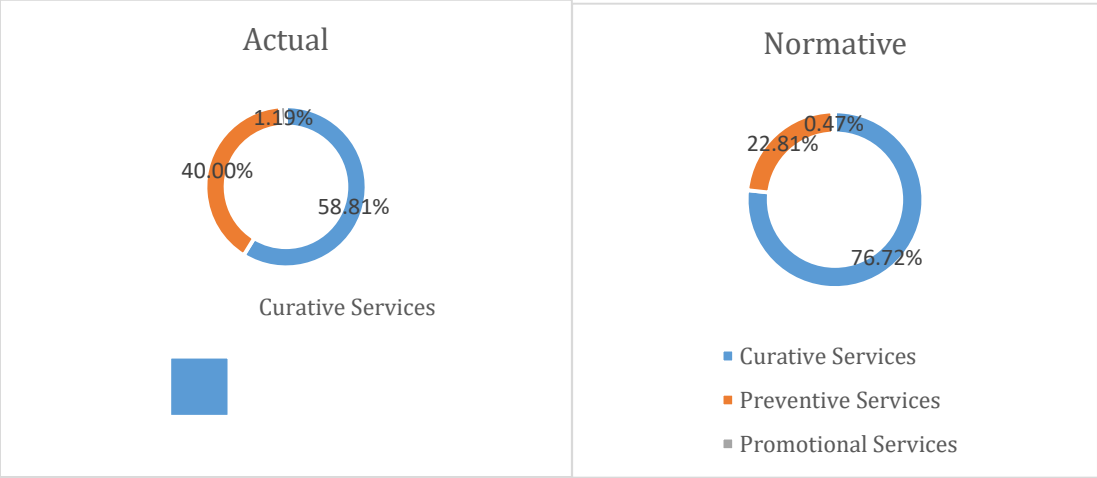


Figure 02: Breakdown of Total Cost by Cost Category and Scenario

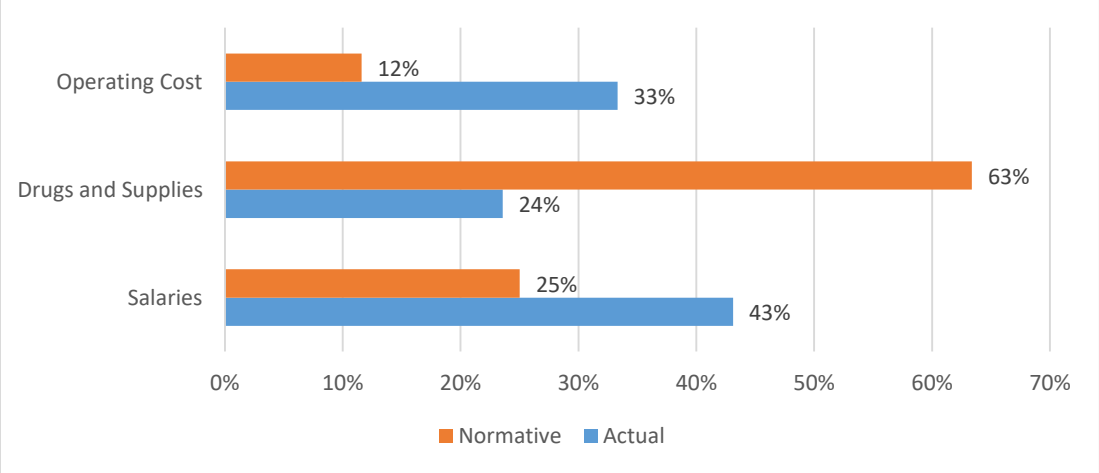


Table 02: Share of Program Cost as % of Total MHT Cost

Service Category	Scenario	
	A	B
Reproductive, Maternal, and Newborn Health	13.83%	7.67%
Child and Adolescent Health and Development	71.62%	82.27%

Infectious Diseases	2.07%	0.96%
Chronic non-communicable diseases	10.17%	7.15%
Mental, Neurological, and Substance Use Disorders	0.39%	0.18%
Emergency care	0.73%	1.30%
Palliative care	0.00%	0.00%
Rehabilitation	0.00%	0.00%
Information, Education and Communication	1.19%	0.47%

8.2. Annex B: HSC Costs:

Table 01: HSC Total Cost by Scenario

Cost Category	Scenario	
	A	B
Total Direct Cost of All Services (CORE Plus)	28,416	78,645
Share of Capita Cost	2,687	7,436

Share of CHW Cost	133	369
Total Cost	31,236	86,450
Share of HSCs Cost in IPEHS	31,517,335	87,228,077

Figure 01: Breakdown of Total Cost by Service Type and Scenario

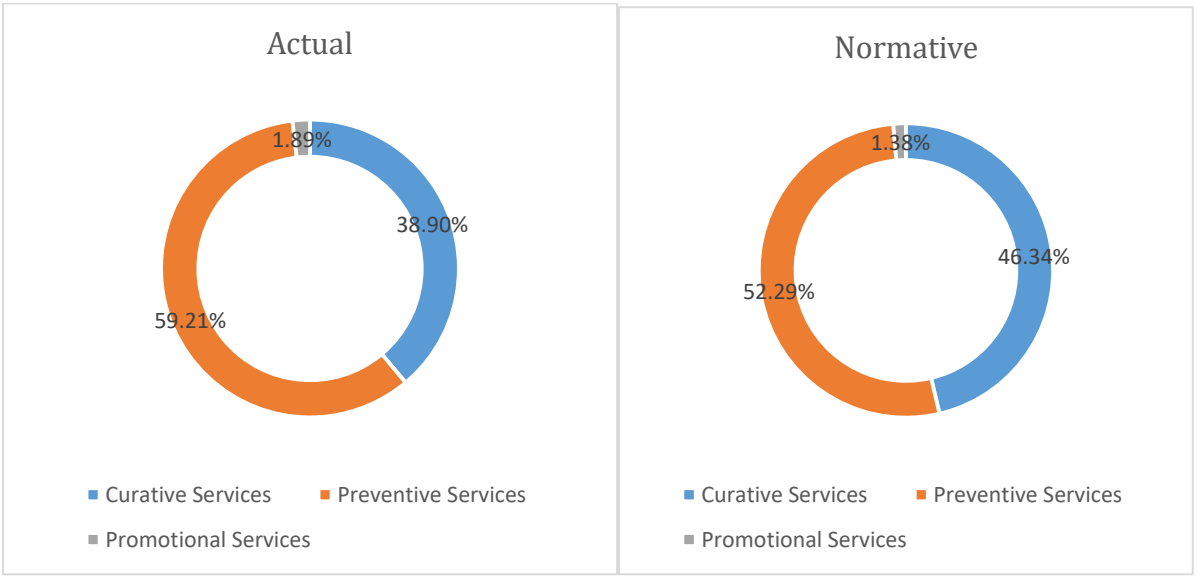


Figure 02: Breakdown of Total Cost by Cost Category and Scenario

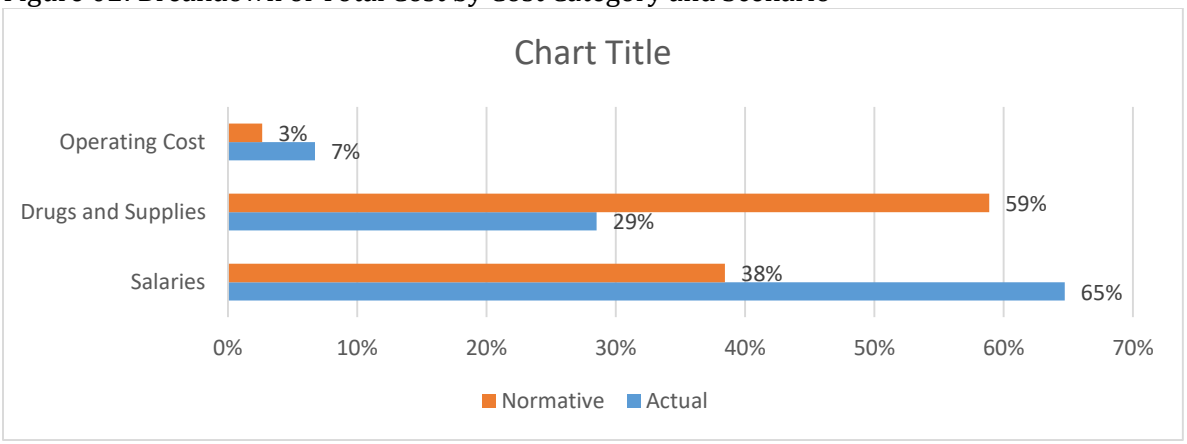


Table 02: Share of Program Cost as % of Total MHT Cost

Service Category	Scenario	
	A	B
Reproductive, Maternal, and Newborn Health	40.50%	14.21%
Child and Adolescent Health and Development	43.53%	68.18%
Infectious Diseases	0.88%	0.97%
Chronic non-communicable diseases	9.63%	12.01%
Mental, Neurological, and Substance Use Disorders	2.30%	1.18%
Emergency care	1.28%	2.08%

Palliative care	0.00%	0.00%
Rehabilitation	0.00%	0.00%
Information, Education and Communication	1.89%	1.38%

8.3. Annex C: BHC Costs:

Table 01: HSC Total Cost by Scenario

Cost Category	Scenario	
	A	B
Total Direct Cost of All Services (CORE Plus)	46,763	141,194
Share of Capita Cost	3,390	10,236
Share of CHW Cost	5,922	17,908

Total Cost	56,075	169,338
Share of BHCs Cost in IPEHS	49,177,608	148,509,261

Figure 01: Breakdown of Total Cost by Service Type and Scenario

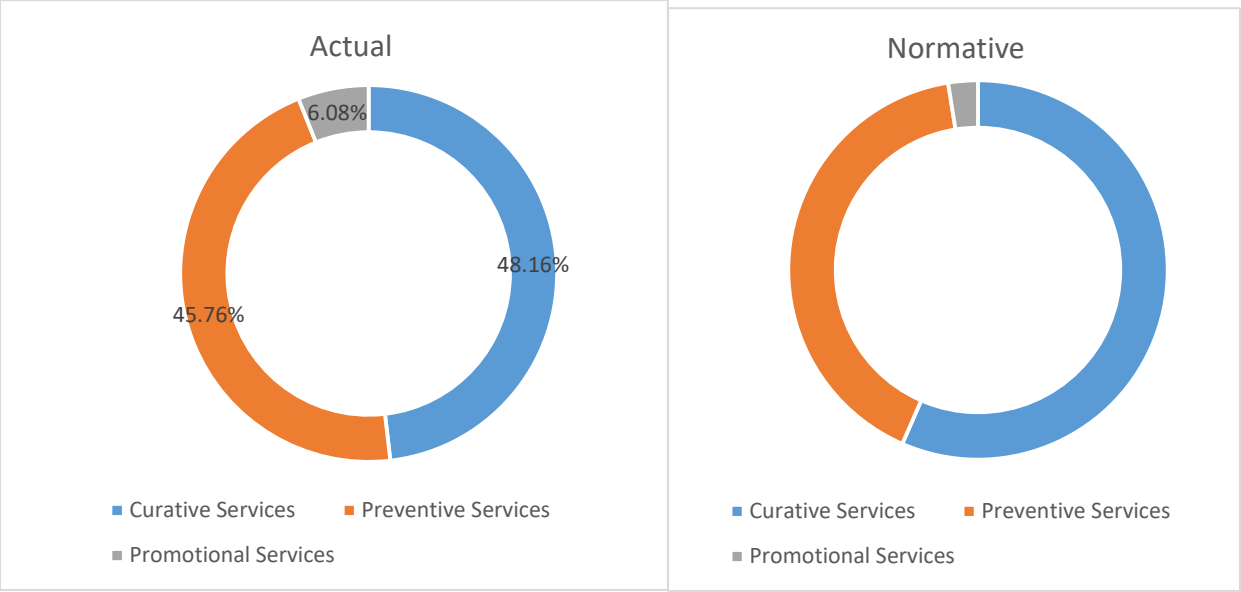


Figure 02: Breakdown of Total Cost by Cost Category and Scenario

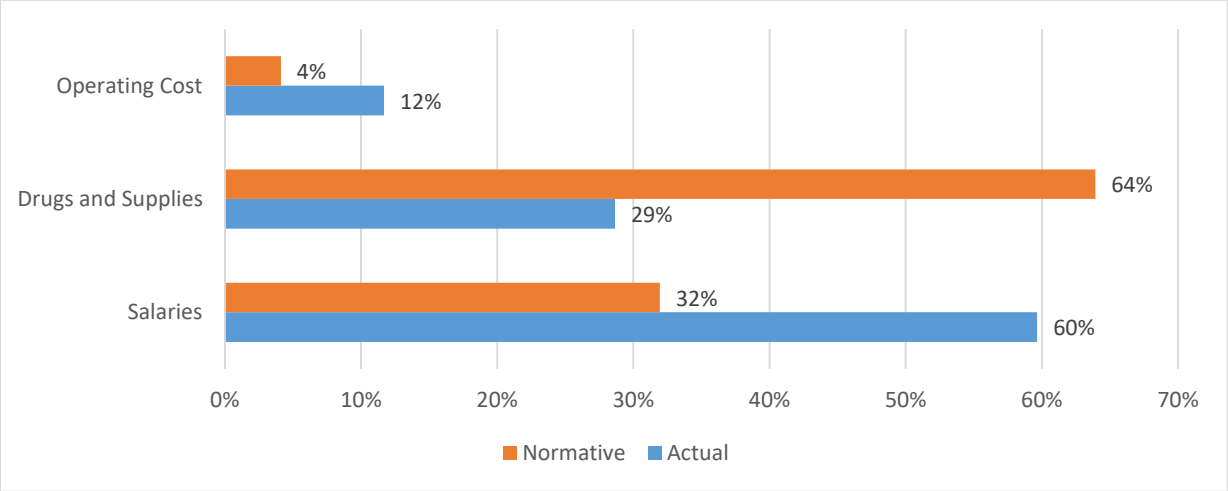


Table 02: Share of Program Cost as % of Total MHT Cost

Service Category	Scenario	
	A	B
Reproductive, Maternal, and Newborn Health	28.41%	16.62%
Child and Adolescent Health and Development	52.15%	65.36%
Infectious Diseases	1.32%	1.30%
Chronic non-communicable diseases	8.37%	9.31%

Mental, Neurological, and Substance Use Disorders	1.47%	1.33%
Emergency care	2.12%	3.48%
Palliative care	0.01%	0.05%
Rehabilitation	0.00%	0.00%
Information, Education and Communication	6.15%	2.54%

8.4. Annex D: CHC Costs:

Table 01: HSC Total Cost by Scenario

Cost Category	Scenario	
	A	B
Total Direct Cost of All Services (CORE Plus)	124,165	359,822
Share of Capita Cost	8,479	24,572
Share of CHW Cost	10,136	29,372

Total Cost	142,781	413,766
Share of CHCs Cost in IPEHS	61,823,970	179,160,730

Figure 01: Breakdown of Total Cost by Service Type and Scenario

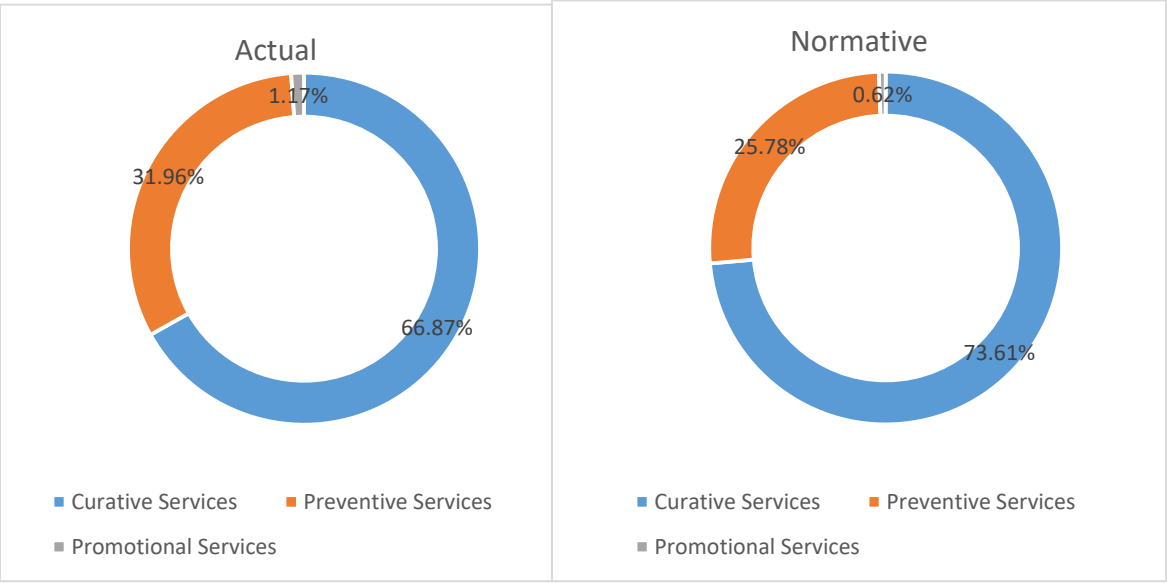


Figure 02: Breakdown of Total Cost by Cost Category and Scenario

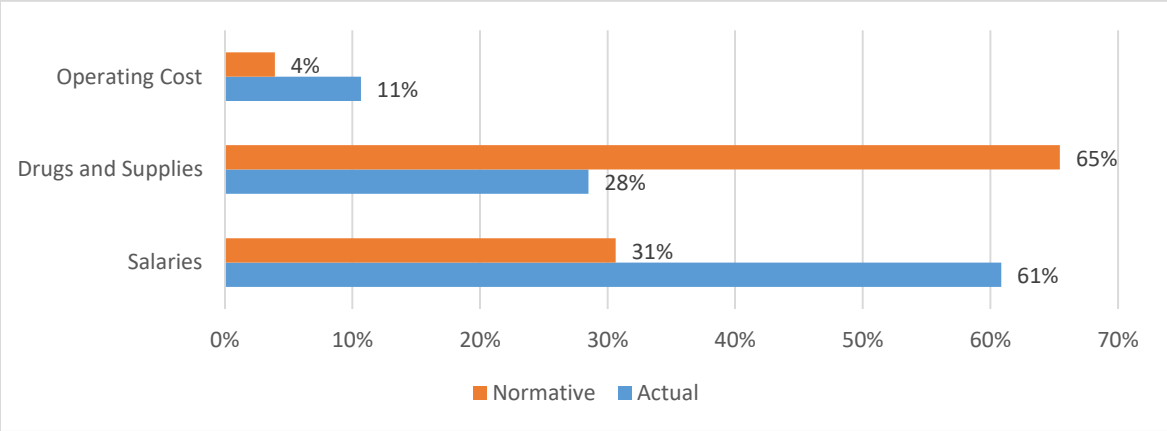


Table 02: Share of Program Cost as % of Total MHT Cost

Service Category	Scenario	
	A	B
Reproductive, Maternal, and Newborn Health	30.25%	27.73%
Child and Adolescent Health and Development	32.02%	27.18%
Infectious Diseases	7.39%	4.83%
Chronic non-communicable diseases	18.68%	22.53%
Mental, Neurological, and Substance Use Disorders	2.77%	1.72%

Emergency care	7.70%	15.36%
Palliative care	0.01%	0.03%
Rehabilitation	0.00%	0.00%
Information, Education and Communication	1.18%	0.62%

8.5. Annex E: DH Costs:

Table 01: HSC Total Cost by Scenario

Cost Category	Scenario	
	A	B
Total Direct Cost of All Services (CORE Plus)	382,365	1,077,781
Share of Capita Cost	49,010	138,146
Share of CHW Cost	12,037	29,672
Total Cost	443,412	1,245,599

Share of DHs Cost in IPEHS	37,690,018	105,875,885

Figure 01: Breakdown of Total Cost by Service Type and Scenario

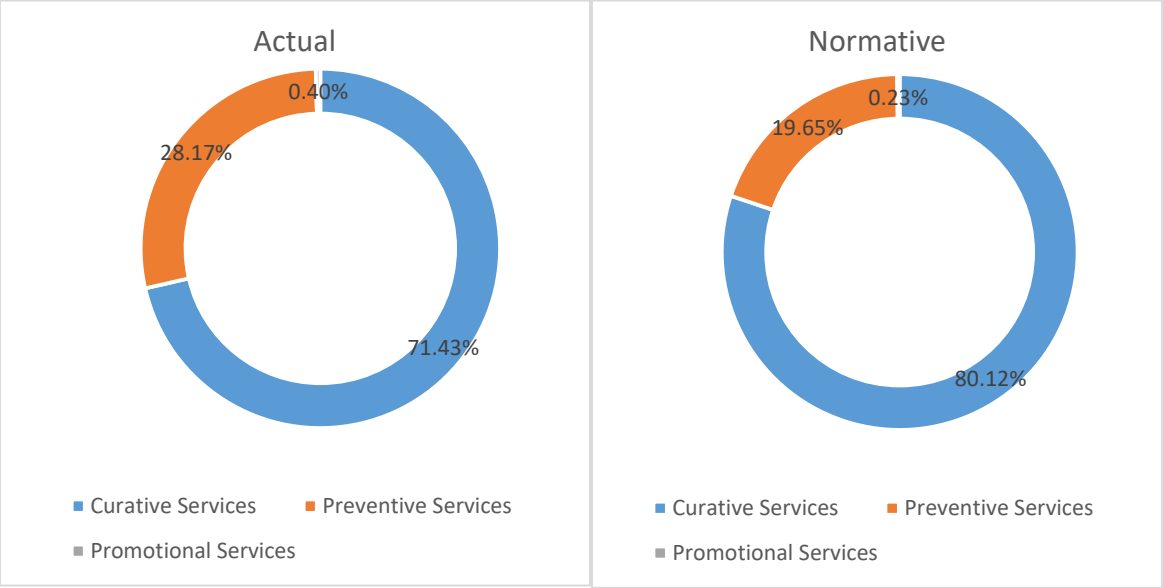


Figure 02: Breakdown of Total Cost by Cost Category and Scenario

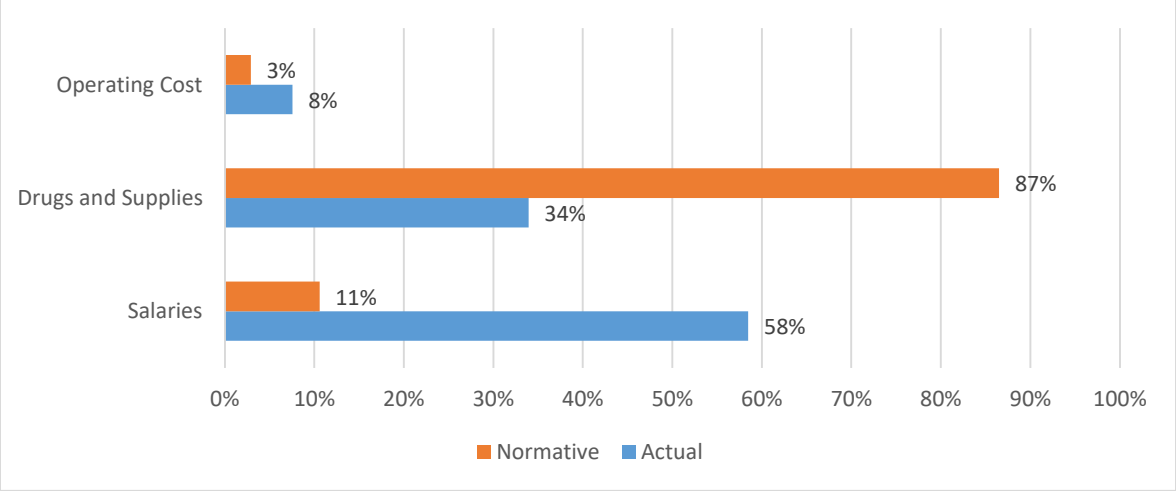


Table 02: Share of Program Cost as % of Total MHT Cost

Program Category	Scenario	
	A	B
Reproductive, Maternal, and Newborn Health	24.58%	19.44%
Child and Adolescent Health and Development	30.08%	23.21%
Infectious Diseases	6.55%	5.56%
Chronic non-communicable diseases	12.10%	10.52%
Mental, Neurological, and Substance Use Disorders	1.38%	1.09%

Emergency care	24.90%	39.96%
Palliative care	0.00%	0.00%
Rehabilitation	0.00%	0.00%
Information, Education and Communication	0.40%	0.23%