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IMMUNIZATION AND NUTRITION SUPPLIES BUDGET PROCESS MAPPING

2021

CONTENTS

ACRONYMS AND ABBREVIATIONS

MoH	Ministry of Health
HSSP	Health Sector Strategic Plan
IFMIS	Integrated Financial Management System
PFM	Public Financial Management
LMIS	Logistics Management Information System
DHS	Demographic and Health Survey
SMT	Supply Management Tool
UNICEF	United Nations Children's Fund
MoF	Ministry of Finance
WFP	World Food Programme
U5M	Under-5 Mortality
IMR	Infant Mortality
NMR	Neonatal Mortality Rate
NSO	National Statistical Office
MNNSP	Malawi National Nutrition Strategic Plan
GVAP	Global Vaccine Action Plan
WHO	World Health Organization
CMST	Central Medical Stores Trust
HSJF	Health Services Joint Fund
DIP	District Implementation Plan
DHSS	Director of Health and Social Services
DNHA	Department of Nutrition HIV and AIDS
DPPD	Department of Planning and Policy Development
EPI	Expanded Programme on Immunization

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INTRODUCTION AND BACKGROUND

Introduction

Financing of vaccines and nutrition supplies procurement is extremely essential for sustained progress in child health outcomes in Malawi. Analysis of budget and expenditure information shows that vaccine and nutrition supplies financing remain low, unpredictable, and heavily donor dependent. With underfunded procurements of vaccines and nutrition supplies, the Country's progress towards immunization and child nutrition coverage targets are unlikely to be met, thereby increasing the risk of childhood mortality and morbidity that could otherwise be averted with effective availability of vaccines and nutrition products. This assessment examines fiscal space for health and its implications for vaccines and nutrition supplies financing; analyses budget processes for vaccines and nutrition supplies procurement; and identifies solutions for addressing bottlenecks. Based on the solutions, an advocacy tool is developed to demonstrate the value for money case for vaccines procurement with potential applications to nutrition supplies procurement.

Objectives of the Study

This study aimed to review the budget process for immunization and nutrition supplies procurement in Malawi with the goal of identifying bottlenecks at budget planning, execution and evaluation and eventually inform interventions, advocacy strategy and action plan to address the identified bottlenecks. Consequently, its scope is limited to the budget process for supplies procurement and addresses the following specific objectives:

1. Present the Vaccine Procurement/Immunization budgeting process mapping and bottleneck Analyses.
2. Present potential supply financing solutions, including current initiatives, to help increase the fiscal space for health.
3. Present the outcomes of the mapping and bottleneck analysis, as well as the review of potential supply financing solutions to Government Partners.
4. Provide input to the development of the MoH Health Financing Strategy as well as the Joint Action Plan for the sustainable immunization and nutrition financing.
5. Provide capacity building/training to teams of MoH.

Rationale for the Study

Malawi's under-five mortality rates and child malnutrition indicators have dropped over time. Critical to these improvements has been ensuring that as many children as possible get their scheduled immunizations as well as nutrition supplements when malnourished. Of concern, however, is the low or dwindling government financing of vaccines and nutrition supplies. Given documented fiscal space for health challenges for Malawi, sustaining and improving the coverages of immunization and nutrition interventions directly related to supplies require better understanding of bottlenecks at the budget planning, execution and evaluation stages. Such an understanding will then facilitate identification of the relevant solutions to address the bottlenecks, ensuring order to direct efforts including advocacy to appropriate solutions.

Zooming into the supply financing component of overall immunization and nutrition programmes financing is important as a broad focus on programme level funding can downplay immunization and nutrition supplies financing challenges. This is important in the context where immunization and nutrition supplies procurement are almost fully financed by donors. The impact of such underfunding of the vaccines and nutrition supplies procurements by Government could easily be muted in the absence of studies that focus on vaccine and nutrition supplies financing. This study therefore has potential to contribute to important changes in domestic financing for immunization and nutrition through highlighting the supplies procurement bottlenecks, proposing interventions to address them and suggesting an evidence-based advocacy framework for increased supplies financing for immunization and nutrition.

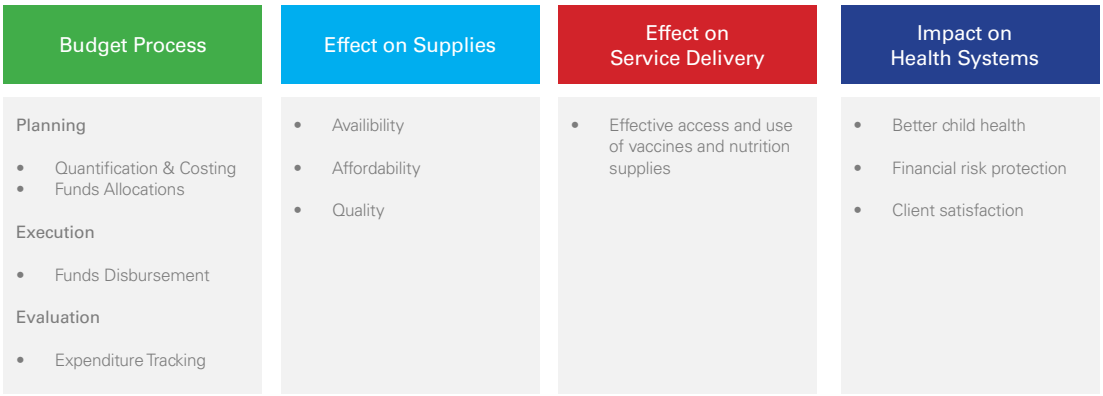
Conceptual framework and methodology

This section provides an overview of the conceptual framework for the study, the methodology, as well as the key data sources

Conceptual framework

In this assessment, supplies financing refers to how procurement of supplies is financed. The conceptual framework in Figure 1 links supplies financing to service delivery outcomes and impacts. The framework is based around three Public Financial Management (PFM) budget cycle comprising: 1) budget planning which covers quantification, costing and funds allocation; 2) budget execution covering funds disbursement to suppliers; 3) and budget evaluation covering expenditure tracking. We assume that the goal of supplies financing is to support in achieving optimal functioning of the supply chain through effective quantification and costing of supplies procurement; adequate funds allocation in line with quantified needs; timely disbursements of funds to suppliers; and effective monitoring and evaluation of supplies budgets and expenditures. In turn, an effective supply chain will ensure availability (no stock-outs) of affordable supplies that are of acceptable quality thereby facilitating access to and use by those in need. This will then contribute to the achievement of the National Health Policy and HSSP II goals of improved health status, financial risk protection and client satisfaction.

Figure 1: Link between Vaccines and Nutrition Supply Chain and UHC



Source: Author

Methodology

Overview of methods

Based on the objectives of the assignment and informed by the conceptual framework above, we conducted a desk review and Key Informant Interviews (KII) with selected stakeholders at national and sub-national levels.

Desk Review

The desk review involved analysis of policy and programme documents and aimed to provide an understanding of the national budget process as well as budget process for immunization and nutrition supplies. It further involved a review of national budget and expenditure monitoring tools as well as tools for quantification and costing of vaccines and nutrition supplies.

Secondary data sources included an immunisation bottlenecks report by a UNICEF SD Mission of 29 April – 3 May 2019, Public Expenditure Review (2020) and PFM Assessment (2019) studies conducted by the World Bank, MoH RMNCAH+N bottlenecks analysis (2020), EPI Comprehensive Multi-Year (2016-2020), Gavi Joint Appraisal Reports (2015, 2018, 2019), UNICEF Child Immunisation budget briefs (2016 - 2020); National Multi-Sector Nutrition Strategic Plan (2018–2022), report on Organization of nutrition services (2020), Supply Management Tool (SMT), Quantification and Costing Templates for Nutrition Supplies, Logistics Management Information System (LMIS), Health Management Information System, Integrated Financial Management System (IFMIS), Lives Saved Tool (LiST), Demographic and Health Survey (DHS), National Micronutrient Survey (2015/16) and MoH resource mapping (2011-2019).

Key Informant Interviews

For the KII participants included staff from the Budget Division of Ministry of Finance (MoF); Department of Planning and Policy Development (DPPD), Expanded Programme on Immunization (EPI), Department of Clinical Services (Nutrition Unit), Department of Health Technical Services, and Department of Nutrition HIV and AIDS (DNHA) in the Ministry of Health (MoH). Interviews were also conducted with staff in nutrition units in the Ministry of Education, and Ministry of Gender. For donors, interviews were conducted with UNICEF and WFP staff involved in vaccines and nutrition supplies financing and procurement. At the district level, interviews were undertaken with EPI and nutrition coordinators.

Bottleneck Identification and Analysis

To identify bottlenecks in vaccines and supplies financing, we analysed trends in general government budgets and revenues as well as health financing in order to determine potential fiscal space for health constraints. We reviewed immunization and nutrition programme data for the health sector as well as supplies financing data to examine financing gaps and gauge potential bottlenecks to vaccines and nutrition supplies financing across budget planning, execution and evaluation stages. We further reviewed vaccines and nutrition supplies quantification and costing tools to identify whether and how gaps in the tools impact on supplies financing. We augmented the desk review results with follow up interviews to relevant officers who provided additional insights into the bottlenecks. The feedback on the challenges from the KII provided indication of the broad and specific challenges of programme and supplies financing but was not sufficient to inform the bottleneck analysis. We organized the information based on the conceptual framework to identify issues that characterised the PFM challenge and isolate the root causes for each challenge. Therefore, the bottlenecks that are identified in this assignment are root causes and not the manifestation of the PFM challenges.

Solution Identification and Analysis

To identify solutions to bottlenecks, we also used results of the desk review to provide indicative solutions to each bottleneck identified in the process above and consulted relevant technical staff to provide feedback on the proposed interventions and whether these will be adequate to address the identified bottlenecks. The solutions aim to address the supplies financing challenges of budget planning, execution and evaluation through directly tackling the root causes. To facilitate action on the identified bottleneck and solutions, we developed a work plan that has timelines and responsible stakeholders. Feedback was also sought from the relevant technical teams.

Advocacy Tool for Resource Mobilization

Based on the identified solutions and stakeholders we conducted a Benefit Cost Analysis (BCA) to inform a supplies financing advocacy framework for vaccines and nutrition supplies procurement. This drew on the Lives Saved Tool (LiST) methodology and forms the health financing advocacy tool for mobilizing additional resources for vaccines and nutrition supplies.

Short-Term, Medium Term and Long-Term Action Plan; and Capacity Building Plan

Based on the separate bottlenecks and solutions identification and analyses for vaccines and nutrition supplies financing, and proposals from stakeholders during the interviews as well as at a validation workshop, a consolidated action plan was developed for both vaccines and nutrition supplies, and covers short, medium and long-term actions with responsible actors as well as timeframes. Table 28 provides the short-term action plan and Table 29 provide the medium and long-term action plan to addressing the bottlenecks identified in this assessment. The capacity Building, presented in Table 30 is then based on identifying from the Action Plan, activities that without capacitating the lead Government Departments and Units, there would be risk of implementation failure.

Study Limitations

A number of limitations affected the study. First, the COVID 19 situation meant that all interviews were conducted through phone. Second, at the time of this study, the National Health Accounts study was underway. This means that the most up-to-date data available for this study is the recently completed NHA which provides expenditure estimates up to 2017/18 financial year. Nevertheless, based on the latest NHA result. Thirdly, we attempted to conduct a BCA on both immunization and nutrition for the health sector. Using the LiST tool, we were able to identify key data for immunization but not enough information for a similar analysis for nutrition. As a result, only a BCA for immunization was implemented.

Organisation of the report

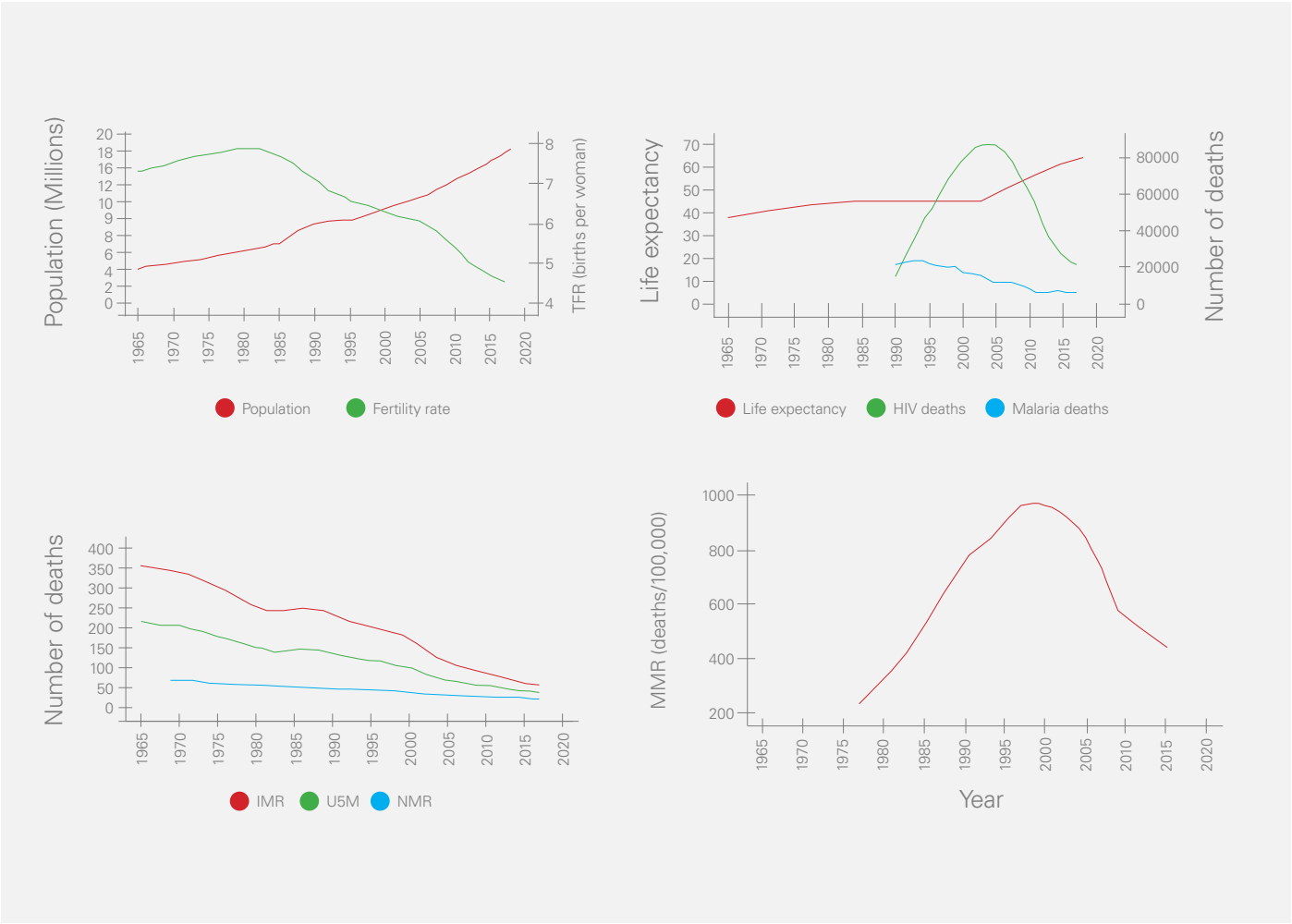
The report is organized as follows. The first chapter presents background, objectives, rationale and approach to the assessment. The second chapter provides an overview of immunization and nutrition service delivery in Malawi. The third chapter presents an overview of the macro-context, financing situation for immunization and nutrition programmes which then motivates a discussion on fiscal space for health including for vaccines and nutrition financing. Chapter 4 provides an overview of the National, Immunization and Nutrition policy and planning mechanism and institution arrangements, and provides preparation for chapters five and six on vaccines and nutrition supplies budget process where we identify bottlenecks and potential solutions to address them. The Final Chapter presents a tool for potential use in advocacy for new funds for vaccines and nutrition supplies.

OVERVIEW OF IMMUNIZATION AND NUTRITION SERVICE DELIVERY IN MALAWI

Trends in Key Child Health Outcomes

Child health in Malawi has steadily improved since independence. The top left panel in Figure 2 shows steady decline in under-5 mortality (U5M), infant mortality (IMR), and neonatal mortality (NMR) rates from 1965 to 2017. In 2016, U5M was estimated at 63 deaths per 1000 live births, IMR at 42 deaths per 1000 live births and NMR at 27 deaths per 1000 live births (NSO Malawi and ICF, 2017). Life expectancy has expectedly been rising (top right panel, Figure 1), partially due to the decline in child mortality. It started to spike around 2005 when AIDS deaths took a steep decline due to increased coverage of free antiretroviral therapy and due to the drop in maternal deaths that started from about year 2000 (bottom right panel, Figure 1). Deaths from malaria, one of the five top causes of under-5 mortality, have also been on a steady decline augmenting the positive life expectancy trend (top right panel, Figure 2).

Figure 2: Trends in key health indicators

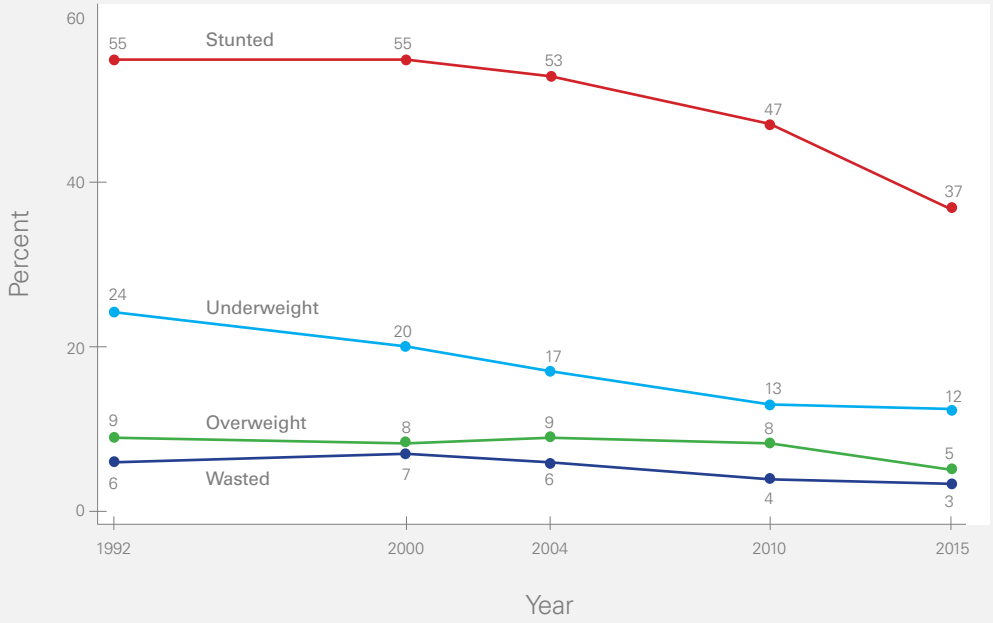


Data Source: World Development Indicators, 2020. https://datacatalog.worldbank.org/dataset/world-development-indicators, Malawi Demographic and Health Survey 2015/16. Colbourn et al. (2013)
IMR -Infant mortality rate; NMR-Neonatal mortality rate; U5M-Under-5 mortality rate

Total fertility rate (number of births per woman) has been declining but not sufficiently to halt rapid population growth (bottom left panel, Figure 2). Malawi's increasing population puts serious strain on limited resources; the number of children needing immunisation and adequate nutrition is ever increasing and so the budget need.

Child health nutrition indicators have also improved over time. Figure 3 shows a consistent decline in key nutrition indicators. It is more pronounced for stunting (low height-for-age, a sign of chronic undernutrition) and underweight (a composite index of height-for-age and weight-for-height that accounts for both acute and chronic undernutrition) and modest for overweight (high weight-for-height) and wasting (low weight-for-height). Despite the decline, 37% of stunting in under-fives is still considered very high. Twelve percent of infants are born with low birth weight (< 2.5 kg) (NSO Malawi & ICF, 2017).

Figure 3: Trends in key nutrition indicators (sample size is under 5 children)



Data Source: MDHS 1992, 2000, 2004, 2010, 2015/16

The Ministry of Health (MoH) aims to maintain the momentum depicted in Figure 2 and Figure 3 and meet the 2022 targets outlined in the Health Sector Strategic Plan II (HSSP II 2017-2022) (MoHP, 2020). The HSSP II aims to reduce the under-5 mortality rate from 63 to 48 deaths per 1000 live births, infant mortality rate from 42 to 34 deaths per 1000 live births and neonatal mortality rate from 27 to 22 deaths per 1000 live births. The Malawi National Nutrition Strategic Plan (MNNSP) meanwhile aims to reduce prevalence of under-5 stunting from 37% in 2016 to 32% by 2022, under-5 wasting from 2.7% in 2016 to 1.5% in 2022.

Progress in Immunisation and Nutrition Service Delivery Indicators

Progress in Immunization Service Delivery Indicators

The strategic goal of the immunisation programme in Malawi is to reduce infant morbidity and mortality rates due to vaccine preventable diseases. The programme focusses on the following strategic issues: 1) Availability of vaccines and injection materials 2) Adequacy of cold chain capacity and management 3) Adequacy of capacity of health workers in immunization 4) Adequacy of awareness on immunization and 5) Optimal performance on surveillance indicators (MoHP, 2015). The EPI programme currently offers the following vaccines including Vitamin A supplementation (Ngwira, 2018):

Table 1: Malawi Immunization and Vitamin A Supplementation Schedule

Age	Vaccine
At birth or first contact	BCG
At birth up to 2 weeks	OPV 0
At 6 weeks	OPV 1 and DPT-HepB-Hib 1, PCV 1, Rota 1
At 10 weeks	OPV 2 and DPT-HepB-Hib 2, PCV 2, Rota 2
At 14 weeks	OPV 3 and DPT-HepB-Hib 3, PCV 3 and IPV
At 9-11 months	MR 1
At 15-23 months	MR 2
First contact (15-45 yrs and Pregnant women)	Td 1
At 4 weeks after Td1	Td 2
At 6 months after Td2	Td 3
At 1 yr after Td3	Td 4
At 1 yr after Td 4	Td 5
First contact (10 yrs)	HPV1
6 months after HPV1	HPV2
At 6 months and every 6 months up to 59 months	Vitamin A (children)
Within two weeks of delivery	Vitamin A (post-natal mothers)

Source: Ngwira (2018)

The WHO Global Vaccine Action Plan (GVAP) demands countries to achieve 90% coverage for all antigens and at least 80% coverage for all antigens in 80% of districts by the year 2020 (WHO, 2013). Malawi has sustained high levels of coverage for all the individual antigens in the basic EPI package, although it has slightly fallen short of the WHO targets. Figure 3 shows that coverage was at least 90% for all years for BCG, DPT/Penta 1, DPT/Penta 2 and Polio 1. The percentage of children aged 12-23 months that received all basic immunisations was so variable over the period being 76% in the 2015/16 DHS.

While Malawi's immunization coverage rates have remained impressively high, Figure 4 shows that the vaccination rates for all basic immunization as well as Polio 3 are still lower than those recommended by WHO. Causes of these lower than recommended rates include cancellation of scheduled immunization sessions; inadequate human resources, inadequate supportive supervision, mentorship and performance feedback to health centres, lack of facility based EPI review meetings, limited capacity of health workers in areas like Reaching Every Child (REC), limited defaulter tracking, poor documentation in Under 2 Registers and Tally sheets, low knowledge of care givers on the importance of immunizations and hard-to-reach areas not served by outreach services (Ngwira, 2018). Based on interviews with EPI staff at the district level, weak financing of the vaccination programmes was highlighted as the key underlying factor for the above challenges.

Figure 4: Trends in vaccinations over time

Data Source: Malawi Demographic and Health Surveys 1992, 2000, 2004, 2010, 2015/16

Progress in Nutrition Service Delivery Indicators

Figure 5 shows indicators for different nutrition specific indicators. Vitamin deficiency was not a significant issue while iron and zinc deficiencies and anaemia were important issues. Uptake of deworming treatment was low while for food fortification, out of 77% of oil that was available in households, only 12% was fortified.

The proportion of children who have been discharged as recovered in CMAM program (NRUs, OTPs and SFPs) is a key indicator in the Malawi Nutrition Strategic Plan (2018-2022). Figure 6 shows that for severe acute malnutrition (SAM) and moderate acute malnutrition (MAM), there have been consistent trends of monthly admissions for the period 2016-2019. For SAM admissions, 2019 had minimum values compared to the other years while for MAM admissions, 2016 and 2018 values were lower than 2019 values for some months indicating that there was not a consistent declining trend over time. For SAM, cure rates were above 90% except one data point. There was a generally similar pattern across months for all the four years but cure rates for 2019 were lower. For MAM cure rates, the frontier of maximum values derives from all years except 2016 showing no consistent progress over years.

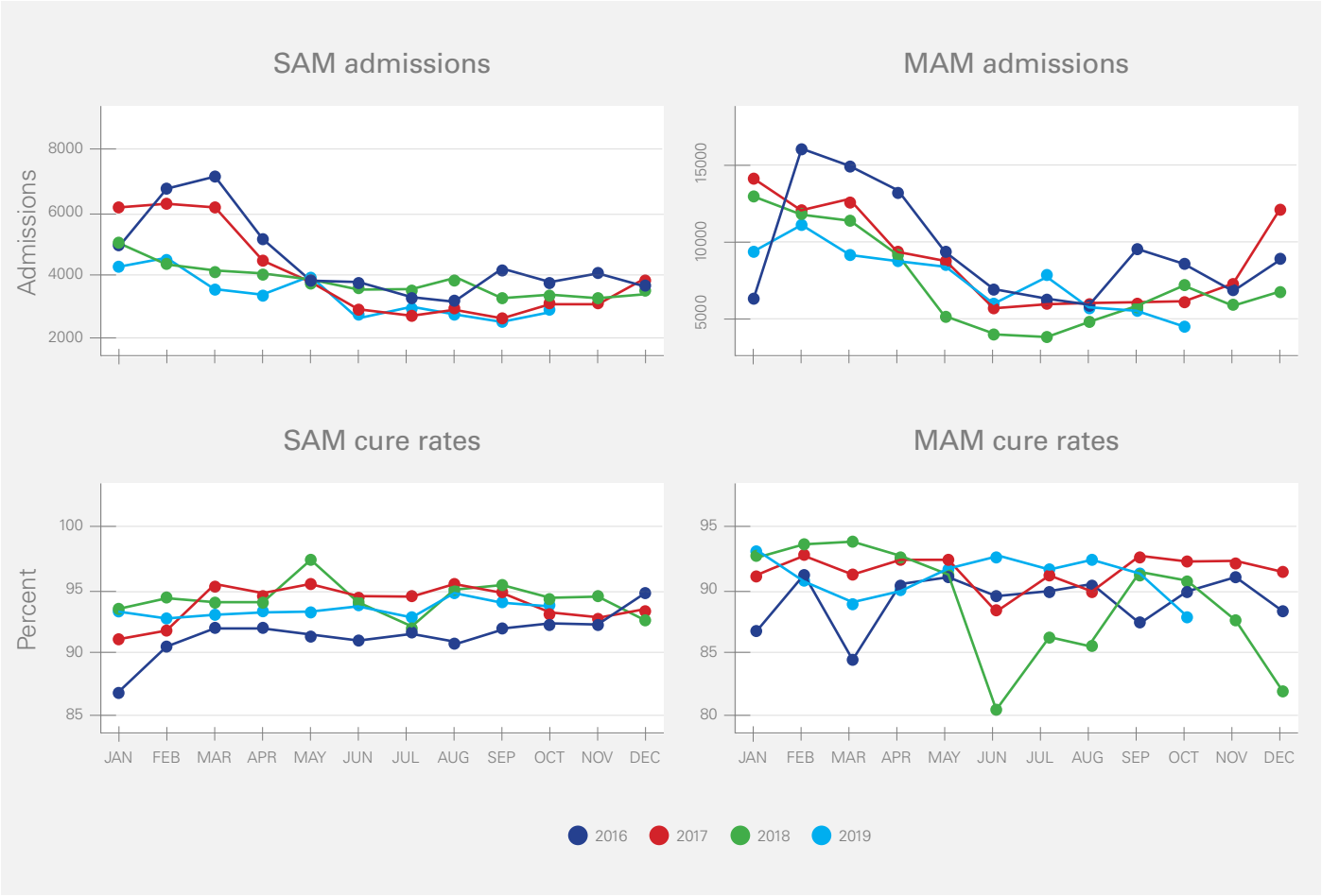
Figure 5: Indicators related to nutrition specific interventions

Data source: 2015/16 Malawi Micronutrient survey
PSC – Preschool children, SAC-School age children, WRA-Non-pregnant women of reproductive age

Sixty percent prevalence of households that experienced hunger in the past 4 weeks of the 2015/16 micronutrient survey and households that received coupons for farm input subsidy programme at 36%, provide an idea of the state of nutrition sensitive programmes.

The Malawi National Nutrition Policy (2018) identifies the bottlenecks of underperformance in the prevention of malnutrition in Malawi as being 1) inadequate availability and access to nutritious foods; 2) poor health seeking behaviours; 3) WASH; 4) weak access to quality health care; 5) low education levels among health care givers; and 6) insufficient household income. The findings of this assessment revealed key bottlenecks of nutrition service delivery within the health sector including weak nutrition commodities supply chain system, inadequate community screening for nutrition, limited inter-sectoral collaboration and low domestic financing for nutrition

Figure 6: Severe acute malnutrition and moderate acute malnutrition trends



Data source: UNICEF (2019). Malawi nutrition situation update issue #38. Data from all the 619 Outpatient Therapeutic Program (OTP) centres, 104 Nutrition Rehabilitation Units (NRU) and 611 Supplementary Feeding Program (SFP) centres.

Policy and Institutional Frameworks for Immunisation and Nutrition

Policy and Institutional Frameworks for Immunization

Immunization service delivery is guided by the Malawi National Health Policy (2018-2030) and Health Sector Strategic Plans. The goal of the current Health Sector Strategic Plan II, (2017-2022) is to move towards Universal Health Coverage (UHC) of quality, equitable and affordable health care with the aim of improving health status, financial risk protection and client satisfaction. In order to achieve universal health coverage, the HSSP-II focuses on the delivery of a prioritized package of basic, cost-effective health interventions that include immunisation taking into account Malawi's burden of disease and limited financial resources called the Essential Health Package (EHP).

The national EPI programme is responsible for immunisation service delivery. It falls under the Directorate of Preventive Health Services of the Ministry of Health. The Director of Preventive Health services reports to the Secretary for Health. The EPI programme is guided by a National Immunization Advisory Committee (NITAG), an EHP technical working group (TWG) and an immunisation sub TWG of the EHP TWG.

The Ministry of Health has five geographical zones and zonal EPI Officers are responsible for coordinating EPI activities in their respective zones, assisted by zonal Cold Chain Officers. At the district level, there are two EPI Coordinators assisted by Cold Chain technicians. Immunisation services are provided at all levels of health facilities by different health worker cadres. Health Surveillance Assistants (HSAs) provide the bulk of immunization services at community level; HSAs are linked to health centres.

Policy and Institutional Frameworks for Nutrition

The policy goal of the multisectoral nutrition programme is "a well-nourished Malawian population that effectively contributes to the economic growth and prosperity of the country" while the medium-term goal is to attain optimal nutrition for all Malawians by 2021 with emphasis on children under the age of 5, pregnant and lactating women, and other vulnerable groups. Interventions in the national Nutrition strategy are broadly categorised as:

- Nutrition specific interventions and programmes i.e., adolescent health and preconception nutrition, maternal dietary supplementation, micronutrient supplementation or fortification, breastfeeding and complementary feeding, dietary supplementation for children, dietary diversification, feeding behaviours and stimulation, treatment of severe acute malnutrition, disease prevention and management, nutrition interventions in emergencies;
- Nutrition sensitive programmes and approaches i.e., agriculture and food security, social safety nets, early child development, maternal mental health, women's empowerment, child protection, classroom education, water and sanitation, health and family planning services; and,
- Building an enabling environment i.e., rigorous evaluations, advocacy strategies, horizontal and vertical coordination, accountability, incentives regulation, legislation, leadership programmes, capacity investments, domestic resource mobilisation.

To implement the Nutrition Policy, the Department of Nutrition, HIV and AIDS (DNHA) coordinates the national nutrition response. It is responsible for 1) high level advocacy; 2) spearheading the mainstreaming and integration of nutrition in the national development agenda, sectoral policies, programs, and outreach services; 3) ensuring the implementation of the policy by sectors and other stakeholders on the basis of the defined mandates; 4) tracking sector performance and ensuring accountability; and 5) resource mobilisation and tracking. DNHA is overseen by cabinet, parliamentary and Principal Secretaries' committees on Nutrition, HIV and AIDS. DNHA coordinates relevant sector Ministries, development partners, civil society organisations and academic institutions. At the district council, there is a district nutrition coordination committee that works with established community participation structures and extension workers to implement nutrition programmes.

The Nutrition Unit in the Directorate of Clinical Services in the Ministry of Health is responsible for the implementation of nutrition specific interventions and programmes. The Nutrition Unit also coordinates the procurement of nutrition commodities among all relevant stakeholders and is involved in quantification of the commodities, work which is led by the Pharmaceuticals Unit of the Ministry of Health. The Department used to get an allocation for the procurement of nutrition commodities annually but it was stopped due to MoH budget constraints. UNICEF, World Food Programme (WFP) and Central Medical Stores Trust (CMST) procure these commodities on behalf of MoH; UNICEF focuses on commodities for Under-5s, while WFP and CMST procure commodities for all age groups. Districts order the commodities from the CMST for their Nutrition Rehabilitation Units (NRUs), outpatient therapeutic programme (OTP) centres and Supplementary Feeding Programme (SFP) centres. There are 104 NRUs, 619 OTP centres and 611 SFP centres. The Logistics Management Information system (LMIS) of the MoH is used to manage stocks of nutrition commodities across the country.

Organization of the Malawi health sector

Health services in Malawi are provided by public, private for profit (PFP) and private not for profit (PNFP) sectors. Health services in the public sector are free-of-charge at the point of use. The PFP sector consists of private hospitals, clinics, laboratories and pharmacies. The PNFP sector comprises religious institutions, non-governmental organisations (NGOs), statutory corporations and companies. The major religious provider is the Christian Health Association of Malawi (CHAM) which provides approximately 29% of all health services in Malawi (MSPA 2014). Table 2 shows the distribution of health facilities by type and ownership.

Table 2: Health Facilities by ownership and level in Malawi

Facility Type	CHAM	Government	NGO	Private	Total
Dispensary	4	49	4	30	87
Health Centre	107	413	4	18	542
Health Post	18	132	2		152
Hospital[1]	38	45	1	1	85
Outreach	968	4,008	43	71	5,090
Village Clinic		3,542			3,542
Total	1,135	8,189	54	120	9,498

Source: UNICEF Health Facility Mapping Report (2016)

Malawi's health system is organized at four levels namely: community, primary, secondary and tertiary. Community, Primary and Secondary level care falls under district councils. The Director of Health and Social Services (DHSS) is the head of the district health system and reports to the District Commissioner (DC) who is the Controlling Officer of public institutions at district level.

At community level, health services are provided by health surveillance assistants (HSAs), health posts, dispensaries and village clinics, and outreach clinics. Each HSA is meant to be responsible for a catchment area of 1,000 people. HSAs mainly provide promotive and preventive health care including immunisation and nutrition through door-to-door visitations, village and outreach clinics and mobile clinics (Ministry of Health, 2011). At primary level, health services are provided by health centres and community hospitals. The secondary level of care consists of district hospitals and CHAM hospitals of equivalent capacity. The tertiary level consists of central hospitals. They ideally provide specialist health services at regional level and provide referral services to district hospitals within their region. In practice, however, around 70% of the services they provide are either primary or secondary services due to lack of a gate-keeping system (Ministry of Health, 2011).

The Ministry of Health headquarters is responsible for policy making, standards setting, quality assurance, strategic planning, resource mobilization, technical support, monitoring and evaluation and international representation. It also plans for and executes centralized procurements on behalf of central hospitals and district councils. Five Zonal Quality Management satellite offices are an extension of the central level and provide technical support to districts.

Overview of Macro-Economic Context and Fiscal Space for Health, and Implications for Immunisation and Nutrition

Macroeconomic and fiscal context

Malawi's Gross Domestic Product (GDP) was estimated at 9.38 billion constant 2010 US$ in 2018 (Table 3). Agriculture is the mainstay of the economy and contributed to approximately 28% of the GDP, 65% of employment, and 63% of export earnings in 2015 (Ministry of Agriculture, Irrigation and Water Development, 2018). With over-dependency on agriculture, the country's annual real Gross Domestic Product (GDP) growth rate has declined in recent years due to several shocks such as floods in 2015, drought in 2016 and the combined effects of drought and fall army worms in 2018 (Table 3) (MoFEP&D, 2020). GDP per capita GDP (constant 2010 US$) has improved minimally, rising from US$494 in 2013 to US$517 in 2018 (Table 3) (World Bank, 2020). Inflation has declined significantly in recent years, from 28.6% in 2013 to 9.2% in 2018 (Table 3) and is projected to decline further to 8.8% in 2020 (Table 3) (RBM, 2020; MoFEP&D, 2020).

1 Includes Central and district hospitals

Most Malawians assess themselves to have poor welfare[2]. The Integrated Household Survey 4 (2016-2017) (IHS4) reported that 64 percent of households felt that they had inadequate food consumption for their household's needs. Fifty-six percent having inadequate housing up from 41 percent in 2010/2011. The IHS4 further found that 74 percent of households in Malawi subjectively assessed themselves as poor and 36 percent as extremely poor. The World Bank estimates that the percentage of the population living on less than $1.90 a day at 2011 international prices was estimated at 70.3 in 2016 (World Bank, 2020), which is consistent with Malawians' self-assessment. Malawi is ranked poorly on the United Nations Human Development Index, standing at 171 out of 188 countries in 2014 with a score of 0.476.

On the fiscal side, the percentage of tax revenue to GDP is above the international Monetary Fund (IMF) recommendation of 15%, being estimated at 17% in 2018 (Table 3). However, given the very low level of GDP in Malawi, even being well beyond the IMF threshold does not provide sufficient funds for proper service delivery. Government must therefore rely on grants, other revenues and borrowing to sustain public service delivery. Grants and other revenues have declined in the recent past as shown in Table 3, 40% of total revenue in 2013 to 13% in 2018. During the same period borrowing has risen unsustainably, from 36% of GDP in 2013 to 60% in 2018 (Table 3) and 62% in June 2019 (World Bank, 2019). In 2019, the value of Malawi's public domestic debt stock surpassed that of external debt further jeopardising the economy.

Table 3: Macroeconomic, Fiscal, and Health Financing Indicators: Malawi 2013-2018

Indicator	Year						
	2013	2014	2015	2016	2017	2018	2019
Macroeconomic indicators							
GDP (constant 2010 US$, billions)	7.82	8.27	8.50	8.71	9.06	9.38	9.75
GDP per capita (constant 2010 US$)	494	508	508	506	513	517	524
GDP growth (annual %)	5.2	5.7	2.8	2.5	4.0	3.5	4.4
Inflation, consumer prices (annual %)	28.6	23.8	21.9	21.8	11.6	9.2	9.4
Fiscal indicators							
Central government debt, total (% of GDP)	36	41	40	55	49	60*	
Tax revenue (% of GDP)	14	16	15	15	17	17	17
Grants and other revenue (% of revenue)	40	20	20	21	20	13	13

Data Sources: WDI 2020. https://datacatalog.worldbank.org/dataset/world-development-indicators; Reserve Bank of Malawi https://www.rbm.mw/Statistics/InflationRates/; *Malawi Economic Monitor (2019).

2 The IHS4 defined welfare as availability of resources and presence of conditions required for reasonably comfortable, healthy, and secure living

Trends in Health Financing

Health expenditure in Malawi averaged 675 million currentUS$ between 2012/13 and 2017/18 fiscal years(Table 4). This translated to average total health expenditure per capita of US$39.9 per annum over that period which is significantly below the average of US$98 in sub-Saharan Africa (excluding South Africa); and the average of US$147 in the Southern African Development Community (SADC) region (MoH, 2016; World Bank 2017). Government health expenditure per capita averaged US$9.78 during the 2012/13 to 2017/18 period.

Health financing in Malawi is predominantly donordependent. For the fiscal years (FYs) 2012/13 to 2014/15 donor health expenditures averaged 61.6% of total health expenditure, Government health expenditure averaged 25.5% and private health expenditure (households, employers and NGOs) averaged 12.9% (Table 4).

Table 4: Health financing indicators, 2012/13 to 2017/18 fiscal years

Indicators	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	Average
Total expenditure on health (Million U.S. dollars)	696.74	623.34	669.58	678.95	685.14	693.48	674.54
Total government expenditure on health (Million U.S. dollars)	155.41	153.52	191.17	168.00	155.00	169.00	165.35
Per capita total expenditure on health (at average U.S. dollar exchange rate)	43.50	37.60	39.20	40.30	39.40	39.50	39.92
Government per capita total health expenditure (at average U.S. dollar exchange rate)	9.70	9.30	11.20	10.00	8.90	9.60	9.78
Who funds health? Key financing sources (% of Total Health Expenditure)							
Public	22.5%	25.0%	29.0%	24.7%	22.7%	24.4%	25%
Private	9.2%	12.0%	17.5%	16.9%	17.4%	18.0%	15%
Donors	68.3%	63.1%	53.5%	58.4%	59.9%	57.6%	60%

Source: National Health Accounts 2016, 2020

MoH Resource Mapping data for 2017/18 to 2019/20 FYs show that the Malawi health sector is financed by about 191 sources and there are about 261 implementing partners implying a high level of fragmentation of resources. Ten funders account for 92.5% of the total health financing while 181 funders account for the remainder. Of the ten funders, the Global Fund to fight TB, Malaria and HIV contributed 28%, Government 25.3% and the United States Government 16.5% in the 2017/18 FY.

Trends in Immunisation financing

Gavi remains the major source of immunization financingin Malawi. Table 5 illustrates that Gavi immunisation expenditures have fluctuated over time. This has mainly been due to either new vaccines or immunisation/health systems strengthening initiatives. Figure 7 shows Gavi disbursements by function/vaccine from 2001 to 2019.

Immunisation financing reflects the predominance of external financing of health in Malawi (Table 5)[3]. MoH immunisation expenditures have been a small proportion of total immunisation financing (Table 5). The lowest MoH allocation to vaccine procurement was in the 2018/19 financial year; only US$299,319.70[4] was allocated. As a result, MoH sought HSJF support for both co-financing and funding for routine vaccine procurement as shows in Table 5.

Table 5: Immunisation expenditures (USD), 2013-2018

Year	Gavi disbursements	Govt. co-financing	Govt exp. routine immunisation	HSJF co-financing	HSJF routine immunisation	Total immu. expenditure	% Govt expenditure
2013	22,743,150	1,208,000	1,100,000			25,051,150	9%
2014	14,384,565	815,000	1,028,616			16,228,181	11%
2015	19,542,970	983,000	1,096,000			21,621,970	10%
2016	11,838,621	992,000	752,760			13,583,381	13%
2017	37,567,604	1,274,000	1,155,478			39,997,082	6%
2018	9,111,001	0	299,320	618,119	2,777,584	12,806,024	2%

Data sources: https://www.gavi.org/sites/default/files/document/co-financing-information-sheet-malawipdf.pdf; Health services joint fund Annual Report 2018-19 FY; IFMIS.

Notes:

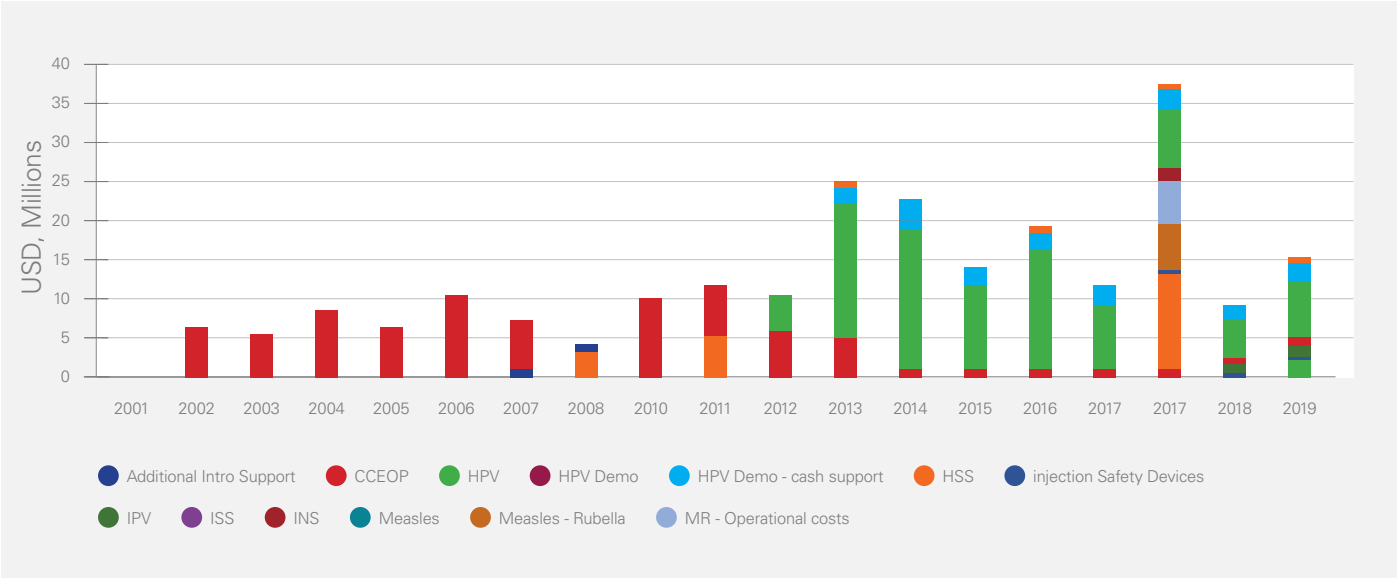
2013-2017 the following vaccines were co-financed by Government: pentavalent, Rota and PCV. In 2013 & 2014 Gavi financed the following vaccines: HPV, Demo, Pentavalent, Pneumo, and Roravirus. In 2015 GAVI procured the following vaccines: IPV, Measles, Penta, Rota and Pneumo. In 2016 GAVI procured the following vaccines: HPV, Demo, Measles, Penta, Pneumo, Rota; and in 2017 procured the following vaccines - Measles Rubela, Penta, Pneumo, and Rota

In 2018 HSJF co-financed procurement of the following underutilized/new vaccines: DTP-HepB-Hib; Pneumococcal Conjugated Vaccines; Rota Vaccines and Human Papilloma Vaccines. HSJF also supported procurements of Traditional Vaccines: BCG; bOPV; MR. In the same year, Gavi supported procurement of IPV, measles, Penta, pneumo and rota.

3

4 Exchange rate of 1 USD to MWK735 was used here

Figure 7: Gavi disbursements by function/vaccine

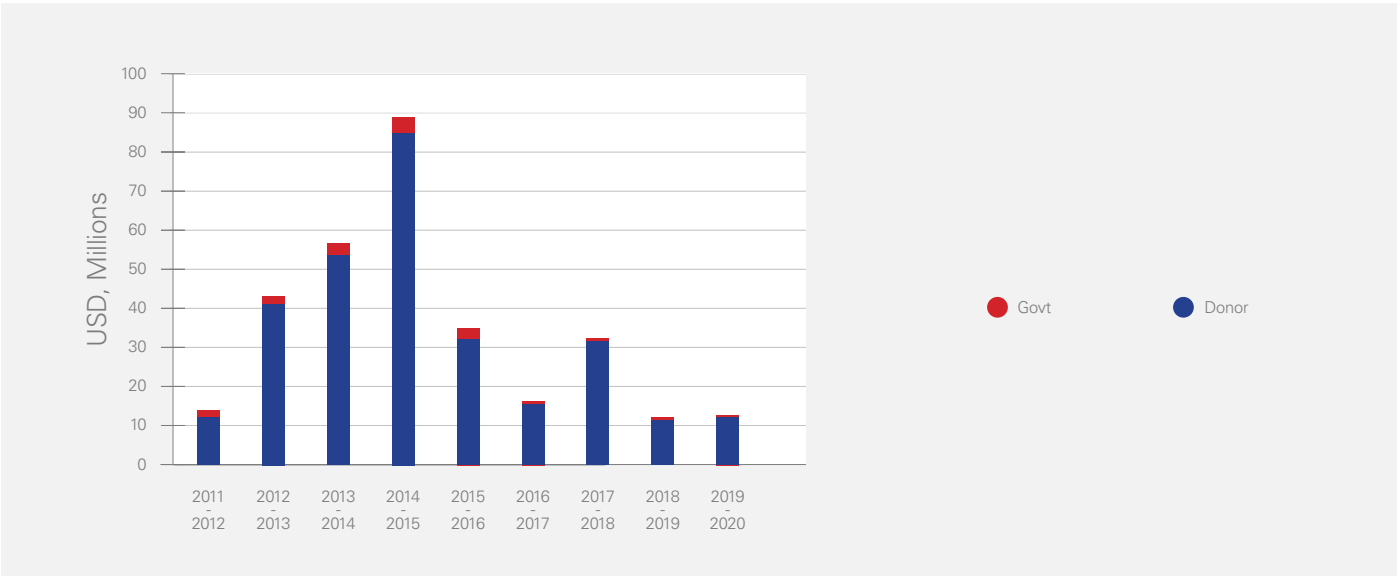


Data Source: https://www.gavi.org/programmes-impact/country-hub/africa/malawi
HSS- Health Systems Strengthening; INS – Injection safety support, ISS – Immunisation services support
CCEOP - Cold Chain Equipment Optimisation Platform

Trends in Nutrition financing

Like vaccines, nutrition is predominantly financed by donors. Figure 8 shows Government and donor budgets for nutrition for FYs 2011/12 to 2019/20. This is also reflected in nutrition expenditure data in Table 6. Table 6 in particular shows that Government nutrition and total expenditure have fluctuated but on the overall, decreased from their 2013/14 values.

Figure 8: Government and Donor financing of nutrition, 2011/12 to 2019/20



Data source: MoH resource mapping rounds 1,2,3,4 and 5. For 2016-17 we have used IFMIS budget for Department of Nutrition as there was no recorded expenditure in the Resource Mapping Database

Table 6: Nutrition expenditure trends (USD), 2012/13-2017/18

Year	Government	Corporations	Households	NPISH	Rest of the world	Other	Total Nutrition expenditure	Total Health expenditure (THE)	Total Govt health expenditure	Govt nutr exp as % ofTHE	Govt nutr exp as % of Govt health exp
2012/13	14,668,417	1,261,249	4,792,145	6,020	43,842,704	-	64,570,535	719,818,672	155,414,430	2.0%	9.4%
2013/14	14,100,813	1,526,272	5,338,128	10,192	50,180,955	-	71,156,360	662,677,046	153,519,937	2.1%	9.2%
2014/15	18,817,235	2,120,274	7,529,076	168,690	25,666,996	-	54,302,271	701,614,947	191,171,528	2.7%	9.8%
2015/16	16,685,206	2,598,629	8,450,042	3,235,856	10,382,300	24,385	41,376,435	678,950,000	168,000,000	2.5%	9.9%
2016/17	15,398,223	3,005,662	8,692,673	195,414	28,394,098	-	55,686,070	685,140,000	155,000,000	2.2%	9.9%
2017/18	16,908,503	3,474,038	8,786,353	120,718	35,414,439	4,245	64,708,308	693,480,000	169,000,000	2.4%	10.0%

Source: National Health Accounts 2016, 2020. Malawi Kwacha figures converted into USD using the following fiscal year average middle exchange rates to 1 USD: 2012/13, MWK332.21; 2013/14, MWK392.46; 2014/15, MWK438.97; 2015/16, MWK630.31; 2016/17, 723.44; 2017/18, MWK725.58.

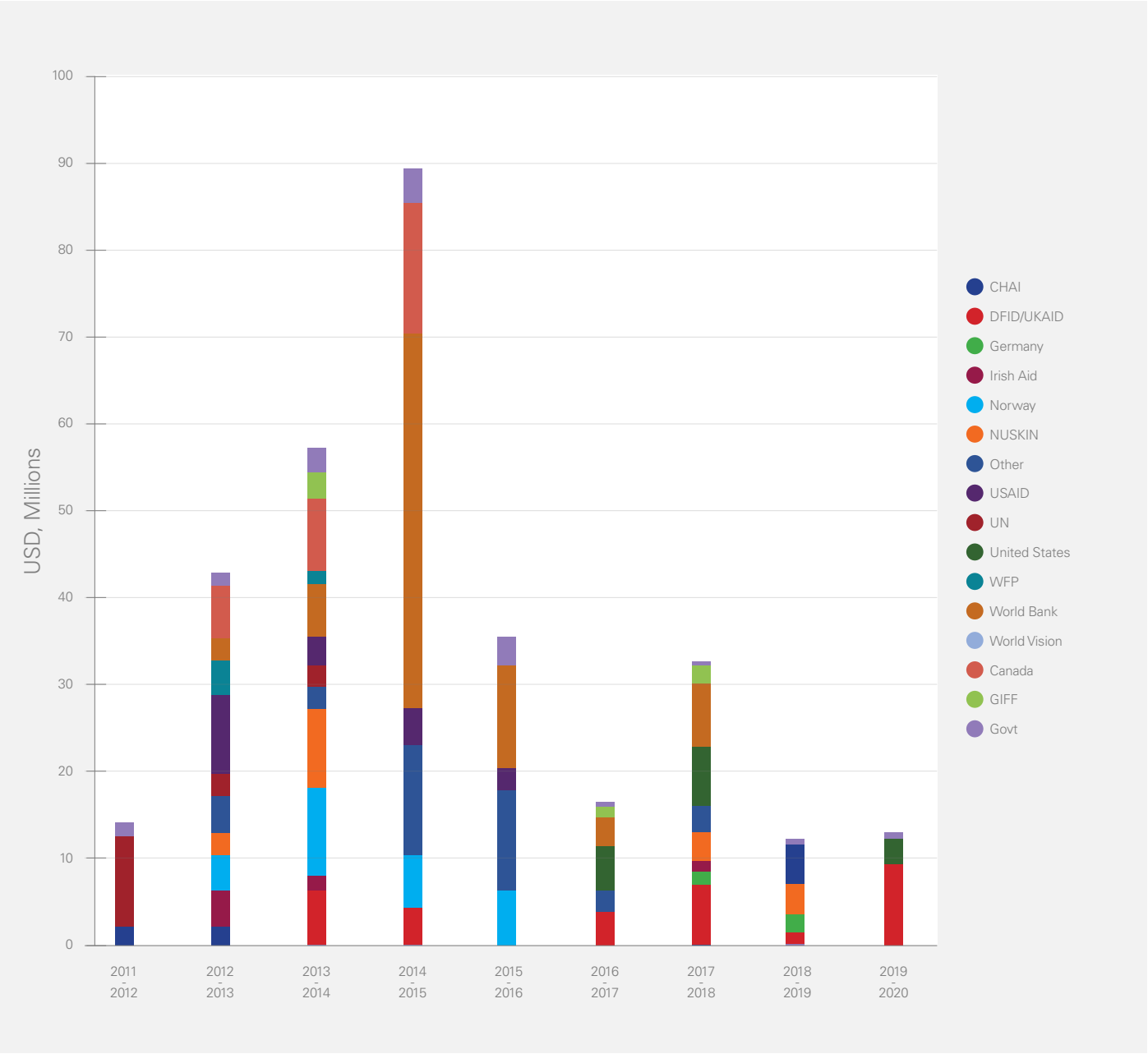
NPISH - Non-profit institutions serving households are institutions that: provide goods and services, either free or below the market prices, mainly derive their income from grants and donations and are not controlled by government.

Other – This category is classified as such for convenience. It, however, technically represents "Unspecified institutional units providing revenues to financing schemes (n.e.c.)" in System of Health Accounts terminology.

Figure 9 breaks down the donor contribution presented in Figure 9. It shows that there was an increasing trend from 2011/12 peaking in 2014/15 mostly due to a USD43 million World Bank grant and a USD14 million Canadian grant to the Department of Nutrition, HIV and AIDS. Afterwards, the trend declined[5].

5 2018/19 and 2019/20 figures could be low because they derived from 2016/17 Resource Mapping data and being future projections there was some uncertainty

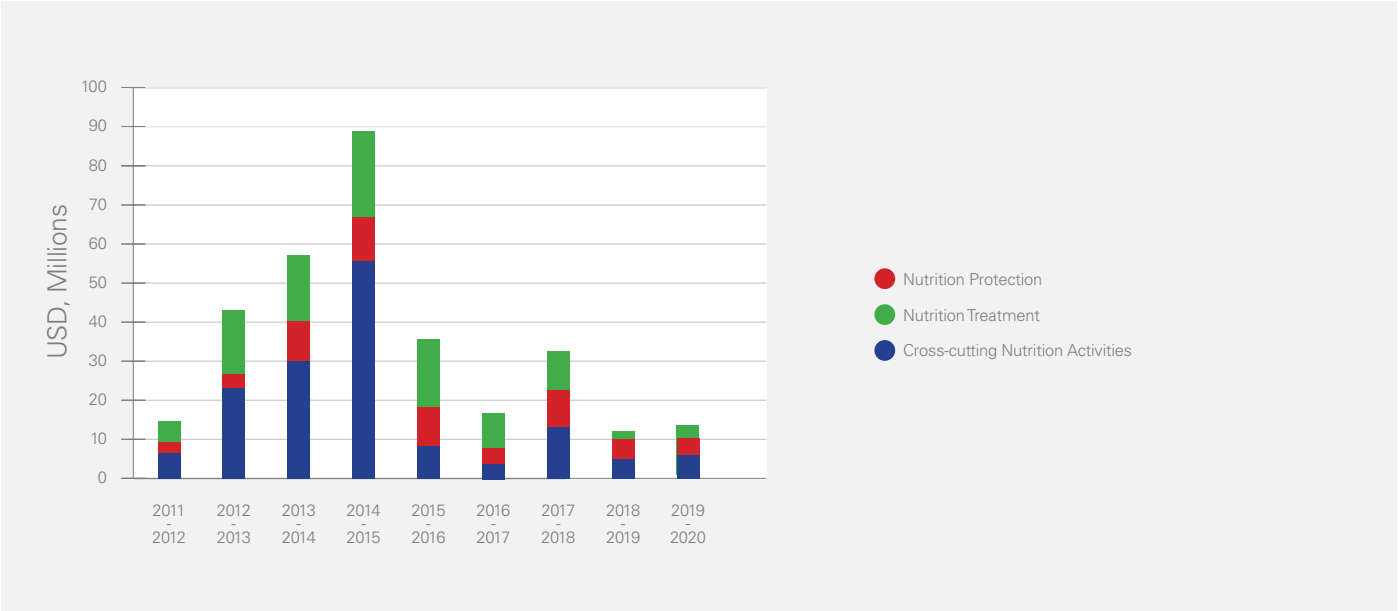
Figure 9: Breakdown of nutrition financing, 2011/12 to 2019/20



Data source: MoH resource mapping rounds 1,2,3,4 and 5

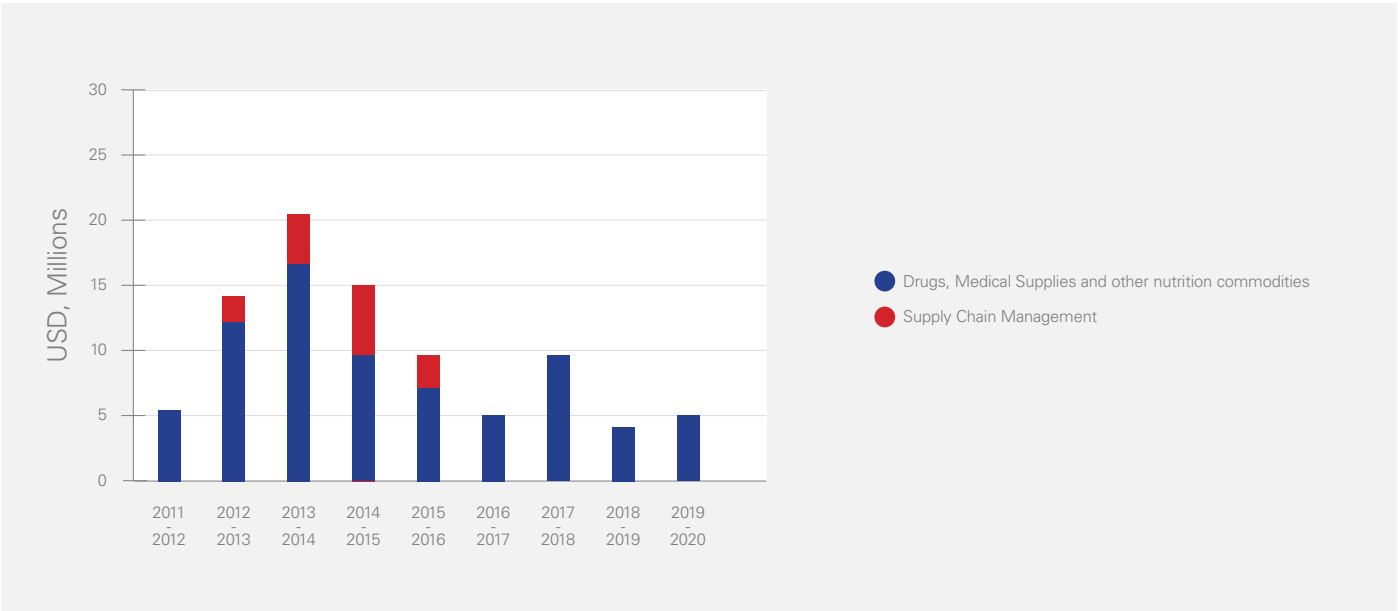
Figure 10 shows three broad functions the nutrition budgets were allocated to. The financial years 2012/13 to 2014/15 had significant investments in cross-cutting nutrition interventions i.e. capital medical equipment, health worker salaries, health worker training, infrastructure, service level agreements and supply chain management. A significant part of the nutrition prevention and treatment budgets in Figure 10 was procurement of medicines, medical supplies and other nutrition commodities. Figure 11 shows the trend in the commitments towards these nutrition procurements and reveals that that since 2016/17 Fiscal Year, MOH has spent negligible amounts on nutrition supplies procurement. Figure 12 also shows very worrying trends among both the multi-lateral and bi-lateral funders, with both of the major sources declining in addition to very low Government spending on nutrition supplies procurement. Table 19 in the Appendix 1 shows that the UK Government is the main financing source (47%), followed by the Germany Government (32%), Irish Aid (16%).

Figure 10: Nutrition budget trends by function



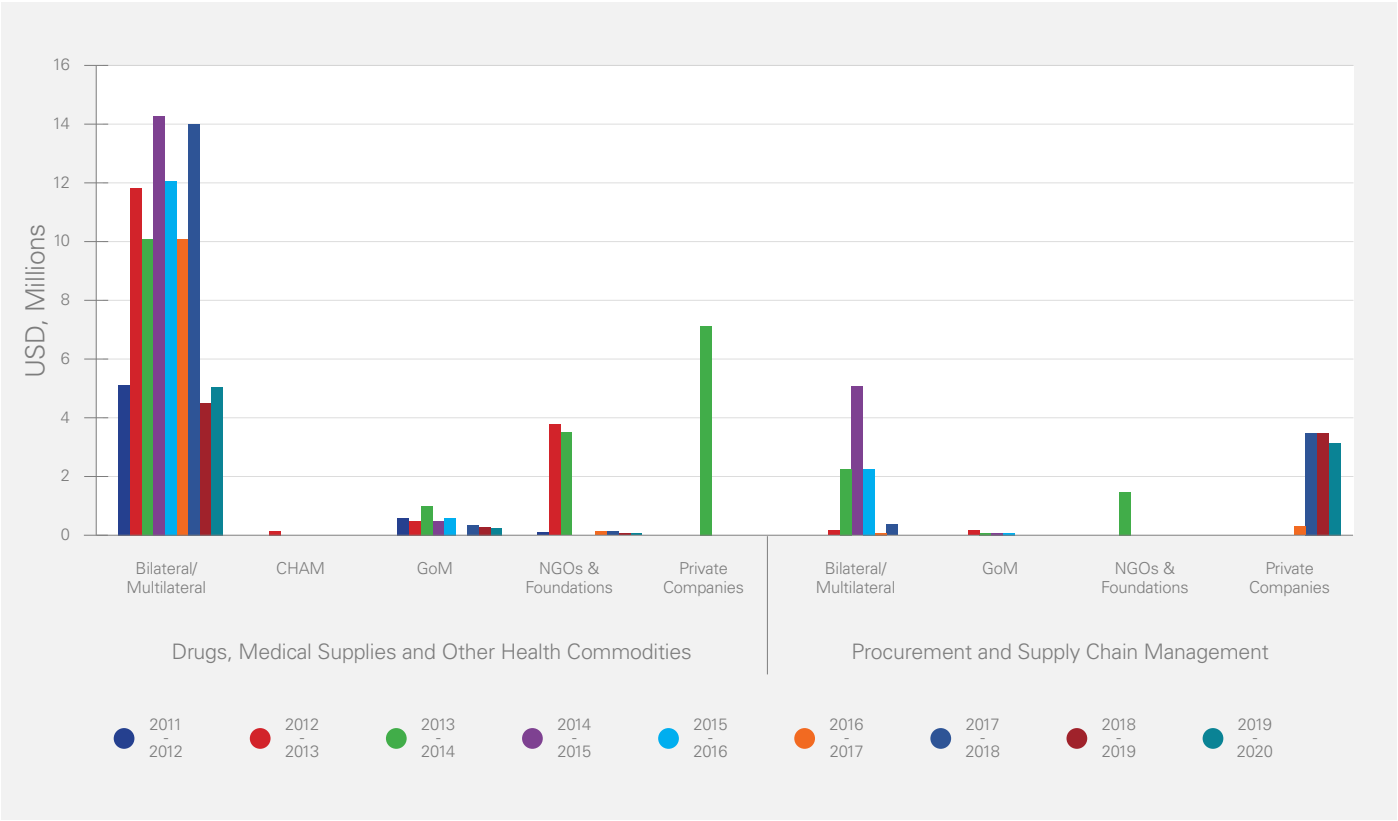
Data source: MoH resource mapping rounds 1,2,3,4 and 5

Figure 11: Trend of resources committed to nutrition related procurements



Data source: MoH resource mapping rounds 1,2,3,4 and 5

Figure 12: Sources of financing for procurement of nutrition commodities and nutrition supply chain management

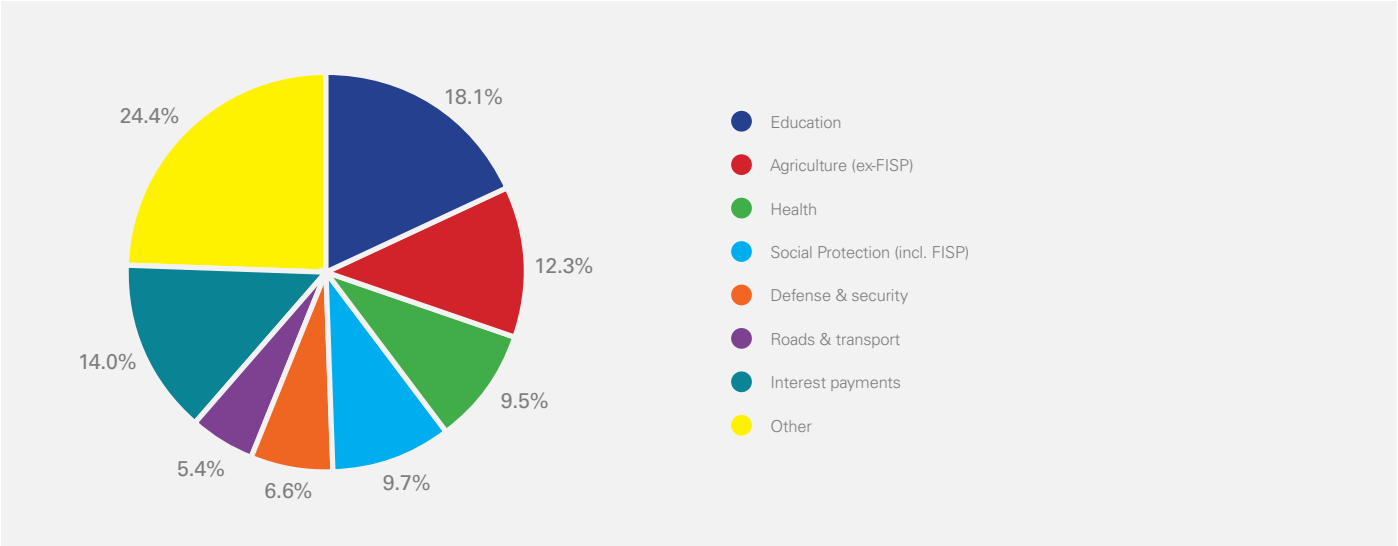


Implications on Fiscal space for health

Various studies have been conducted to assess fiscal space for health in Malawi. A 2017 World Bank report noted the critical bottlenecks to fiscal space for health as: 1) Weak macro-economic and fiscal environment; 2) Low revenue performance; and 3) high debt servicing costs due to persistent budget deficits. Given the child focus of this study, we reviewed a fiscal space analysis conducted by UNICEF (UNICEF 2018). This focused on exploring fiscal space for child spending in general with the entire health sector assumed child health focused. The UNICEF study specifically explored four key areas for potentially improving fiscal space for child health spending namely: 1) Improved tax collections; 2) change in the allocation of expenditures and improved efficiency; 3) external grants; and 4) Increased debt to boost child focused spending. The UNICEF study recommended increasing domestic revenue as the key to increasing fiscal space for child focused spending in Malawi.

The UNICEF Fiscal Space study recommended reprioritization towards child sensitive expenditures. While the 15% Abuja target can and has been frequently used to lobby for more government funding for the Health Sector, Figure 13 shows that over the past few years, the health sector has consistently been the third ranked sector (9.5% of the budget) after the education and agriculture sector. Agriculture and education sectors are particularly important for uptake of vaccinations and nutrition interventions at household level and are considered child sensitive sectors in the UNICEF report above. This suggests that any relocation towards immunization and nutrition from other sectors is difficult. A reallocation from sectors with low proportionate shares is even more difficult.

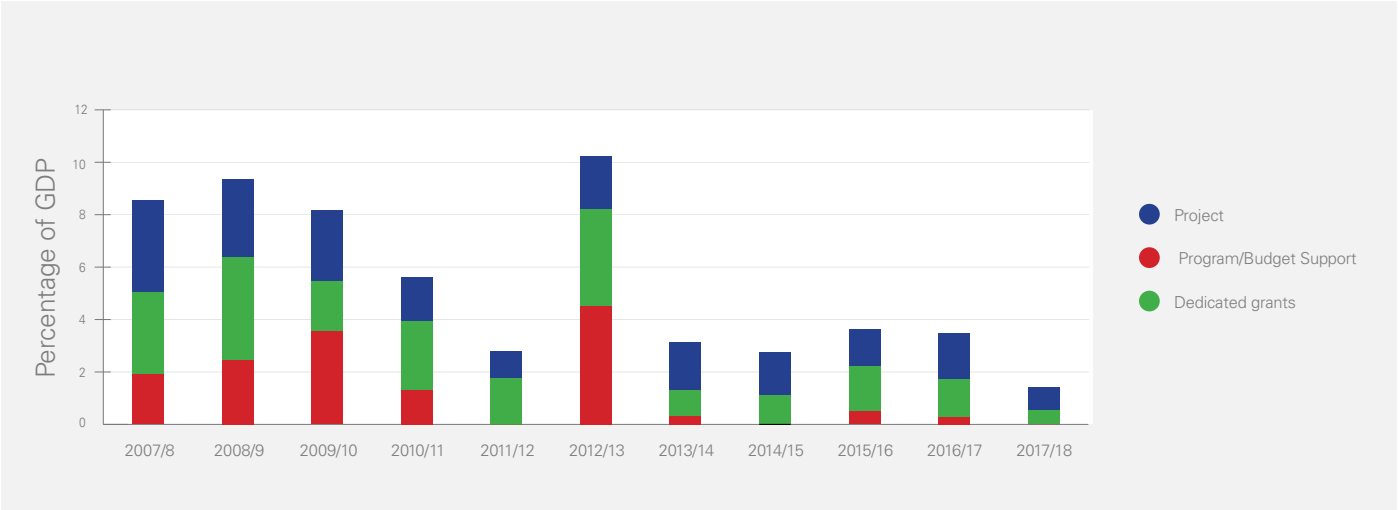
Figure 13: Percentage of Budget Across Sectors



Source: World Bank (2020) Malawi Human Capital PER

On budget grants were for a long time an important source of revenue for Government of Malawi. Figure 14, however, shows that direct budget support has phased out completely, dedicated grants have decreased in size, and while projects have shown resilience, the trend is also not encouraging. The UNICEF study points at grant revenue as an area with potential but requiring extensive work around Public Financial Management systems strengthening.

Figure 14: Trends in On-budget Grants



Source: World Bank staff based on MoFEPD data

The above results on the public financing situation for Malawi suggest that reforms to create fiscal space and the effort to implement them ought to be creative. On request from the MOH as part of a health financing reform that aimed to establish a Health Fund, the World Bank (2017) undertook a very comprehensive fiscal space analysis for and assessment of potential "innovative financing" reform proposals by MOHP to establish feasibility and cost-effectiveness of introducing earmarked taxes for health. Simultaneously, the GIZ commissioned a study to examine potential cost-effectiveness of a National Health Insurance Scheme that was based on the hypothesis of existence of untapped resources from the informal sector (OPM 2017). The insurance reform proposal explored costs and net monetary benefits of switching from the current tax-financed, free at the point of access system to a mandatory national health insurance scheme.

The key conclusion from the World Bank study on fiscal space and innovative financing for health reform proposals was that "The potential for increasing fiscal space for health in most of the key areas is limited particularly due to the weak macro-economic environment" (Page 2). Key issues raised in support of this conclusion included:

1. The high fiscal deficits and the resulting huge debts increase the difficulty of adequately providing for public services including health and social services;

2. Given the high debt service ratio, re-prioritizing the national budget would be difficult given competing priorities from other sectors, and increasing public wage bill as a share of GDP;

3. In addition, the scope for expanding funding and coverage through Social Health Insurance is limited due to the poor macroeconomic environment, and high levels of informality in the labour market i.e. 89 percent of total labour force is in informal employment. For the SHI in particular, the following limitations were raised:

    - Its assumption of feasibility of collecting contributions from the informal sector underestimated the difficulty;

    - Secondly, low wages in the formal sector, mean and median of US$113 and US$37, respectively, is also indicative of an economy which is not yet ready to accommodate SHI; and

    - Thirdly, high levels of poverty and existence of a large pool of "working poor" also make the implementation of SHI unfeasible. Same conclusions were independently reached by OPM study which concluded that Malawi was not ready for an NHI in the short to medium term.

4. Earmarking taxes as proposed in the health fund reform would yield a meagre US$0.63 per capita per year of additional financing but would cause substantial distortions to the economy.

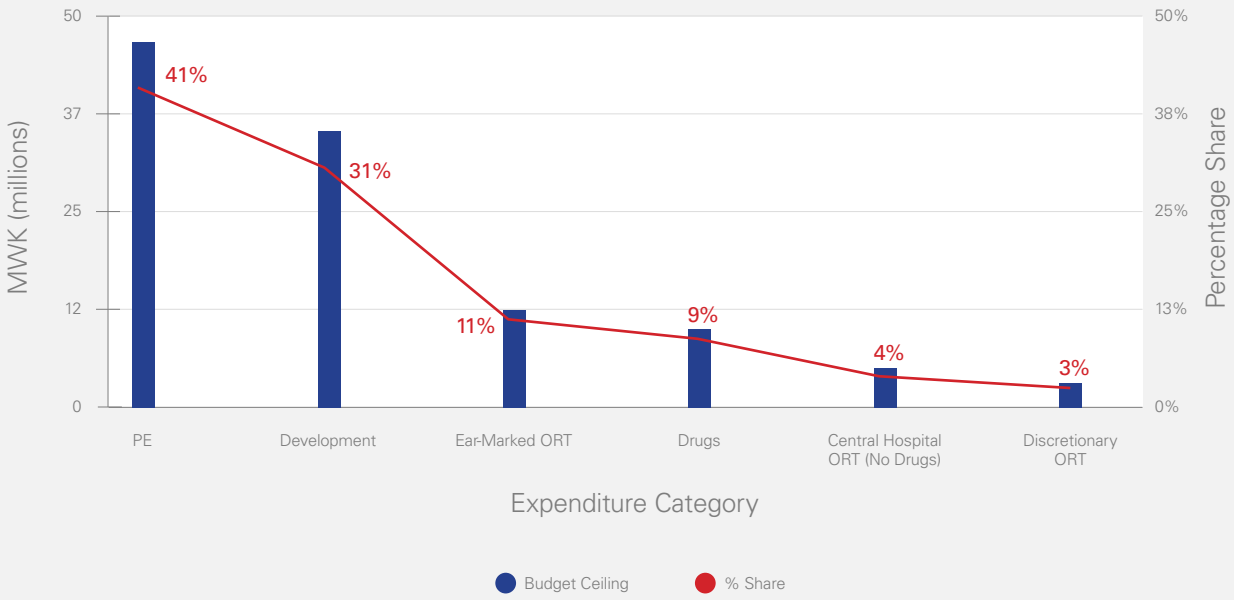
Similar conclusions of limitations in fiscal space were reached in the Oxford Policy Management report which points at capacity gaps of the Malawi Revenue Authority as the main limitation.

As part of this study on immunization and nutrition supplies budget process mapping, discussions with DPPD budget team revealed substantial allocation challenges that affect immunization financing particularly as caused by significant earmarking of Central Hospital Budgets by Treasury.

Figure 15 for example shows that of the MK115 billion allocated to MOH, only Mk3bn (3%) was amenable to resource allocation decisions by the MOH. The rest, including immunization funding, was earmarked by Treasury, albeit at budget amounts lower than the requested estimates[6] the earmarking, therefore, leaves very little space from which to manoeuvre allocations to departments and programmes.

6 From consultations with DPPD, for example, in 2020/21 MOH requested MK5.8 billion for vaccines procurements. . However, Treasury only earmarked MK1 billion against this requirement.

Figure 15: 2020/21 Budget Allocations – Earmarked and Discretionary Health Budget



Based on the World Bank (2017) and UNICEF study, three solutions to increase fiscal space for health were recommended for Malawi. First, grow the economy so that tax revenues can increase. Second, enhance efficiency of health sector spending by addressing health system leakages (corruption and fraud), low utilization of hospital services, and sub-optimal intervention mix. Third, promote greater predictability and effectiveness of external financing for health.

Implications on fiscal space for vaccines and nutrition supplies financing

Since immunisation and nutrition are predominantly funded by donors, these programmes are highly vulnerable to external shocks and are not sustainable. The percentage of the health budget to the national budget has averaged 10% for the past five years, lower than the Abuja declaration of a minimum of 15%. Moving towards the Abuja target means an increased allocation to health through reallocation from other sectors. As seen before, this is extremely difficult to achieve due to the already high prioritization towards health and substantial ear-marking of the cost drivers in the agriculture sector (fertilizer subsidy programme) and education sector (teachers' salaries). It will, however, require increased national budget, increased tax revenues and a growing economy. Efficiency gains realised from the wider health system and the entire public sector can in the short term provide additional financing for immunisation and nutrition.

This review of results of fiscal space assessments for health suggests 1) that efforts to increase fiscal space for immunization and nutrition should aim to achieve some optimal ring-fencing from within the health budget; 2) that to expand the volume of resources towards immunization or nutrition beyond what is feasible within the health budget, negotiations with those responsible for the allocation decisions at central level should take a programmatic approach to mobilize additional ring-fenced funds; 3) the need to interrogate the efficiency of the health budget to gauge potential areas from which funds can be reallocated without negatively impacting the volume, equity and quality of services delivered.

OVERVIEW OF NATIONAL, IMMUNIZATION AND NUTRITION BUDGET FRAMEWORKS

National Budget Framework

The Medium-Term Expenditure Framework (MTEF) guides the Malawi Government budget process at the national and district levels. The MTEF has five broad stages namely: 1) Policy development; 2) Budget Formulation; 3) Budget Implementation and Control; 4) Accounting and Monitoring; and 5) Evaluation and Audit. Based on recent budget guidelines, three considerations guide the preparation of the National Budget. First, the macroeconomic context within which the Budget is formulated; second, the interface of the budget with the Malawi Growth Development Strategy (MGDS) III; and third, the balance between recurrent and development budget expenditures in the national budget.

The overall budget ceiling, in particular, is derived from the macroeconomic framework for the coming financial year and two outer years. In practice though, there are a number of limitations with the MTEF framework. First, MTEF remains underdeveloped particularly at the sector level where midterm plans are seldom linked to the annual budget process. Secondly, although the Programme Based Budget Framework requires projecting budgets for the two outer years, Ministries and Departments simply apply a constant 10% annual increment to project into the two outer years' budgets. Third the link between central level MDA strategic plans, the five-year District Development Plans as well as the sector's specific multi-year and annual plans is weak and not fully facilitated by MTEF process.

From the overall ceiling, ministerial/sectoral ceilings are determined by the Ministry of Finance in line with priorities in the MGDS, Public Sector Investment Programme (PSIP) and budget performance data. These ceilings are reviewed each year based on the overall resource envelope, and resource requirements from MDAs that emanate from budget negotiation (hearing) meetings. Based on recent budget guidelines, ceilings for sectors ought not to change much year to year to provide resource predictability for MDAs over the medium term unless the economic environmental changes substantially. However, examination of the health budget, and responses from MOH, suggested that over the last five years, the nominal ceilings have not increased to provide the predictability suggested in the guidelines. On the contrary, the excessive earmarking by the Treasury was said to have undermined resource allocation leaving little room for discretion by MoH management.

When ceilings are communicated to Ministries, Departments responsible for policy and planning distribute the ceilings based on sectoral priorities for the year being planned for. The allocation process at ministerial level is largely historical, with past allocations primarily influencing decisions on how much a department or cost centre gets allocated. For the health sector, the DPPD allocates to all budget holding Departments/Sections including the EPI programme and Nutrition Unit in the Department of Clinical Services which is responsible for nutrition supplies. During interviews it was learnt that nutrition supplies are no longer provided for in the health Budget.

Within the health sector, some key processes/developments are worth highlighting as they affect immunization and nutrition supplies procurement. Firstly, Departments/programmes have developed strategic plans either to elaborate higher level deliverables in the health sector strategic plan for which they are responsible or to comply with donor financing pre-requisites. These plans are then expected to inform the annual budget planning process, whereupon the budget is seen as the vehicle for cost centre strategic plan implementation which eventually contributes to the ministerial mandate. Secondly, the decentralization of the health budget which demands that services should be planned and executed at the district level where these services will be implemented.

The EPI provides leadership in the formulation and oversight of the cMYP plan whose estimates are used to guide vaccine procurement nationally. Specific roles for the EPI include procurement, warehousing and distribution. The EPI has elements of both policy coordination and implementation. The Department of Nutrition, HIV and AIDS provides policy oversight on nutrition. Although the DNHA is under the MOH, its mandate is multi-sectoral. For the Health Sector, the Nutrition Unit in the Department of Clinical Services is directly responsible for the development and oversight of clinical guidelines for the management of malnutrition in the Country while the DPPD is responsible for all matters related to nutrition supplies budgeting.

Nutrition Sector budget planning is informed by the National Strategic Plan for Nutrition and is coordinated by the Department of Nutrition HIV and AIDS (DNHA). Two structures support this budget planning process: first the Government-Development Partners Committee chaired by a Principal Secretary (PS) at which Development Partners indicate their medium to long term contributions to the Nutrition Strategic Plan; and secondly, the biannual review meetings at the national level. Interviews with the DNHA staff suggested that these structures are not optimally functioning largely due to resource constraints as well as lack of participation from districts where implementation occurs. Within the health sector, planning for the supply chain as well as other prevention activities is facilitated by DPPD but actual plans are developed and implemented by the Nutrition Unit in the Department of Clinical Services.

Budget Planning at the district level is informed by a District Multi-Year Plan, a 3–5-year plan that is aligned to the District Development Plan (DDP) which is a five-year overarching framework for guiding development and service delivery across sectors in the district. Based on the multi-year plan, districts proceed to develop annual District Implementation Plans (DIPs) and budgets. DIPs are based on templates that are periodically reviewed by the MOH in the Department of Planning and Policy Development. The aim of the review is to facilitate direct alignment with national budget planning templates as well as other sectoral requirements. Ideally, DIPs are developed to include programs, projects, and activities of all stakeholders operating in the district. At the same time DIPs ease the extraction of government budgets into Treasury predetermined budget templates and eventually the IFMIS.

The DIP development process requires that all Development Partners providing support to the district disclose the activities and amounts of funding that are allocated. Had this process been adhered to, the district would have been able to develop a DIP that has detailed budgets for both Government funds and the DPs. In reality, across districts there is less adherence by partners to the DIP process leading to inclusion of partner activities in less useful ways. The main challenge now is that partners are procuring goods and services meant for districts but where estimated budgets are not disclosed to the district councils. As a result, the districts normally include these activities in their plans based on prior experience without a clear process for confirming the same.

The DIP guidelines and templates have been recently strengthened to allow the DIP guide overall implementation across partners. At the same time, the DIP templates have been designed for use as a Government Budget Planning tool in order to remove duplication of effort during the budget planning process. This has been achieved through automation of the transfer of the budgets whose financing source has been identified as Government. This ensures that the responsible officer can keep working on the DIP templates as budget ceilings change multiple times. This is important because the PBB budget framework is much summarized and can undermine effective budget execution. In practice, as it is not a PFM tool, the DIP is not effectively followed at the stages of execution and evaluation.

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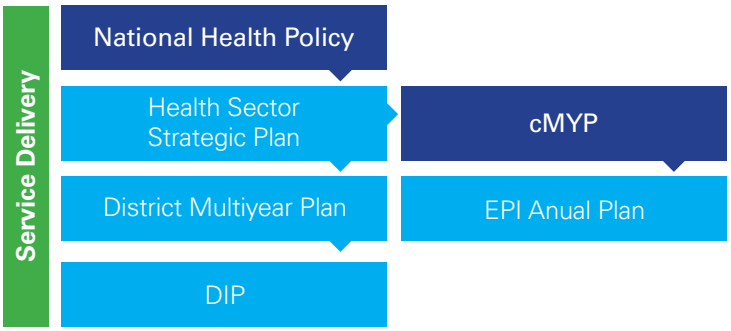
Health Related Policies, Strategies and Plans guiding nutrition and immunization financing and procurement

Immunisation

Figure 16 shows the policy process for immunization services delivery in Malawi. Implementation of immunisation services is guided by the National Health Policy and HSSP II. The HSSP through the EHP defines priority health interventions for the entire health sector including immunisation. At a more operational level, the EPI programme is guided by the Malawi country multiyear plan (cMYP) (2016-2020). The cMYP quantifies and costs vaccine requirements which form the basis of annual vaccine procurements; vaccine procurement is centralised and is the exclusive mandate of the EPI programme. At national level, the cMYP is operationalised by the annual plan of the EPI programme which feeds into the consolidated annual plan of the MoH headquarters. The MoH headquarters plan consolidates funding and corresponding activities from Government, donors and other key stakeholders and is the basis of the annual MoH headquarters budget. The MoH headquarters plan hence shows financing commitments and requirements for vaccine procurement from all key stakeholders including Government and the Health Services Joint Fund.

Figure 16: Overview of the Process for Immunization

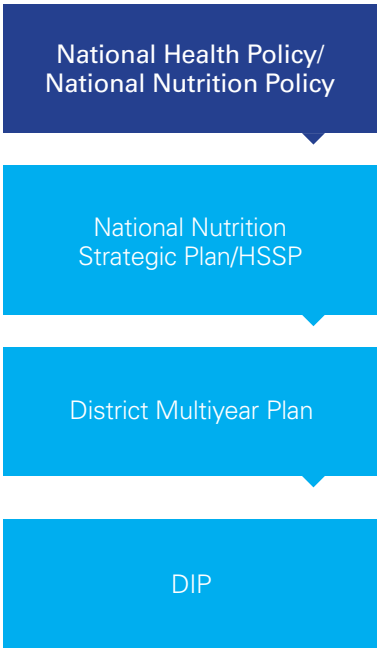


At the district level, district multiyear plans (MYPs) translate the HSSP and other national level strategies such as the cMYP. The MYPs focus on expanding EHP provision. Annually, district implementation plans (DIPs) are prepared, deriving from the multi-year plans and monitoring and evaluation reports. The DIP is the basis for the health budget of a district council. DIPs focus on routine immunisation delivery and include activities such as local transportation of vaccines, cold chain maintenance, immunisation outreach clinics and requisite human resources for health training. Interviews with district and national level EPI teams revealed important coordination gaps between the cMYP process and the Multi-Year Planning process at the district level. In particular there was substantial information asymmetry at the district level, with expectation of the national and district council levels not clearly understood.

Nutrition

Figure 17 shows the nutrition services delivery process in Malawi. Implementation of nutrition interventions in Malawi is guided by the Malawi National Multi-Sector Nutrition Policy (2018-2022) which is operationalized by the Malawi National Multi-Sector Nutrition Strategy (2018-2022). From interviews, there is a five-year national procurement plan for all pharmaceuticals that is facilitated by the Department of Health Technical Support Services (HTSS). As nutrition supplies are included in this five-year plan, no separate plan is developed. For the nutrition supplies component of the procurement plan, the MOH Nutrition Unit coordinates input on needs from the key nutrition stakeholders.

Figure 17: Policy process for Nutrition in the Health Sector



Attaining adequate nutrition is enshrined in the constitution of the Republic of Malawi. A draft Food Security and Nutrition bill has been prepared to provide more detailed guidance. There are other pieces of legislation that touch on nutrition such as: The Consumer Protection Act; the Pharmacy Medicines and Poisons Act; the Malawi Bureau of Standards Act; the Public Health Act; Health and Welfare Act; the Prevention of Domestic Violence Act; the Child Care Justice and Protection Act; the Persons with Disabilities Act; and the Local Government Act (DNHA, 2018).

At the district level, ideally, each district council is supposed to develop a five-year district strategic plan with reduction of stunting as the overall goal. Presently, the nutrition strategic framework is incorporated in the District Development Plan (DDP). Ideally, the process of developing the DDP is supposed to be bottom up and inclusive, with partner support based on targets set out in each DDP. Based on interviews, there was an acknowledgement that this process is weak in part, due to underdeveloped institutional arrangements for the nutrition sector at all levels at the Council. Each year, led by a Principal Nutrition Officer and implemented through sectors of health, agriculture, nutrition and gender, District Councils are meant to develop annual workplans for nutrition. From interviews, this process is presently weak.

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VACCINES BUDGET PROCESS, BOTTLENECKS AND SOLUTIONS

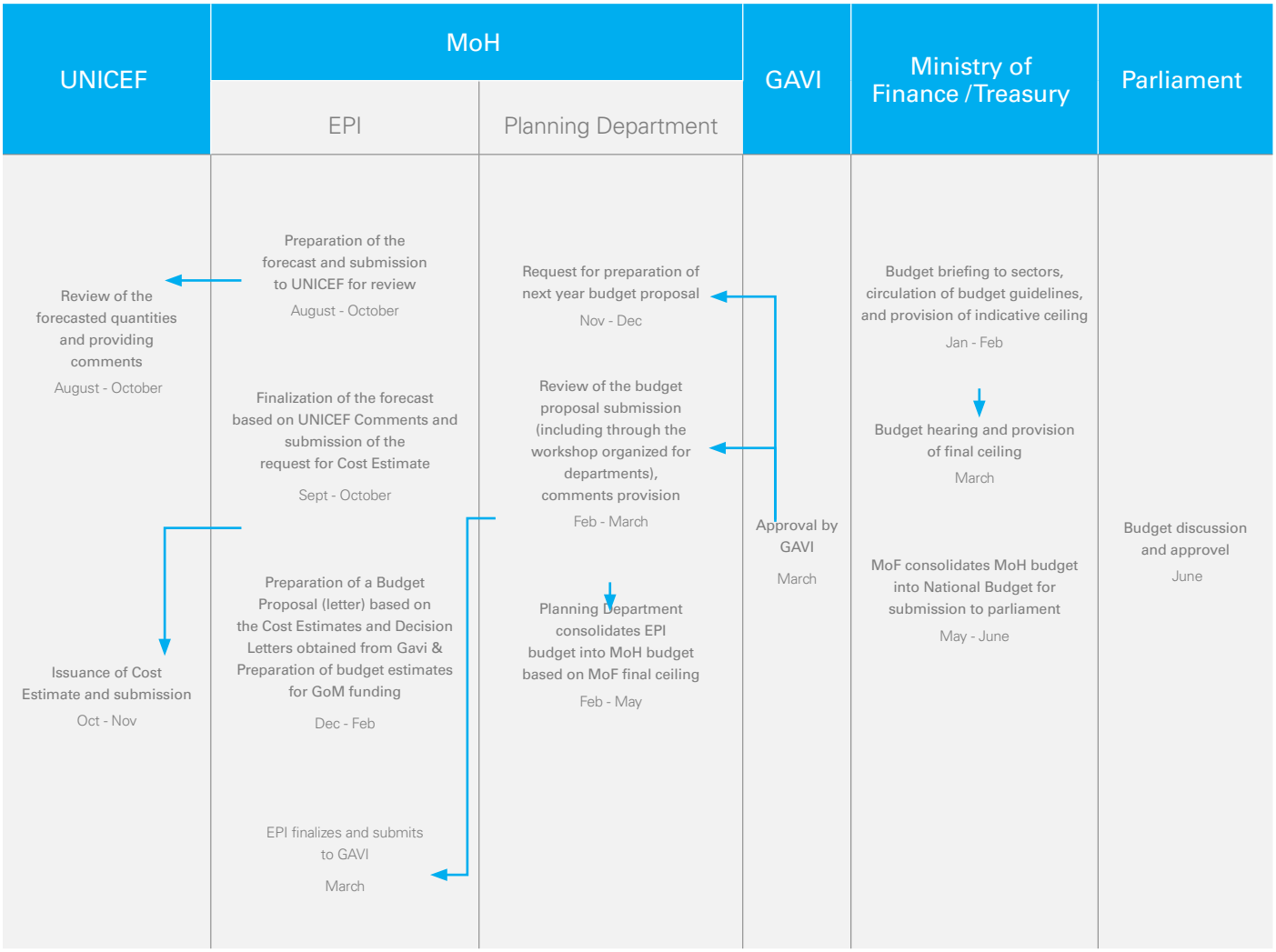
Budget planning for Vaccines

The cMYP informs annual vaccines budget planning. Prior to a new financial year, (July-June) a quantification exercise is undertaken under the oversight of the EPI. Stakeholders' quantification exercise includes UNICEF, GAVI, HSJF, DPPD and Pharmaceuticals. District Councils are involved but marginally. The vaccines budget process, shown in Figure 18 begins with the preparation of a budget forecast in August/September through a process led by the EPI but executed through UNICEF Country office. The quantification process uses population as the main variable to determine vaccines requirements (doses) across antigens. Based on this, the total number of recipients is established and adjusted for available capacity, coverage targets for each antigen, and expected wastage rate. In addition, a 25% buffer is factored into the forecast. The actual quantities of vaccines to procure are determined after netting off vaccine stock balances from forecasted quantities. Since the forecast is done for 3 years, EPI uses the next year's forecasts to determine approximately the total amount required. This process only passively involves districts as vaccine quantification considers the level of quantities in the national vaccine store as a proxy to availability of vaccines in the country. As a result, data at the central level are adequate for the task.

Quantification is undertaken using the Supply Management Tool (SMT) developed and updated by the WHO. This quantification begins with a forecasting of the need around August and September goes through a back-and-forth process. Ideally quantification process should happen in the SMT at the district, regional and National Vaccine Stores. Presently, however, only the SMT for the national level is used to quantify population level need as the SMTs for levels are not connected. Also, although the SMT has a series of Excel templates covering vaccine procurement planning, recording of in-coming vaccines and supplies, temperature monitoring, and recording of outgoing vaccines and supplies, currently it only informs the quantification of national need.

To cost the quantified need, UNICEF country team uses UNICEF SD price catalogue from SD to prepare a costed provisional vaccine procurement plan using UNICEF specific templates. This information on need from SMT is transferred into UNICEF specific forecasting templates. While the SMT has prices inbuilt, these are average international prices that are deemed not very useful in national forecasting exercise as they additionally lack information such as prices on freight and insurance for example. Both the quantification of need and the costing that UNICEF Country office does are on behalf of MoH. The provisional plan is approved by MOH and informs the costed need that MOH uses for the negotiation process with Treasury as well as mobilize any funding short falls from donors.

Figure 18: Vaccines Budget Process Calendar



During interviews, there was substantial evidence of limited use beyond the sub-national level due to extensive reliance on UNICEF specific planning quantification and costing tools as well as weak utilization of the SMT. It was learnt (from UNICEF respondents) that these issues were already picked up in a recent evaluation and that linking the SMT and developing capacity at all levels have been flagged as a key issue to address. While the SMT can provide a range of decision support to prevent wastage for example (through temperature monitoring), respondents indicated that the use of SMT remains weak due to capacity challenges as well as weak incentives for using the tool.

To underscore the challenge of quantification, at the time of the study, it was learnt that MoH was planning an emergency procurement of Tetanus-Diphtheria (TD) because a physical count indicated an impending stockout while the system showed there were enough stocks. Other data issues relate to the assumptions regarding wastage rates which were said to be as high as 80%. These empirical wastage rates are not available, in a timely manner, to inform procurement planning as districts are hardly using the SMT.

Conversations with national and district level EPI teams revealed very limited knowledge of the SMT and the UNICEF managed quantification and costing process for vaccine procurement. District level respondents in particular confirmed they were using total population of the catchment area of their facility to determine the proportion of births, under ones, under-fives and pregnant women. However, these parameters were mentioned in the context of geographical allocations of operational funds to health facilities. Despite the availability of the SMT at the district level, no annual quantification for vaccine was said to be happening. Presently, their contribution to the quantification process was said to be through the cMYP planning process through which they provide clarifications where needed.

Table 8 shows the vaccines multi-year budget for each vaccine in Malawi. The table also shows the expenditures/ financial projections by financing source for each vaccine. Table 8 shows the need based on the cMYP as well as the financing gap based on actual funding (or allocation) since 2017/18 fiscal year. Table 9 shows gap between requested funding for immunization supplies, Government expenditure and GAVI expenditure. In both cases, except in 2017/18 FY, available immunization financing has fallen short of the estimated financing requirements.

Table 7: Vaccines Multi-Year Budget for Malawi in US$

	Vaccine cost (USD)											Expenditure/Financial Projections by source				Gap
Year	BCG	BOPV	DPT-Hib-HepB	HPV	IPV	MR	OPV	PCV13	Rota	Td	Total	Gavi disbursements/commitments	Govt. exp/projection	HSJF exp/projection	Total immu. Expenditure/projection	
2017	274,825	335,415	4,593,067	-	-	700,307	-	7,254,745	3,302,620	261,874	16,722,853	18,339,078	2,429,478		20,768,556	-4,045,702
2018	286,374	349,465	4,785,466	-	957,254	1,195,365	-	7,558,631	3,478,300	277,274	18,888,128	8,908,889	299,320	3,395,703	12,603,912	6,284,216
2019	298,488	364,204	4,987,304	2,287,985	956,671	1,130,325	-	7,877,434	3,615,572	293,548	21,811,532	14,699,817	811,989	2,753,547	18,265,353	3,546,179
2020	311,078	379,522	5,197,058	1,944,765	954,458	5,057,036	479,942	8,208,739	3,767,633	310,565	26,610,796	13,719,500	1,365,498	2,000,000	17,084,998	9,525,798
2021	324,161	395,439	5,415,024	2,040,732	984,046	1,227,829	-	8,553,015	3,925,648	318,332	23,184,225					

Source of vaccine costs: cMYP, 2016-2020

Source of expenditures/financial projections: Gavi data, Govt IFMIS, HSJF reports, HSJF budget documents
These expenditures/financial projections are for the actual procurement of vaccines. They do not include related costs which Gavi funds for example.

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Table 8: Available Resources, Need and Gap in Vaccines Procurements in Malawi in US$

A	B	C	D	E	F	G
Year	Govt exp.	HSJF exp.	Gavi disbursements by programme year	Total Expenditure (B+C+D)	Total need (cMYP, 2016-2020)	Gap on cMYP (F-E)
2017/18	2,429,478	2,275,160	18,339,078	23,043,716	19,983,422	(3,060,293) *
2018/19	299,320	3,395,704	9,011,251	12,706,274	20,847,993	8,141,718
2019/20	1,089,320	1,002,305	4,763,854	6,855,479	25,824,732	18,969,253
2020/21	1,333,333	2,000,000	13,719,500	17,052,833	25,688,247	8,635,414

* This is excess funds

Col B. includes co-financing and routine vaccines. For 2017/18, these are actual expenditures. The source is Gavi https://www.gavi.org/sites/default/files/document/co-financing-information-sheet-malawipdf.pdf

Col B. For 2018/19 and 2019/20, source is IFMIS. 2018/19 are budgeted amounts, 2019/20 comprise budgeted amount in cost centre 1 and 790,000 transfer to UNICEF by Zomba Centre exp data not available. For 2020/21, that is the budget estimate.

Col C, the source is HSJF expenditure and budget documents. It includes both co-financing support to Govt and routine vaccines
Col D. The source is https://www.gavi.org/programmes-impact/country-hub/africa/malawi. We use the chart/related data set on this site to get expenditures on vaccine procurements only. For 2021, this is a committed amount by Gavi. The source is https://www.gavi.org/programmes-impact/country-hub/africa/malawi. We use the chart/related data set on this site to estimate only vaccine procurements.

Col F. Source is cMYP 2016-2020 costing tool.

Table 9: Budget Gap on Vaccines Procurements in Malawi in US$

A	B	C	D	E	F
Year	Total request from Govt (USD)	Govt exp. (USD)	HSJF exp (USD)	Total Expenditure (B+C)	Gap (B-E)
2017/18	4,152,727	2,429,478	2,275,160	4,704,638	-551,911
2018/19	3,800,000	299,320	3,395,704	3,695,023	104,977
2019/20	3,672,161	1,089,320	1,002,305	2,091,625	1,580,536
2020/21	5,867,124	1,333,333	2,000,000	3,333,333	2,533,791

Based on discussions with DPPD as well the procurement status report that UNICEF Country office team prepared for 2020, expenditure data are not broken down by antigen. Also, although cost estimates are provided by antigen in the cMYP, Government allocations are not antigen specific. As a result, DPPD respondents indicated that there are no plans to address allocations to a specific antigen in future. They also indicated that although the midterm expenditure framework for 2020/21 to 2022/2023 provides for indicative earmarked allocations to vaccines, these were not based on any evidence and may not usually be honoured by the Treasury.

Based on interviews with Department of Planning, although cost estimates are provided by antigen in the cMYP, Government allocations are not antigen specific. This was said to limit the extent to which antigen specific financing gaps can be documented and antigen specific plans developed to address allocations gaps in future. In addition, although the midterm expenditure framework for 2020/21 to 2022/2023 provides for indicative earmarked allocations to vaccines, these are not based on any evidence and are not usually honoured by the Treasury. In addition, Treasury has indicated that from 2021/22 FY, they will move from earmarking the health budget.

The actual decision on how much is allocated towards procurement of vaccines is undertaken within the Department of Planning and Policy Development based on the final ceiling provided by the Treasury after the budget hearing, and their assessments including available unearmarked funding. However, this decision-making role of the DPPD is severely constrained by the ear-marking decisions of Treasury that leave little room for discretion in resource allocation. When funding is clearly lower than would be feasible to realize optimal vaccine procurement, as was in 2018/19 for instance, the Director of Preventive Health Services supports the DPPD role of directly reaching out to partners.

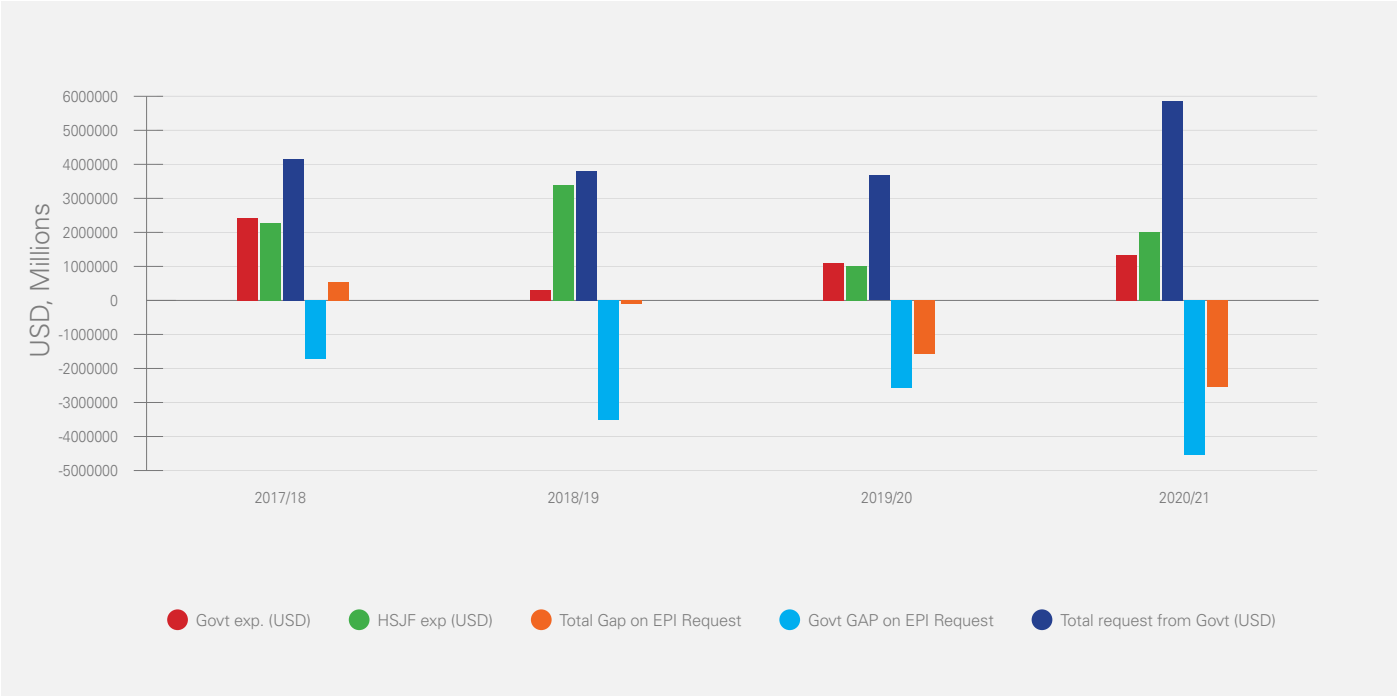
With significant earmarking of the budget at Treasury level, in the 2019/2020 Budget (Table 10 below) DPPD was only able to allocate MK200,000,000 for Vaccine Procurement from remaining discretionary funds.

Table 10: MOH Approved, Allocations and Expenditures on Drugs and Vaccines and Pharmaceuticals for the 2019/2020 Fiscal Year

Cost Center Name	Cost-item No.	Sum of Approved Estimates	Sum of Revised Estimates	Sum of Fund Allocated To date	Sum of Total Expenditure and Commitment
001 - Headquarters	2501	191,821,875	191,821,875	166,366,163	166,366,163
	2508	200,000,000	0	0	0
002 - Queen Elizabeth Central Hospital	2501	3,000,000,000	3,000,000,000	3,080,615,855	3,080,574,075
	2508	100,000,000	100,000,000	50,000,000	49,998,641
003 - Zomba Central Hospital	2501	1,700,000,000	1,700,000,000	1,700,000,000	1,676,855,163
	2508	100,000,000	100,000,000	100,000,000	79,413,811
004 - Zomba Mental Hospital	2501	1,300,000,000	1,300,000,000	1,300,000,000	1,018,119,467
	2508	100,000,000	100,000,000	100,000,000	0
005 - Lilongwe Central Hospital	2501	2,800,000,000	2,800,000,000	2,800,000,000	2,799,706,705
	2508	100,000,000	100,000,000	100,000,000	100,000,000
006 - Mzuzu Central Hospital	2501	1,800,000,000	1,800,000,000	1,800,000,000	1,799,994,359
	2508	100,000,000	100,000,000	0	0

To get around the challenge of low funds for immunization procurement in the year, DPPD purposed that they would cover any shortfalls on the MK200,000,000 allocated to EPI Programme from the Mk1.3 Billion drug allocation funds on Zomba Mental Hospital (ZMH). Note that after taking out MK592,500,000 (US$789,985) from the ZMH budget, the total drug expenditure for the hospital at the end of the Fiscal Year was still within their allocated budget suggesting a suboptimal allocation process. In 2020/21, Treasury earmarked MK1 billion for vaccines but in the budget, MK1,176,175,000 was allocated under the sub-item 2508, the additional MK176 million being operations funds for the EPI Programme. This MK1 billion allocation towards purchases was still short of the MK4.4 billion (US$5,867,124) that was requested by the EPI Programme based on the co-financing and routine vaccines procurements requirements entailed by the quantification result. Figure 19 shows that the domestic financing gap (Govt Gap on EPI Request) has been increasing since 2017/18.

Figure 19: Co-Financing and Routine Immunization Procurement Financing Gaps



To mitigate the funding gap on GAVI-Co-financing and routine immunization procurements, Health Services Joint Fund (HSJF) has recently stepped in, injecting US$2 million in 2020/21 reducing the financing gap on both GAVI and routine vaccines procurement to approximately US$3.3 million (MK2.5 billion) in the current EPI vaccines procurement budget. This raises a serious issue of sustainability and predictability of vaccines financing due to the uncertainty around continuity of HSJF commitments.

The attempts by MOF to get the immunization budget down and out of MOH headquarters requires attention. With the decentralization, the entire salaries budget and ORT (including drugs) have been devolved out of MOH headquarters, the last being PE in 2016/17 Fiscal Year. Hosting the vaccines procurement budget under the EPI programme could be strategic for procurement coordination purposes but could be hurting the entire programme from a procurement financing point of view. Lessons in this regard could be borrowed from the way the drug budget for districts is being managed by NLGFC where the allocation is made to districts with the money transferred directly from Treasury to the supplier – Central Medical Stores Trust. That the budget needs to be devolved down to implementers could be the message being silently delivered to MOH by MOF as they attempt to relocate this expenditure down to implementation levels.

From the analysis, the key constraint in budget planning for vaccines is limited fiscal space and low health sector budgeting that leads to persistent funding gaps relative to quantified vaccines needs. Below is a summary of the key bottlenecks at the vaccines budget planning stage:

- Low funds for vaccines procurement;
- Excessive earmarking of the health budget by Treasury leading to low discretionally budget from which MoH planners can allocate to immunization supplies procurement;
- Ineffective earmarking of vaccines across MOH cost centres by Treasury (e.g., substantial vaccine budget earmarked by Treasury at Central Hospital level that do not need this funding);
- Weak prioritization of immunization supplies budget in the national health budget;
- Under-decentralization of the vaccines procurement budget which could lead to reduced funding at the central level due to Treasury attempting to shift budgets to the service delivery level (CHs for Vote 310)[7];

7 Specifically, unlike the rest of pharmaceuticals whose budget allocations are reflected at each execution level, and are managed outside of the MOH Vote, vaccines budget is planned and executed by the EPI programme, potentially creating an illusion of huge district level expenditures in the MOH budget (the decentralization policy requires that such expenditures be planned for and executed at the council level and not MOH)

- Lack of Government tools and standard operating procedures for vaccines costing and budgeting leading to reliance on projections developed by UNICEF;
- Weak Human Resources capacity in vaccines quantification, forecasting, and budgeting process at the MOH and District Council levels leading to overreliance on unsustainable donor capacity; and
- Over-dependence on donor funding for vaccines procurement leading to issues of sustainability and predictability of funding.

Execution of immunization Procurement Budget

As seen in Table 8, vaccines are procured through three funding streams namely: Malawi Government, Health Services Joint Fund and Gavi. Malawi Government funds are used to finance routine immunizations as well as co-finance new and underused vaccines in line with Gavi New Vaccine Support requirement for GoM to contribute US$0.20 per dose.

Based on the annual requirements from the quantification results, EPI Programme submits a request for Cost Estimates to UNICEF Country Office which reviews and forwards to UNICEF Supply Division (SD). UNICEF SD then prepares the Cost Estimates and shares it with EPI programme for approval. To procure the vaccines, the EPI Programme Manager generates a request (Loose Minute) to the Secretary for Health. Funding for vaccine procurements is made alongside funding for all other procurements and routine operations. After approval of budget, Treasury makes monthly allocations to the MOH through the IFMIS. These monthly allocations are based on a cashflow that is submitted as part of the budget of approval process. Generally, the cashflow is developed by aggregating activity budgets for activities indicated in that month by Departments.

Given low monthly funding levels, the amounts that can be allocated to vaccines for procurement and co-financing are low. As a result, balances have to be left in the IFMIS to accumulate across the relevant sub-item under the EPI programme. Generally, using Division Code 34 of the 32-digit code in IFMIS, it should be straight forward to identify the resources and use them when adequate to facilitate a vaccines procurement. However, as many pressing needs can arise before adequate funds are secured for vaccines procurement, respondent in DPPD highlighted that sometimes these accumulated funds have been diverted to other activities before payment for vaccines procurement can be made. To address this, for example, the Department of Planning indicated they have advised the EPI Programme to make payments for vaccines in monthly instalments in line with their monthly allocation on vaccines procurements as funds cannot effectively build up in the IFMIS to allow payment of each invoiced amount.

Government of Malawi and HSJF resources are transferred to UNICEF SD through the Reserve Bank of Malawi. Interviews with DPPD revealed that the movement of fund from Reserve Bank to UNICEF SD has often met challenges of low forex prioritization. The payment from Zomba Mental Hospital to UNICEF SD was said to have taken too long to be transferred from RBM. DPPD respondents suggested limited follow up by MOH contributed to the delay. GAVI funds are transferred directly to the UNICEF SD for the procurement as per the approved Decision Letters. Generally, payments are to be made based on Cost Estimates from SD, normally prepared once a year, except for emergency procurements that can be made anytime.

At the budget execution stage, weak budget execution capacity was identified as a key challenge with the following key bottlenecks:

- Weak alignment between shipment schedules and funds release;
- Slow processing of vaccines payments at RBM;
- Weak vaccines budget accounting capacity of MOH;
- Weak communication among key immunization budget process actors within Government; and
- High wastage rates for vaccines at facility level that create avoidable financing gaps.

Budget Monitoring and Evaluation for immunization supplies

Financial Reporting for Immunization supplies

Reporting on vaccines financing is complex. Starting with Government expenditures, vaccines procurement expenditures are recorded under sub-item 2508 (vaccines and pharmaceuticals). As shown in Table 8 already, sub-item 2508 can be used for other commodities that fit into pharmaceutical category and so additional information must be used to trace amounts budgeted and spent on vaccine procurement. Also, as seen on Table 8 vaccines can be paid for using the drug sub-item 2501 as had happened in the 2019/20 budget under Zomba Mental Hospital. Since the EPI Programme is responsible for vaccines procurement, the Division Code for EPI (34) should be used in combination with the sub-item code in order to track budgets and to some extent expenditures.

Since 2019/20 Budget, significant improvements to facilitate budget and expenditure recording and tracking have been made by DPPD staff through utilizing spaces on the chart of accounts to capture more details about the expenditure than was the case prior to 2017/18. For instance, exploiting the capabilities of the PBB framework, MOH had worked on the 32-digit chart of accounts so that the budget for a programme or department can be tracked through its assigned division code. Filtering Division Code 34, and tracing budget sub-item 2508 we can trace immunization budget amount of MK200,000,000 for the 2019/20 FY an amount of MK1,176,175,000 for 2020/21.

Despite such improvements, there is a great deal of effort that is needed to improve quality of expenditure reporting as through the IFMIS alone, it is not possible to know how much actually was used for vaccine procurement from the budgeted amount. Further, as seen in the budget execution section, immunization expenditures can be made on a budget item other sub-item 2508. Table 9 below demonstrates another problem why additional information will always be needed particularly in tracking budgets and expenditures on immunization procurement. Here, filtering budget sub-item 2508 gives budgets and expenditures on vaccines and pharmaceuticals at central hospitals as discussed earlier. Following up with Central Hospitals on what this budget sub-item code is used for, it was noted that since drugs, blood supplies and indeed vaccines can be any amounts that show up against this item, it can be exploited to supplement expenditures that can legitimately be charged against this sub-item[8].

8 The MK1.4 billion amount on KCH said to be been allocated by MoF without consulting KCH staff.

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Table 11: Tracking Immunization Expenditures Budget Line Item 2508

Year	Cost Center Name	Approved	Revised	Allocated To-date	Total Expenditure and Commitment	Budget Balance
2019/2020	001 - Headquarters	200,000,000	-	-	-	-
	002 - Queen Elizabeth Central Hospital	100,000,000	100,000,000	50,000,000	49,998,641	50,001,359
	003 - Zomba Central Hospital	100,000,000	100,000,000	100,000,000	79,413,811	20,586,189
	004 - Zomba Mental Hospital	100,000,000	100,000,000	100,000,000	-	100,000,000
	005 - Lilongwe Central Hospital	100,000,000	100,000,000	100,000,000	100,000,000	-
	006 - Mzuzu Central Hospital	100,000,000	100,000,000	-	-	100,000,000
2020/2021	001 - Headquarters	1,176,175,000	1,176,175,000	-	-	1,176,175,000
	003 - Zomba Central Hospital	100,000,000	100,000,000	37,500,000	-	100,000,000
	005 - Lilongwe Central Hospital	1,408,000,000	1,408,000,000	93,750,000	-	1,408,000,000
	006 - Mzuzu Central Hospital	100,000,000	100,000,000	-	-	100,000,000

In Table 11 above for example, DPPD arrived at the 2019/20 expenditure by summing up the entire MK200,000,000 (equivalent to US$299,310) that was approved under the EPI Programme on cost centre 001 Headquarters and the MK592,000,000 (equivalent to US$790,000) that was paid under cost centre 003 (Zomba Central Hospital) using budget line 2501-drugs inside the MK1,018,119,467 expenditure in Table 8 above.

Donor Expenditures (Health Services Joint Fund and GAVI) are reported outside the Government IFMIS. The Aid Coordination Unit in the MOH Department of Planning and Policy Development is Secretariat headed by a Chief Economist, through the HSJF Fiscal Agent, produces quarterly reports to HSJF Executive Committee. The decision makers of the committee are the Secretary for Health, Director of Planning and Policy Development, and Director of Finance and the Donors that provides fund into the HSJF.

In trying to build up immunization supply financing data reported in the study, an important finding was that the DPPD did not have a consolidated expenditure report for vaccines procurement. As a result, one would need to extract financing information from many sources to get total financing for vaccines procurement in a given year.

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Based on the preceding assessment, monitoring and evaluation of vaccines financing is weak due to the following key bottlenecks:

- Weak MOH capacity in tracking vaccines payment progress;
- Weak reporting of vaccine procurement financing data;
- Weak capacity of accounting personnel in supplies financing reporting;
- Lack of a single authoritative source for vaccines budget information; and
- Weak vaccines budget information management in MOH

Supply Chain Reporting for Immunization – Supply Management Tool (SMT)

Although this report focuses on supplies financing, we reviewed supply chain reporting tools to explore to what extent they facilitate supplies financing reporting. At facility level, stock books are used to record daily transactions. From these books, data are collected using an immunization logistics tool that collects data monthly. These data are entered in the Supply Management Tool (SMT) and the District Vaccine Tool (DVS). The data are then sent to the Regions and incorporated into the SMT at the regional vaccine store. The NVS completes the SMT at national level based on the regional level data plus NVS data. This report based on this data is shared to stakeholders including WHO and UNICEF Regional Offices.

The SMT can facilitate supplies financing monitoring but requires further developing, potentially building on the incoming and outgoing vaccines records in the tool. This can provide the value of arrivals, the value of consumption (issues) as well as the value of stocks on hand. Further, based on the estimated value of the quantified requirement, immunization procurement financing gaps can be monitored overtime.

Presently, to build financing policy advisory based on the SMT, data has to be extracted and manipulated outside the tool. For example, to monitor procurement status for 2020 Financial Year (for UNICEF), the Immunization Supply Chain Management specialist has prepared a comparison of the forecast and procurement from which gap on the quantification result can be calculated (Table 12). By multiplying forecast and procured quantities with price quote (Supply Order) and actual price (purchased order), it is possible to track including the financing gap at any point in time.

Table 12: Forecast Versus Actual Vaccines Procurement (2020)

ANTIGEN	QUANTITIES (VIALS)		Variance	COMMENT
	Forecasts	Procured		
BCG vaccine, vial of 20 doses	94,019	94,000	19	Procured LESS than Forecasted
bOPV, bivalent type 1+3, vial of 20 doses	46,526	46,600	-74	Procured More than forecasted
Inactivated polio vaccine, vial of 10 ds	67,220	25,900	41,320	Procured LESS than Forecasted
DTP-HepB-Hib vac.,liquid,vial of 10 dose	164,800	83,430	81,370	Procured LESS than Forecasted
PCV, 13-val., 4 dose vial	424,950	203,100	221,850	Procured LESS than Forecasted
Rotavirus vac.,mono,tube of 1 dose	1,473,000	664,500	808,500	Procured LESS than Forecasted
MR vaccine,vial of 10 doses	79,240	42,320	36,920	Procured LESS than Forecasted
HPV vaccine 4-valent, 1 dose	278,800	284,700	-5,900	Procured More than forecasted
Td vaccine for adults, vial of 10 doses	7,672	7,670	2	Procured LESS than Forecasted

Source: UNICEF Staff (2020)

We could not use this data in this analysis for a number of reasons. First, the analysis has just been conducted for the 2020 financial year. Second, only SMT data for 2020 was made available for this study. Third, prices data at UNICEF country office were said to be lower by the cost of freight. Nevertheless, the work by the supply chain specialist at UNICEF demonstrated great potential for the SMT to be developed further with a bit of effort and more consultations.

The challenge of financial reporting was also linked to weaknesses in supplies management information systems with the following as key bottlenecks:

- Weak visibility of the supply chain management system
- Weak budget tracking capabilities of the SMT
- Limited awareness of the SMT at national and subnational levels
- Weak collection and reporting of quantification data in the SMT

Solutions to Bottlenecks in Vaccine Budget Process

Table 13 below provides the solutions to bottlenecks in vaccine budget process.

Table 13: Solutions to Bottlenecks in Vaccines Budget Process

Budget Stage	Budget Process Challenge	Bottleneck	Solutions	Impact on Vaccines Supplies Financing
Budget Planning	Limited Fiscal Space and low domestic financing for vaccines procurement leading to persistent funding gaps relative to quantified needs	Low funds for vaccines procurement	Lobby Treasury and Parliament to increase allocation for vaccines procurement in the MoH budget	Availability of funds
		Excessive earmarking of the health budget by Treasury leading to low discretionally budget from which MoH planners can allocate to immunization supplies procurement	Increase communication between MoH DPPD and Treasury to rationalize extent and areas for earmarking	Availability of funds
		Ineffective earmarking of vaccines across MOH cost centres by Treasury (e.g., substantial vaccine budget earmarked by Treasury at Central Hospital level that do not need this funding)	Lobby Treasury to reallocate under-utilized earmarked funds at Central Hospitals towards vaccines procurement	Availability of funds
		Weak Prioritization of immunization supplies budget in the national health budget	Strengthen Government's adherence to vaccines funding obligations including co-financing agreements	Availability of funds
		Under-decentralization of the vaccines procurement budget which could lead to reduced funding due to Treasury attempting to shift budgets service delivery level (CHs for Vote 310)	Develop and implement a vaccines budget devolution plan with effective mechanisms for pooling funds for bulk procurement	Availability of funds
		Lack of Government tools and standard operating procedures for vaccines costing and budgeting within MOH leading to reliance on projections developed by UNICEF	Revise MOH planning and budget tool to allow for antigen specific annual and medium-term costing and budgeting for vaccines	Availability of funds
		Weak Human Resources capacity in vaccines quantification, forecasting, and budgeting process at the MOH and District Council levels leading to overreliance on unsustainable donor capacity	Develop capacity of MOH and district councils in vaccines quantification, costing and budget management	Availability of funds

Budget Stage	Budget Process Challenge	Bottleneck	Solutions	Impact on Vaccines Supplies Financing
		Over-dependence on donor funding for vaccines procurement leading to issues of sustainability and predictability of funding	Build revenue mobilization capacity for vaccines in Health Financing Unit within DPPD	Availability of funds
Budget Execution	Weak vaccines budget execution capacity	Weak alignment between shipment schedules and funds release	Strengthen cash flow preparation to accommodate vaccines procurement schedules	Timeliness of funds release; flexibility of spending
		Weak prioritization of vaccines payments at RBM	Create awareness for responsible officers in MoH accounts and Reserve Bank on the importance of vaccines and need for timely disbursements	Timeliness of funds release
		Weak vaccines budget accounting capacity of MOH	Train MOH planners and accounting staff immunization budget process	Timeliness of funds release; flexibility of spending
		Weak communication among key immunization budget process actors within Government	Strengthen communication between EPI Program, DPPD and MOH Accounts Department	Timeliness of funds release; flexibility of spending
		High wastage rates for vaccines at facility level that create avoidable financing gaps	Develop and implement a supply chain systems programme that aims to reduce wastage of vaccines at facility level to create fiscal space from efficiency savings	Availability of funds

Budget Stage	Budget Process Challenge	Bottleneck	Solutions	Impact on Vaccines Supplies Financing
Budget Evaluation	Weak capacity in vaccines quantification, budget planning, budget execution and budget monitoring at all levels	Weak MOH capacity in tracking vaccines payment progress	Strengthen DPPD's capacity to track vaccines procurement financing across the budget execution stages	Timeliness of funds release
		Weak reporting of vaccine procurement financing data	Enhance budget planning and reporting capabilities of the SMT	Availability of funds; flexibility of spending; Timeliness of funds release
		Weak capacity of accounting personnel in supplies financing reporting	Train budget officers in supply financing modules of the SMT	Availability of funds; flexibility of spending; Timeliness of funds release
		Lack of a single authoritative source for vaccines budget information	Adopt the SMT as a consolidation point for immunization supplies financing information from across partners	Availability of funds; flexibility of spending; Timeliness of funds release
		Weak vaccines budget information management in MOH	Strengthen reporting of Government expenditures on vaccines procurement into the consolidated expenditure reporting tool	Availability of funds; flexibility of spending; Timeliness of funds release
	Weak supplies management information systems	Weak visibility of the supply chain management system	Enhance the capacity of the SMT through transforming it into a web-based real time application with capability for optimal usage at upstream and downstream usage	Availability of funds; flexibility of spending; Timeliness of funds release
		Weak budget tracking capabilities of the SMT	Customize SMT to strengthen its vaccine procurement financing tracking capabilities	Availability of funds; flexibility of spending; Timeliness of funds release
		Limited awareness of the SMT at national and subnational levels	Increase awareness of and develop capacity in SMT at sub-national levels	
		Weak collection and reporting of quantification data in the SMT	F	Availability of funds; flexibility of spending; Timeliness of funds release

NUTRITION SUPPLY BUDGET PROCESS, BOTTLENECKS AND SOLUTIONS

Budget process for Nutrition Supplies

Budget planning

Nutrition supplies planning is undertaken as part of a quantification and costing process that is led by the Department of Health Technical Support Services (HTSS) in consultation with the Nutrition Unit in the Department of Clinical Services. The following stakeholders are currently involved:

- Malawi MoH (MOH)– Nutrition Unit
- UNICEF
- World Food Program (WFP)
- Health Technical Support Services-Pharmaceuticals (HTSS-P)
- Central Medical Stores Trust (CMST)
- Donors e.g., Irish Aid, USAID, and DFID

To initiate the quantification process for nutrition supplies, the HTSS in consultation with the Nutrition Unit in the Department of Clinical Services convenes a stakeholder's meetings where the scope of the quantification is agreed at least four (4) weeks prior to the actual quantification exercise. The scope generally covers the perspective (health sector – Government and CHAM facilities), the forecasting period (36 months with review biannually), and the supply period (24 months). Figure 20 shows the calendar for nutrition planning to which supplies procurement planning is aligned.

The nutrition supplies quantification is informed by Malawi Standard Treatment Guidelines (MSTG) and Malawi Essential Medicines List (MEML). Currently, a morbidity-based methodology is used to estimate nutrition product needs for SAM and MAM cases within the focus period based on the national Community-based Management of Acute Malnutrition Model (CMAM) and NCST guidelines while a demographic based method is used to estimate needs for micronutrient supplementation. Based on responses and information from the UNICEF respondents, several tools are used to arrive at a forecast but these only provide information that is eventually processed in custom Excel spreadsheets. The quantification results are then used to determine future shipments, secure donor commitments and identify procurement agents who are mapped to these shipments. This information is then taken to a stakeholder quantification workshop for validation. Interviews with the Nutrition Unit in the Department of Clinical Services confirmed that this activity, while under the oversight of Government, is technically led by UNICEF.

Currently, procurement of nutrition supplies is wholly donor funded and there are no budgets at either MoH or District Council levels. Table 14 below shows the available financing and compares this with the three-year quantified need to estimate the nutrition supplies financing gap for Malawi. Based on the gap analysis done by UNICEF, in the 2019 Calendar Year, the estimated need for nutrition supplies was US$14,670,039.

Figure 20: Nutrition Budget Process Mapping

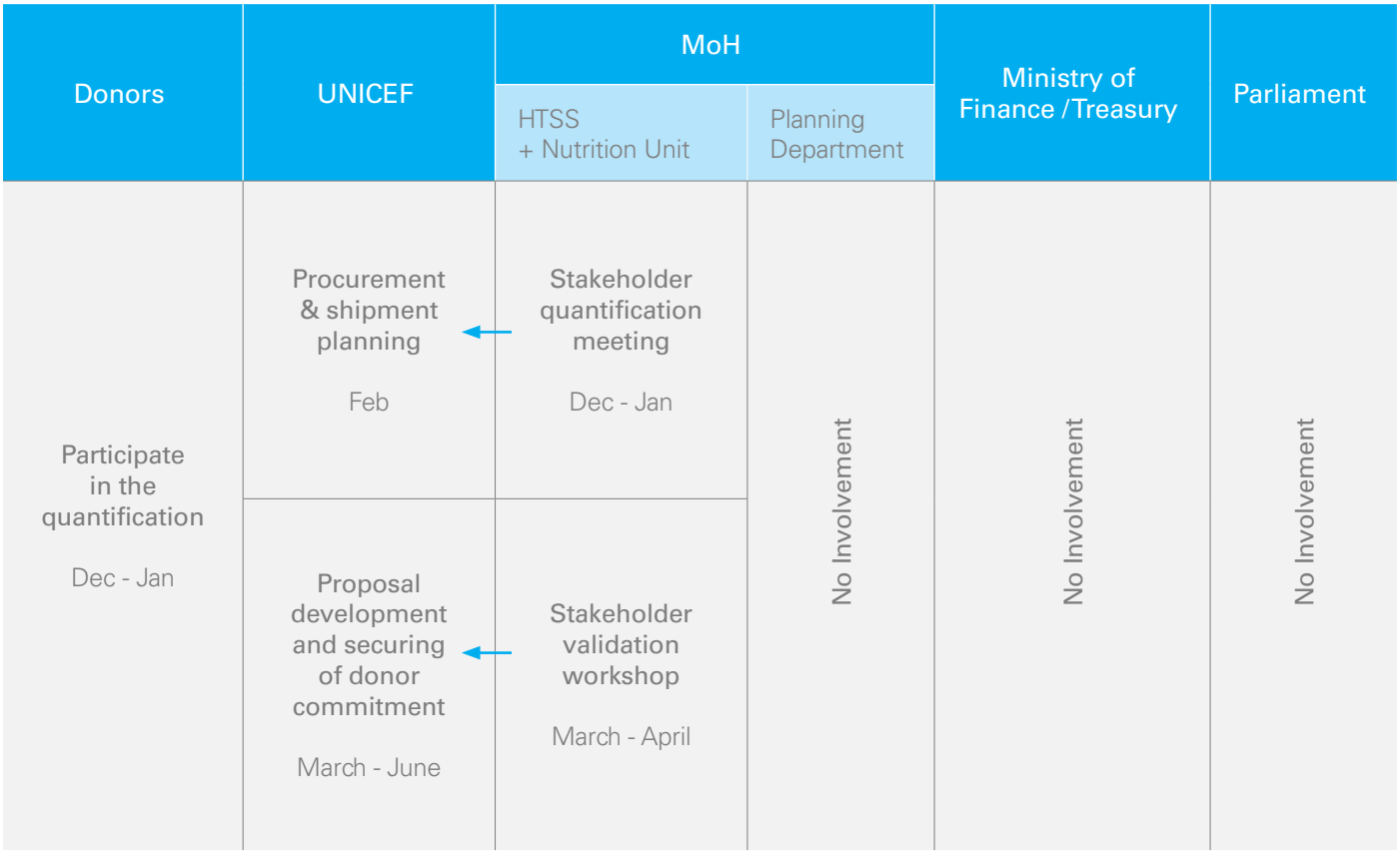


Table 14: Available Financing and Gap in Nutrition Supplies Financing

Item	2018	2019	2020	2021
Therapeutic foods for children 0-59 months				
RUTF	5,254,314	5,967,702	6,306,534	6,664,632
F-75	85,067	96,617	102,103	107,900
F-100	55,090	62,570	66,122	69,877
MAM treatment Children (supplementary food)				
Supercereal Plus (CSB++)	2,556,905	3,283,187	3,388,850	3,497,790
Medicines and medical supplies for MAM children				
Iron and folic acid	151,689	155,326	159,086	162,966
SAM treatment adolescents and adults				
RUTF	3,554,355	4,266,597	4,403,908	4,545,480
Supercereal (CSB+)	489,255	583,748	602,535	621,904

Item	2018	2019	2020	2021
MAM treatment adolescents and adults				
Supercereal (CSB+)	2,106,886	3,064,178	3,162,792	3,264,465
Vegetable oil	416,478	605,710	625,203	645,301
Total Need	14,670,039	18,085,633	18,817,132	19,580,315
Total available resources	6,931,020	8,356,086	3,176,805	
Gap	7,739,019	9,729,548	15,640,328	

From Table 14 above, the available funding was only enough to cover approximately half of the need for the years considered. The omission of nutrition supplies budget from the MOH budget was attributed to limited fiscal space by DPPD. Prior to 2014/15 nutrition supplies procurements were funded through earmarked on-budget donor financing under the Sector Wide Approach (SWAp) Pool Fund. This financing stream collapsed following the withdrawal of direct budget support by Government of Malawi Donors in the aftermath of "Cash gate" in 2012/13. DPPD respondents indicated each year they get requests from the Nutrition Unit to include supplies in the budget but it has not been possible to take on board such requests due to difficulties of re-allocating the MOH budget to accommodate a new expenditure line. Unlike for immunization, this study did not find arrangements that oblige Government to undertake certain obligations in order to unlock donor funds.

If nutrition supplies procurement budgets were to be included in the MOH budget, these would be under the Nutrition Unit in the Department of Clinical Services and budgeted for under (Division Code 21) and Sub-Item 2501 for Drugs. If nutrition supplies procurement were to be pushed to District Council, they would generally be mixed up in the drug budget given the lack of assignment of division codes across departments and programmes at the Council level.

Based on discussions with the relevant Departments (DPPD, DNHA and Clinical Services), there appears to be diffusion of responsibility over whose responsibility it is regarding lobbying of nutrition supplies financing. For instance, the DNHA was clear that this role of resource mobilization for nutrition supplies falls within the health sector and thus should be within the mandate of the DPPD. On the other hand, DPPD had the view that since DNHA has an internal Planning and Policy Development Unit, resource mobilization for the nutrition sector falls directly under DNHA. Clearly this is an issue of communication between the two planning departments as well as the Nutrition Unit with MOH Clinical Department. Coincidentally, the commencement of zero allocations towards nutrition supplies in the MOH budget coincided with a period when DNHA was moved from OPC to MOH, suggesting unclarified expectations over the mandates of planning and resource mobilization oversight could have led to this diffusion of responsibility. The need for better communication was also flagged by MoF respondents as an area requiring improving for MoH.

From the situation analysis, analysis of the budget process as well as results from interviews, the following bottlenecks are identified for nutrition financing at a planning stage:

- Lack of funding towards nutrition supplies procurement in the health sector budget due to:
  - Lack of budget line for nutrition supplies in MOH budget;
  - Weak communication between key Government players responsible for nutrition supplies financing; and
  - Over-dependence on donor financing for nutrition supplies
- Weak budget planning and prioritization mechanisms and capacity for nutrition supplies financing due to:
  - Weak nutrition quantification capacity among Government staff at national and sub-national levels;
  - Diffusion of nutrition supplies procurement budget planning responsibilities across DPPD, DNHA and MOH Nutrition Unit; and
  - Lack of an effective resource mobilization framework for nutrition supply chain.

Budget Execution for Nutrition Supplies

Without a budget for nutrition supplies at both national and district levels, no procurements are executed using public funds. Previously when Government procured, MoH would issue a cheque through the IFMIS to UNICEF to procure and distribute through an independent supply chain system. Presently UNICEF is responsible for coordinating with respective funders for each planned shipment. This is based upon the shipments from the quantification exercise and relevant funding commitments. For this process, there are two scenarios highlighted by respondents. Either UNICEF writes funding proposals to different donors. These would fund nutrition supplies procurement conducted directly by UNICEF who would deliver supplies to CMST for distribution. The second scenario is where other donors/implementing partners only use the quantification result and either distribute through CMST or directly to districts.

From discussions with national and district level staff, there are serious supplies shortages at health facility level compared to what eventually gets supplied. Despite being responsible for national coordination, for example, the respondents from the Nutrition Unit indicated minimal interaction with funders during the budget execution stage as transactions are initiated by UNICEF.

For procured supplies, UNICEF uses CMST supply chain to distribute to facilities. The main involvement of the Nutrition Unit is in planning the distribution list. This is based on monthly reports on admissions and discharges for each facility as well as a 10% buffer. The distribution list is forwarded to CMST to guide distribution to facilities. Based on interviews with Nutrition Unit team, there is no link between the distribution list they prepare and the quantification results as these processes are not conceptually joined (different Excel templates). The quantification results are used to inform shipment planning while the distribution list is based on most recent previous month's consumption. As a result, there are serious gaps between the distribution list (orders from facilities) and procured supplies.

The key limitation for nutrition supplies budget execution is lack of Government funding. For donor funded supplies, respondents indicated lack of predictability of donor funding leading to misalignment between request from facilities and procured supplies. The bottlenecks identified therefore, were:

- Untimely release of funds by donors; and
- Lack of linked procurement and nutrition supplies cashflow

Monitoring of Nutrition Supplies Financing

Without a dedicated budget for nutrition supplies procurement, there are no expenditure records in the IFMIS. Within DPPD, DNHA and Nutrition Unit, there was no evidence of processes for tracking nutrition supplies procurement. The financing gap analysis used in this report was provided by UNICEF. When asked to share, MOH respondents indicated this information is managed by UNICEF, suggesting gaps in information systems for nutrition supplies financing.

Regarding nutrition supplies financing monitoring, lack of capacity was identified as the major limitation with the following priority bottlenecks:

- Weak DPPD and Nutrition Unit capacity in nutrition supplies financing monitoring
- Lack of consolidated nutrition financing tracking tools

Solutions to Bottlenecks in Nutrition Supplies Budget Process

Table 15 provides the solutions to each of the bottlenecks identified under nutrition supplies financing.

Table 15: Solutions Bottlenecks in Nutrition Supplies Budget Process

Budget Stage	Budget Process Challenge	Bottlenecks	Solution	Impact on Nutrition Supplies Financing
Budget Planning	Lack of funding towards nutrition supplies procurement in the health sector budget	Lack of budget line for nutrition supplies in MOH budget	Provide for a budget line for nutrition supplies procurement in the health budget	Availability of funds
		Weak communication between key Government players responsible for nutrition supplies financing	Enhance communication between key Government players responsible for nutrition supplies financing including MOF, DPPD, DNHA and Nutrition Unit	Availability of funds, flexibility of spending; Timeliness of funds release
		Over-dependence on donor financing for nutrition supplies	Lobby donors to negotiate with Government on nutrition supplies co-financing arrangements	Availability of Funds
	Weak budget planning and prioritization mechanisms and capacity for nutrition supplies financing	Weak nutrition quantification capacity among Government staff at national and sub-national levels	Develop nutrition supplies quantification and costing capacity of DPPD and Nutrition unit	Availability of funds; Timeliness of funds release; and Sustainability
		Weak standard operating procedures and tools for nutrition supplies quantification and costing	Strengthen tools and standard operating procedures for nutrition supplies quantification and costing	Availability of funds; Timeliness of funds release; and Sustainability
		Diffusion of nutrition supplies procurement budget planning responsibilities across DPPD, DNHA and MOH Nutrition Unit	Capacitate the newly established Health Financing Unit in DPPD to provide oversight in nutrition financing arrangement	Availability of funds; Timeliness of funds release; and Sustainability
		Lack of an effective resource mobilization framework for nutrition supply chain	Develop and execute a financing and advocacy strategy for nutrition supplies financing	Availability of funds; Timeliness of funds release; and Sustainability
Budget Execution	Low predictability of nutrition supplies financing	Untimely release of funds by donors	Develop and implement a mechanism for monitoring and increasing donor compliance to nutrition supplies financing commitments	Timeliness of funds release
		Lack of linked procurement and nutrition supplies cashflow	Develop MOH capacity in procurement planning and cash-flow preparation	Flexibility of Spending, Timeliness of funds release
Budget Evaluation	Lack of capacity in nutrition supplies financing monitoring and evaluationcapacitfimonitoring and evaluation	Weak DPPD and Nutrition Unit capacity in nutrition supplies financing monitoring	Develop nutrition financing monitoring capacity of the newly established Health Financing unit	Availability of funds; Timeliness of funds release; and Sustainability
		Lack of consolidated nutrition financing tracking tools	Develop web-based tools for upstream and decentralized nutrition supply chain management including budgeting and expenditure tracking across Government and donor stakeholders	Availability of funds; Timeliness of funds release; and Sustainability

SUPPLY FINANCING ADVOCACY FRAMEWORK

Introduction

The previous chapters have demonstrated how low and lack of funding for vaccines and nutrition supplies procurements remains a key barrier for effective availability of these life-saving interventions for children. To sustain and improve child outcomes further, the gaps in supplies financing will need to be addressed through an appropriate advocacy framework that targets the responsible stakeholders with the relevant messages and in ways that would maximize potential for change. As many of the issues identified relate to limited availability and timeliness of funding, it is important that the advocacy strategy begins with making a case of the value of immunisation and nutrition supplies within a benefit-cost analysis framework. The aim of this chapter is therefore twofold; first, to demonstrate how a Benefit-Cost Analysis (BCA) framework can be used to show the value of allocating resources to vaccines and nutrition supplies, and second, to provide an advocacy framework sustainable vaccines and nutrition supplies financing in Malawi. The advocacy messages are based on the bottlenecks and solutions identified in the prevision chapter. For the advocacy framework, we brought together related issues across the budget stages to generate an advocacy message for issue.

There are different stakeholders that may be the target of vaccines and nutrition supplies resource mobilisation advocacy: Ministry of Health Department of Planning, the Ministry of Finance, Politicians, Donors, Corporations and Industry, general public, Media, civil society organisations (CSOs) and Non-Governmental Organisations (NGOs), among others (Lasher 2001). The analysis already revealed that Malawi's immunisation is largely donor financed with Government struggling over the years to meet its obligation. It also showed that nutrition supplies financing is wholly donor dependent, making it fully vulnerable to donor decisions on how much, what products and where to fund. This implies that the primary target for immunisation financing advocacy should be institutions involved in domestic resource mobilisation and allocation i.e., the Ministries of Health and Finance, and parliamentarians. Local corporations and industry may also be included in this category as potential financiers. Secondary targets could be potential allies such as the media, politicians, the general public, CSOs and NGOs. The different stakeholders will require tailored messages depending on their realm of operations and expertise. This consultancy primarily focused on an advocacy package for the Ministries of Health and Finance.

Resource Mobilization Advocacy Tool for Vaccines

Value for Money Case - A Cost Benefit Analysis Framework

As discussed above, we demonstrate cost-effectiveness for vaccines and defer for nutrition due to data and time limitations. Vaccines are among the most successful and cost-effective public health interventions for preventing diseases and death. They have led to the eradication of smallpox, the elimination of polio from most continents, and the control of other diseases, including diphtheria, tetanus, pertussis, rubella, and hepatitis B (Carroll et al., 2015). That notwithstanding, preventive programmes are most vulnerable to budget cuts and restrictions as their benefits may not be always immediately identifiable whilst cuts often focus on short-term financial results. However, any short-term benefits to budgets are likely to be greatly outweighed by the long-term impact on health and spending (Carroll et al., 2015).

The impact of vaccines can be measured not just in terms of public health, but also in economic terms: reducing healthcare costs (such as physician fees, drugs and hospitalization expenses, and associated travel costs and wage loss of caregivers) by preventing episodes of the disease, decreasing lost labour force productivity, and contributing to social and economic development (Remy et al 2015, Nandi & Shet, 2020). It has been promulgated that vaccines can increase lifetime productivity due to improved physical capacity, cognition, and educational outcomes through increased school attendance (Quilici, 2015). Vaccines could also reduce the number of people who fall into poverty due to a catastrophic medical expense which is defined as a large proportion (typically, more than 10% to 25%) of household income or expenditure. It has also recently been shown that vaccines can also tackle global health threats such as antimicrobial resistance (AMR) (Nandi & Shet, 2020).

Methodology for the CBA

We aimed to calculate the Benefit-Cost Ratio (BCR). The BCR is estimated as the sum of discounted benefits divided by the sum of discounted costs for a specified time period as shown in the equation below:

$$BCR = \frac{\sum_{o}^{n} \frac{B}{(1+r)^n}}{\sum_{o}^{n} \frac{C}{(1+r)^n}}$$

In the above equation, B, is benefits in monetary terms, r is the discount rate, n is the time horizon of the analysis and C is costs. We used an r of 3% and an n of 20 years, from 2020 to 2040.

Although immunisation has benefits outside the health sector, as highlighted earlier, we did not manage to include them in this study. The benefits only comprised deaths averted converted into monetary terms. In order to do this, we used the value per statistical life year (VSL) approach. VSL is typically calculated by taking an estimate of an individual's WTP for a small change in his or her own mortality risk and dividing it by the risk change (please see Robinson et al. (2019) for the details).

Because of lack of WTP studies in low-income settings, the VSL has to be transferred from high income settings. Adjusting a reference VSL for income differences requires an income estimate for the population to which the reference VSL applies, an income estimate for the target population, and an estimate of the rate at which VSL changes as income changes; i.e., the average elasticity over the relevant income range. The formula is:

$$VSL_{target} = VSL_{reference} * (Income_{target} / Income_{reference})^{elasticity}$$

American reference values of $9.4 million for the VSL and $57,000 for income or GNP per capita and $999 dollars GNP per capita for Malawi were used as follows to yield a VSL of $21,300.

$$VSL_{target} = \$9,400,000 * (\$999 / \$57,000)^{1.5}$$

Because the number of life years remaining for younger or older individuals may be much larger or smaller, respectively, different values may be applicable. In applied work, one frequently used simplifying assumption is that the value of mortality risk reduction increases with life expectancy; decreasing with age. The concept of the value per statistical life year (VSLY) is used. The VSLY is calculated by dividing a VSL estimate by the life expectancy of an individual at the average age of those studied. This VSLY is then multiplied by the change in life expectancy associated with the policy to estimate the value of mortality risk reductions for individuals in different age groups.

Given a life expectancy estimate of 63 for Malawi and the assumption that most of the vaccines in the analysis reduced mortality up to the age of five, we assumed life expectancy of Under 5 children of 58 years and obtained a VSL estimate of $30,885.

Benefits for year K, B_k, were estimated as in the equation below, where j represents the condition that causes mortality and i is a vaccine for condition i.

$$B_k = \sum_{j=1}^{n} \sum_{i=1}^{m} VSL \times \text{cause specific mortality}_j \times \text{prop. impact of intervention}_i$$

We used the proportional impact of intervention other than just the impact of the intervention in question to take into account the contribution of other interventions to the reduction in mortality. It was calculated by multiplying the intervention effectiveness for intervention i, AF_i, by the affected fraction of intervention i, IE_i, by the coverage of intervention i, Cov_i. This was then divided by the sum of these products for all interventions that affected mortality for condition i. The formula is provided below:

$$\text{Prop. impact of intervention } i = \frac{IE_i * AF_i * Cov_i}{\sum_{i}^{n} IE_i * AF_i * Cov_i}$$

For costs, although there are many costs incurred to deliver immunisation both on the supply and demand sides, we used health system costs and adopted the Lives Save Tool (LiST) costing approach which is summarised in the equation below:

$$\text{Total immunisation costs} = \text{intervention costs} + \text{programme costs}$$

Intervention costs include medicines, medical supplies, human resources, and other recurrent and capital inputs related to an outpatient visit/inpatient day. For programme costs, we adopted the LiST approach of calculating these as 15% of the intervention costs broken down by different categories. The categories and their corresponding percentages are shown in Table 16 below.

Table 16: Breakdown of Programme costs by category and percentage

Category	Percentage of total intervention cost
Programme-specific human resources	1%
Training	1%
Supervision	2%
Monitoring and evaluation	2%
Infrastructure	2%
Transport	2%
Communication, media, and outreach	1%
Advocacy	1%
General programme management	2%
Community health worker training	1%

Results of the CBA

In order to estimate benefits, we estimated the population in need of immunisation, both children and pregnant women. This trends for the period of the study are shown in Figure 21. It is important for decision makers of resource allocation to appreciate the ever-increasing populations in need of immunisation and how not fully vaccinating them would have important public health implications.

Figure 21: Population in need of vaccination, 2020-2040

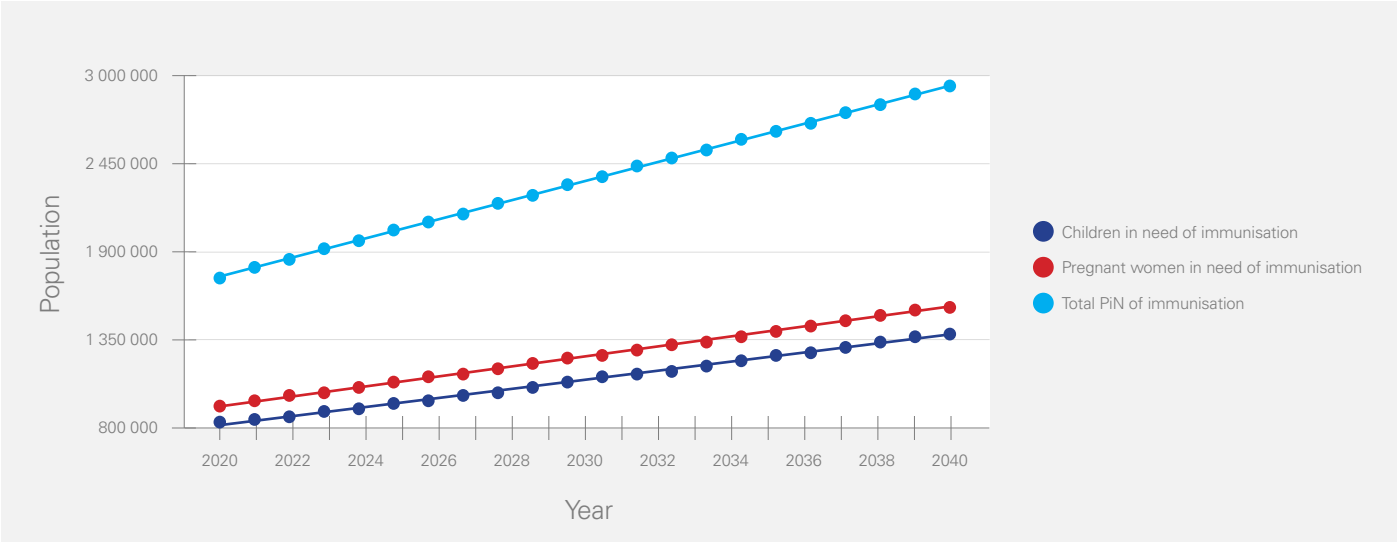


Figure 22 summarises the total benefits and costs of immunising this population over the horizon of the study, 2020-2040, while Figure 23 shows the trend. The discounted monetary benefits of investing in immunisation from 2020-2040 are estimated at USD1.6 billion while discounted costs are estimated at USD304 million.

Figure 22: Discounted vaccination benefits and costs for the period 2020-2040

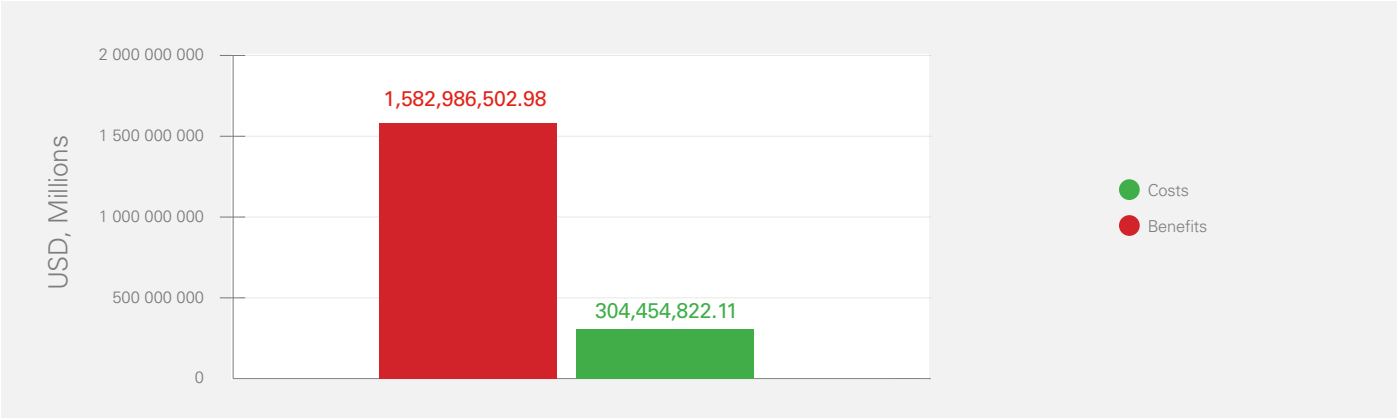
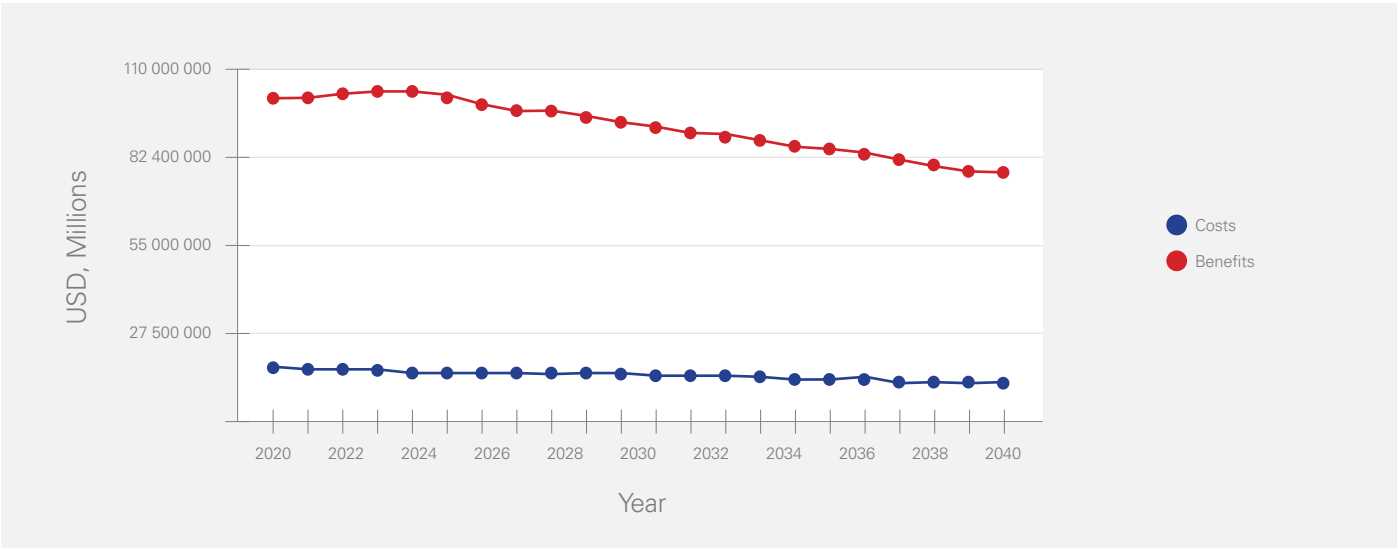


Figure 23: Trend of discounted benefits and costs, 2020-2040



The benefit-cost ratio (BCR) is estimated at 5.2 which implies immunisation has very high returns on investment in Malawi, over five dollars for every dollar invested (Table 17).

Table 17: Benefit-Cost ratio of Immunisation in Malawi

BCR	5.199

As stated earlier, WHO recommends national coverage of at least 90% and the Malawi multi-year plan (2016-2020) has the same goal. Scaling up vaccine coverage to 90% for all vaccines with coverage below this level and pentavalent which is at 93% to 95% by 2024 and sustaining these levels, will require additional costs of USD11.6 million. The additional yearly costs are shown in Figure 24 while Figure 25 provides the of scaling up from current coverage to at target coverage of >90% .

Figure 24: Additional benefits and costs of scaling up from current coverage to >90% for all antigens.

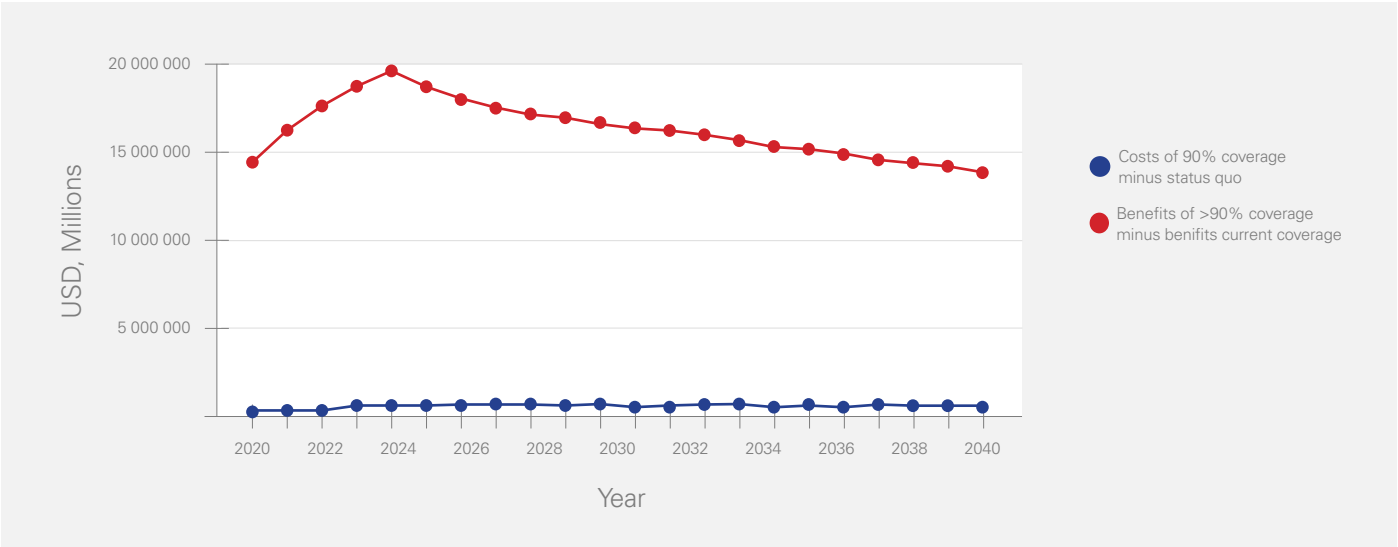
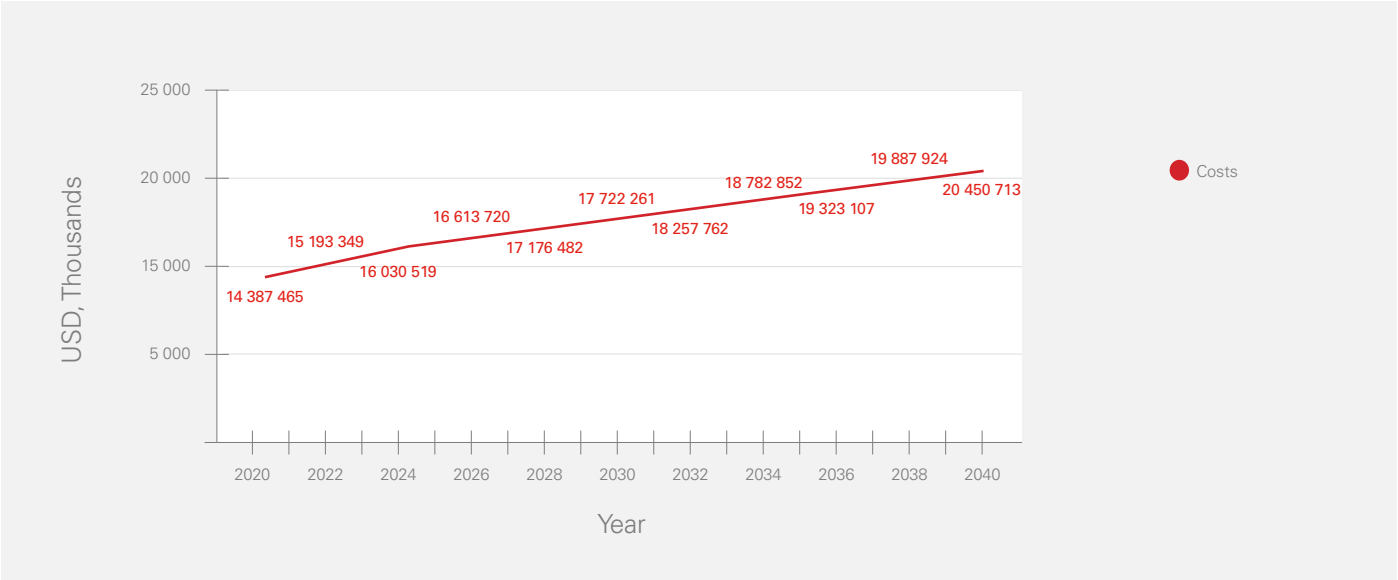


Figure 25: Annual costs of scaling up from current coverage to >90% for all antigens



Key Advocacy Messages for Sustainable Vaccines Financing

This assessment established the value for money case for increasing funding towards vaccines. When benefits other than mortality risks are accounted for, the return on investment in child immunizations is likely much higher for Malawi than the Benefit-Cost Ratio of 5.2 estimated in this chapter. This indicates a very strong case for optimal domestic financing of vaccines for a country such as Malawi. As seen in fiscal space analysis chapter, as well as the analysis of immunization programme and vaccines procurement financing, serious funding constraints exist and lead to substantial gaps between quantified needs and procured commodities. In particular, this assessment showed that vaccines financing remains volatile, low, untimely, and very donor dependent. Addressing these gaps will require tactful advocacy framework that that is issue based and target the right audience to achieve the required impact.

Advocacy for increasing funding for and improving efficiency of vaccines

Based on the BCA results, policy makers in the health sector ought to lobby decision makers in the Ministry of Finance and donors to increase funding for vaccine procurements. In particular, the DPPD in MOH will need to play a crucial role supported by the EPI Programme in convincing MOF to allocate more funds for vaccines to achieve vaccination targets. At the same time, MOH should convince MOF that it is has systems to guarantee sustainability, ensure improved coordination of donor funds, and improve efficiency in the utilization of available funds. Table 18 below presents the issues, key messages, and stakeholders for advocacy on increasing vaccines procurement financing and ensuring efficient use of allocated funds.

Table 18 : Advocacy messages for increasing resources for and improving efficiency in vaccine supplies

Advocacy Issues

1. Low government funding for Vaccines procurements.
2. Overdependence on donor funding for vaccine procurement, leading to issues of sustainability and predictability of funding.
3. Weak Prioritization of Immunization Supplies Budget in the National Health Budget.
4. Weak alignment between shipments and funds release;
5. Weak Prioritization of vaccine payment at the Reserve Bank of Malawi.
6. High wastage rates for vaccines at facility level that create avoidable financing gaps.

Advocacy Messages

1. Vaccines are highly cost-effective. Despite the fiscal space limitations, Government should prioritize full financing of the quantified need for vaccines so that every child gets fully immunized as recommended by MOH and WHO.
2. Over the period of the 2016-2020 cMYP, donors have on average, financed 91% of the vaccine's procurements. This is highly unsustainable and leads to unpredictability of funding and results in vulnerability for those in need of vaccinations.
3. Funding vaccines procurement is Government's responsibility. However, over the period of the 2016-2020 cMYP Government has failed to meet its obligations, as funding has remained within 9% of the available vaccines procurement financing. Compared to the total need, Government funding represents only 6% of the cMYP requirement, against a funding gap of 33%. It is important for Government to close this gap, through meeting its co-financing obligations on new and under-used vaccines as well as providing fully for traditional vaccines. This will ensure that every child is immunized and population health is improved.
4. Alignment of funding to the cashflow remains a critical challenge in the procurement of vaccines. It is important for Government to align its funding to the cashflow to guarantee steady supply of vaccines and ensure every child gets the immunization they need on time. Government should therefore frontload funding for procurement of vaccines in the first quarter of each financial year to allow for timely payments to suppliers.
5. Timely vaccinations of children depend on timeliness of funds release to suppliers. This is because the Ministry must stick to specific timelines for immunizations and the procurements are carefully aligned to these schedules. To stick to these specific timelines for vaccines for vaccines, Reserve Bank has an important role in ensuring funds are transferred to suppliers.
6. There is limited justification for asking more Government funding towards vaccines when wastage rates at facility level are as high as 80%. To secure more funds, MOH should prioritize addressing the causes of the high wastage rates (including frequent electricity supply cuts) to minimize wastage of already procured vaccines and consequently reduce the financing gap and need for further domestic financing.

Stakeholders Targeted

- MOH (Department of Planning and Policy Development), (MOH- Department of Finance), MOH (EPI), Ministry of Finance, RBM, Accountant General, National Local Government Finance Committee, and District Councils

Supporters

- UNICEF

Advocacy for increasing vaccines funding through removing earmarking at Treasury level

Another area of advocacy by DPPD would be in convincing MOF to remove ear-making of vaccines altogether at MoF level and leave that decision to sectoral planners. As noted in this study, earmarking reduced the ability of DPPD to influence budget allocations as the budget ceiling amount that is left at the discretion of MOH is so low and not adequate to cater for essential administrative services. As indicated earlier in the study, DPPD has already initiated this discussion with MOF with good indication of success. Given the difficulty of negotiating for new funds for the health sector from which to fund additional vaccines procurements, once earmarking is removed, it is important to review vaccines budget allocations and utilization at Central Hospitals for potential programming. Table 19 provides the key advocacy issues, advocacy and key stakeholders in the decision to remove ear-marking.

Table 19: Advocacy for increasing resources for vaccines through removal of ear-marking by Treasury

Advocacy Issues
1. Excessive earmarking of the health budget by Treasury leading to low discretionary budget from which MOH planners can allocate to immunization supplies procurement .
2. Ineffective earmarking of vaccines across MOH cost centres by Treasury (e.g., substantial vaccines budget earmarked by Treasury at Central Hospital level that do not need this funding).
Advocacy Messages
1. Ministry of health planners are better positioned to understand needs and priorities of the health sector including for vaccines. Treasury, therefore, should leave adequate discretion to MOH planners to make allocation decisions for vaccines.
2. Vaccines budgets allocated at the Central Hospital level are presently under-utilized for vaccines procurement – These funds can be redirected towards the vaccines procurement budget in EPI to increase fiscal space for vaccines within available health sector budget.
Stakeholders
• MOH (DPPD), MOF, Central Hospitals
Supporters
• UNICEF and GAVI

Advocacy on increasing MOH capacity in quantification, financing and budget management for vaccines

The health financing situation analysis showed that donor funding remains significant source of vaccines procurement financing. While this is the case, it is more important for Government to develop and sustain long-term planning capacity as well as visibility on needs. This will ensure Government leadership in determining annual vaccines budget requirements based on cMYP estimates, available annual financing, and critical supply management information. With the newly established Health Financing Unit in Department of Planning and Policy Development, it is important to advocate for housing long-term vaccines budget planning capacity under this Unit. Table 20 provides the issues, advocacy and key stakeholders for developing human resource capacity and strengthening tools for immunization budget process.

Table 20: Advocacy on increasing MOH capacity in quantification, financing and budget management for vaccines

Advocacy Issues

1. Lack of Government tools and standard operating procedures for vaccines costing and budgeting within MOH leading to reliance on projections developed by UNICEF.
2. Weak human resource capacity in vaccines quantification, forecasting, and budgeting processes the MOH and the district council levels leading to over-reliance on unsustainable donor capacity.
3. Weak vaccines budget accounting capacity of Ministry of Health as well as Lack of Government tools and standard operating procedures for vaccines costing and budgeting.
4. Weak MOH capacity in tracking vaccines payment progress.
5. Weak visibility of the supply chain management system including weak reporting of vaccines procurement financing data).
6. Lack of a single authoritative source for vaccines budget information (weak vaccines budget information management in the Ministry of Health; Weak budget tracking capabilities of the SMT; Weak collection and reporting of quantification data into the SMT; Limited awareness of the SMT at national and sub-national level).

Advocacy Messages

1. Currently there is no budgeting tool in place for antigen specific costing and budgeting leading to reliance on projections developed by UNICEF. It is therefore important for MOH to revise its planning and budget template to allow for antigen specific annual and medium-term costing and budgeting for vaccines.
2. Robust quantification of vaccine requirements is essential for effective advocacy and resource mobilization for vaccines. This however, requires effective human resources capacity at each relevant level of decision making. MOH should urgently develop and sustain vaccines quantification capacity at national and district levels.
3. Internal capacity in vaccines budgeting within MOH is critical to ensure an effective annual and long-term budgeting processes are in place and reduce over-reliance on unsustainable donor budgeting capacity. It is essential therefore for MOH to develop and sustain capacity in vaccines budgeting including adapting forecasting and costing tools used by UNICEF. It is further important for Donors including UNICEF to support capacitating of key MOH Departments of Planning and Accounts so that they can be effective drivers of the budget process. These efforts should be consolidated through developing and enforcing standard operating procedures for vaccines costing and budgeting.
4. Ability to track vaccines payments is key to improving timeliness of funds transfer to suppliers, timely tracking of funds balances, and therefore effective management of the vaccines financing. It is therefore important develop capacity of accounts and planning staff as well as tools for immunization budget and expenditure tracking.
5. Effective decision making in vaccines financing requires robust reporting of budget and expenditure information. Without data, wrong decisions can be made, leading to sub-optimal use of available vaccines procurement financing. It is, therefore, important to develop and strengthen mechanisms for vaccines financing reporting;
6. The SMT has extensive capability for use as a platform for vaccines quantification, budgeting and expenditure tracking and reporting. To provide an upgrade of the budget tools already in place, this will require harmonization with UNICEF specific tools and digitizing the updated SMT through user-informed process that transforms it into a decentralized web-based management information system for vaccines. Alongside efforts to improve on the SMT, there will be need for awareness capacity for relevant officers at each level the SMT implementation.

Stakeholders

- MOH (Department of Planning and Policy Development), (MOH- Department of Finance), MOH (EPI), Ministry of Finance, RBM, Accountant General, National Local Government Finance Committee, and District Councils.

Supporters

- UNICEF

Advocacy for improving communication among vaccines financing stakeholders as it was noted in this study, ineffective communication and information sharing within MOH, and with Treasury and donors was found to negatively impact on vaccines budget process. This requires a two-pronged advocacy strategy. First, MOH will need to lobby donors to strengthen communication and real time strategic information sharing. For example, as seen in this study, some critical information that is managed by UNICEF was not readily available at the Ministry level to help with effective decision . Secondly, within Government, MOH will need a proactive approach to communication with Treasury regarding increasing allocations as well as removing ear-marking as above. Table 21 shows the issue, advocacy message and relevant stakeholders for improving communication related to vaccines financing.

Table 21: Advocacy for Improving Communication Among Vaccines Financing Stakeholders

Advocacy Issue:
• Weak communication among key immunization budget process actors within Government and with non-Governmental stakeholders
Advocacy Message :
• Lack of effective communication has already harmed prospects for growth in the vaccines procurement budget. It is important therefore to institute regular vaccines budget meetings across budget planning, execution and evaluation stages to improve decision making and eventually increase likelihood of addressing the financing gaps presently affecting vaccines procurements
Stakeholders:
• MOH (Department of Planning and Policy Development), (MOH- Department of Finance), MOH (EPI), Ministry of Finance, RBM, Accountant General, National Local Government Finance Committee, and District Councils
Stakeholders
• UNICEF

Advocacy for improving allocations through effective decentralization of the vaccines budget

For sustainability, continued allocation of supplies procurement budgets to EPI Programme can work to harm the prospects for further growth of the vaccines budget. This is because of the greater push for decentralizing the health budget following revitalization of Government wide decentralization reforms. As suggested in the solutions section, reflecting vaccines procurement budget at the district level could create awareness to district level decision makers and increase the numbers of stakeholders interested in closing the vaccines financing gap. Table 22 shows the advocacy issue and message for decentralizing the vaccines procurement budget to District Councils.

Table 22: Advocacy for optimally decentralizing the vaccines procurement budget to District Councils

Advocacy Issue:
• Under-decentralization of vaccines procurement budget which could lead to reduced funding as Treasury attempts to shift budgets to service delivery levels (e.g., present practice of allocating vaccines budgets to Central Hospitals for Vote 310)
Advocacy Message:
• MOH and partners should strengthen centrally coordinated procurement while also decentralizing the vaccines procurement budget to district level. With increasing push for decentralization, this will give assurances to MOF of MOH's commitment to push district level budgets to districts while guaranteeing sustained effectiveness of the supply chain system. To do this, it will require a strong collaboration with MOF and National Local Government Finance Committee on how such arrangements can be affected while allowing centrally coordinated procurements to remain uninterrupted.
Stakeholders:
• MOH (Department of Planning and Policy Development), (MOH- Department of Finance), MOH (EPI), Ministry of Finance, RBM, Accountant General, National Local Government Finance Committee, and District Councils.
Stakeholders
• UNICEF

Resource Mobilization Advocacy Framework for Nutrition Supplies Procurement

Overview

The approach taken for the vaccines cost-benefit analysis (CBA) was to quantify the impact of vaccines on mortality reduction. Mortality reduction is convenient to convert into monetary terms because of prior studies that have estimated the "value of a statistical life year" which is a pre-requisite for this purpose. So, there are conservative estimates because the effects of interventions on disease burden reduction were not taken into account; we did not find studies that have linked reduction in disease burden due to an intervention to monetary value. We used the Lives Saved Tool (LiST) for the vaccines CBA so that we did not delve into primary data collection. That would not have been feasible within this project.

Nutrition-commodity related interventions are treatment of moderate acute malnutrition (MAM), treatment of severe acute malnutrition (SAM) and complementary feeding. These work through reduction of wasting to reduction of mortality. So, a CBA of nutrition commodities would have to be restricted to these three interventions. Although LiST has cause specific mortality and additional lives saved by intervention by cause, the link between wasting and child mortality is not explicitly indicated, it is rather represented in terms of how it increases the relative risk of children dying from other conditions. This means a more direct CBA of treatment of MAM and SAM and complementary feeding needs to be conceptualised and executed mostly outside LiST although some LiST variables would be used. This would not be feasible within this study. We therefore present, in the next section, existing evidence on the cost-effectiveness of malnutrition interventions to be the basis of advocacy messaging.

Methodology

To demonstrate the value for money case for nutrition interventions, we use the Incremental Cost-Effectiveness Ratio (ICER). An ICER is a summary measure that represents the economic value of an intervention when compared with an alternative. It is calculated by dividing the difference in total costs (incremental cost) by the difference in the chosen measure of health outcome or effect (incremental effect) to provide a ratio of 'extra cost per extra unit of health effect'. It is calculated using the formula below:

$$ICER = \frac{Cost_{\text{New Strategy}} - Cost_{\text{Existing Practice}}}{Effect_{\text{New Strategy}} - Effect_{\text{Existing Practice}}}$$

If the "price" or ICER is less than an acceptable dollar amount threshold, the new strategy is considered "cost-effective" or a good value. The World Health Organization (WHO) recommends that an intervention be considered cost effective if its ICER falls within a threshold of 3 times a country's GDP per capita. Using this guidance, for Malawi, the 2019 threshold value would be approximately US$1235 per DALY averted. It has been shown that for poor countries such as Malawi, the WHO threshold is not an accurate reflection of the opportunity cost of health expenditures as it could lead to adoption of a broader package of interventions that cannot be accommodated within available budgets. Using a country specific study to inform the threshold for the Malawi Essential Health Package (EHP), the cost-effectiveness threshold of US$61 per DALY was recommended (Ochalek et.al., 2016)[9] and is currently used by MOH.

We searched literature on cost-effectiveness of nutrition interventions in Malawi and only found one relevant study. Using the ICER, a study by Wilford et al (2011) on the cost-effectiveness of CMAM in Dowa, Malawi estimated an ICER of US$42 per Disability Adjusted Life Year (DALY) averted[10]. Comparing with other regional studies, the Wilford study above reported similar results in Lusaka, Zambia, which found an ICER for CMAM of US$41 per DALY.[11] The ICER values are within the cost-effectiveness threshold of US$61 per DALY for the Malawi Essential Health Package suggested by Ochalek et.al (2016)[12]. This suggests that CMAM is highly cost effective across a wide range of cost-effectiveness threshold values.

High level resource mobilisation advocacy for nutrition supplies financing

This assessment established that no allocations have been made towards procurement of nutrition supplies the Ministry of Health. This, in additional to resulting is substantial gaps between quantified needs and procured commodities, raises serious sustainability concerns. While fiscal space challenges affect all programmes in MOH, the sustained zero budgets on nutrition supplies procurements further reflect serious deficiencies with nutrition supplies budget processes within the Department of Planning and Nutrition Unit of MOH. Addressing the bottlenecks in nutrition supplies financing will therefore require an effective issue-based advocacy strategy. The following sub-sections highlight key advocacy issues in and messages for addressing nutrition supplies financing gaps in Malawi.

Advocacy for Government budget allocations and financing capacity for nutrition supplies

Based on evidence on cost-effectiveness, policy makers in the health sector ought to urgently lobby decision makers in the Ministry of Finance to reintroduce annual budgets for nutrition supplies procurements. Since nutrition supplies quantification is undertaken alongside quantification of drugs, and the conversation with MoF could lobby for nutrition supplies to be budgeted for and financed in similar manner. In particular, the nutrition supplies budget should be reflected in the district allocation but its management could be informed by Public Financial Management concerns that have resulted in direct quarterly funding from Treasury to Central Medical Stores Trust.

Further, it was also noted that financing for nutrition supplies procurement is largely based on funding proposals that UNICEF makes to donors that commit to the planned shipment schedules. It is important to develop this active resource mobilization capacity within MoH to work hand in hand with the UNICEF nutrition supplies resource mobilization team. This will require developing capacity of relevant MOH departments to coordinate/undertake this resource mobilization function. Table 23 below highlights the issues and provides indicative advocacy messages for Government Budget allocations towards nutrition supplies.

9 Ochalek J, Revill P, Manthalu G, et al. Supporting the development of a health benefits package in Malawi BMJ Global Health 2018;3:e000607.

10 Wilford, R., Golden, K., and Walker, D. G. (2011). Cost Effectiveness of Community-Based Management of Acute Malnutrition (CMAM) in Malawi. www.ennonline.net/cmammalawicosteffectiveness

11 Woods B, Revill P, Sculpher M, Claxton K. Country-Level Cost-Effectiveness Thresholds: Initial Estimates and the Need for Further Research. Value Health. 2016;19(8):929-935. doi:10.1016/j.jval.2016.02.017

12 Ochalek J, Revill P, Manthalu G, et al. Supporting the development of a health benefits package in Malawi BMJ Global Health 2018;3:e000607.

Table 23: Advocacy for Government budget allocation and financing capacity for nutrition supplies

Issue:

1. Lack of budget allocation for nutrition supplies in the Ministry of Health budget.
2. Untimely release of funds by donors.
3. Weak standard operating procedures and tools for nutrition supplies quantification and costing.
4. Weak nutrition quantification capacity among Government staff at national and sub-national level.
5. Weak DPPD and Nutrition Unit in Nutrition capacity in Nutrition Supplies financing monitoring; Lack of linked procurement and nutrition supplies cashflow.
6. Diffusion of nutrition supplies procurement budget planning responsibilities across DPPD, DNHA, and Ministry of Health Nutrition Unit.

Advocacy messages:

1. Effective management and treatment of malnutrition with proven cost-effective interventions is critical for child survival and development. Over the past five years, nutrition supplies have been wholly financed by donors but substantial funding gaps exist. It is important for Government to show its commitment to reducing avoidable deaths of children through re-introducing and sustaining funding for nutrition supplies procurement in the health budget.
2. Donor financing remains a critical source of nutrition supplies financing. It is important therefore to develop and implement mechanisms for monitoring and increasing donor compliance to nutrition supplies financing commitment.
3. Presently, tools and standard operating procedures for nutrition supplies quantification and costing do not exist. To strengthen quantification and nutrition supplies budget process, it is important for Government and partners to develop and adhere to a coherent framework (MOU and Code of Conduct) for multi-year and annual quantification and budget processes for nutrition supplies.
4. Currently capacity in nutrition supplies budget process is primarily with UNICEF and other donors. Within Government, mechanisms for determining monthly nutrition supplies requirements from facilities are in place but are not linked with shipment planning in useful ways. It is therefore important for Government to develop capacity to manage critical steps and information related both shipments and link with supplies requests from facilities.
5. Government should develop and sustain capacity to manage donor nutrition supplies financing information within DPPD and the Nutrition Unit of MOH.
6. Lack of a budget line for nutrition supplies was largely attributed to lack of clarity of roles between key MOH DPPD and Planning Unit of DNHA especially as DPPD expected DNHA to have been in-charge while DNHA considered the role as fully falling within the mandate of health sector planners. As management of malnutrition is a health sector issue, nutrition supplies financing therefore should be coordinated at the health sector level by relevant units within DPPD.

Stakeholders:

- MOH - Department of Planning; MOH – Department of Clinical Services – Nutrition Unit; Department of Nutrition, HIV and AIDS; Ministry of Finance

Supporters:

- UNICEF, Other Funders

Advocacy for improving communication among stakeholders involved in nutrition supplies financing

Lack of Government allocation to nutrition supplies procurement was attributed to ineffective communication within MOH and between MOH and Treasury. This will require establishing effective communication channels among MOH players and with MoF. Table 24 highlights the advocacy issue and message for improving communication across stakeholders involved in nutrition supplies financing.

Table 24: Advocacy for improving communication among stakeholders involved in nutrition supplies financing

Issue:
• Weak communication between key government players responsible for nutrition supplies financing.
Advocacy message:
• Ineffective communication in nutrition supplies financing already contributed to zero allocations to nutrition supplies procurement over a five-year period without any of the key Government players taking effective responsibility. DPPD should therefore facilitate effective communication mechanism among key government players responsible for nutrition supplies financing including MOF,DPPD,DNHA and nutrition unit. This should include scheduled nutrition supplies budget meetings at the budget planning, execution, and evaluation stages.
Stakeholders:
• MOH - Department of Planning; MOH – Department of Clinical Services – Nutrition Unit; Department of Nutrition, HIV and AIDS; Ministry of Finance.
Supporters:
• UNICEF; Other Interested Funders

Advocacy for improving sustainability and monitoring of nutrition supplies financing

The health financing situation analysis showed that nutrition procurement is wholly donor financed. Notwithstanding sustainability concerns, given serious fiscal space constraints, MOH should lobby donors for additional nutrition supplies financing. Advocacy should therefore aim to establish and sustain co-financing arrangements akin to those for vaccines financing as well as creating Government capacity in nutrition supplies resource mobilization. Table 25 highlights the issue and advocacy message for sustainable nutrition supplies financing for Malawi.

Table 25: Advocacy for improving sustainability of nutrition supplies financing

Advocacy Issues:
1. Overdependency on donor financing for nutrition supplies. 2. Lack of an effective resource mobilization framework for nutrition supply chain.
Advocacy messages:
1. Presently nutrition supplies are financed by donors only. This is highly unsustainable and leads to unpredictability of funding and unreliable delivery of supplies at service deliver points. To facilitate progressive inclusion of and sustain the nutrition supplies budget, donors should negotiate with Treasury on co-financing arrangements. 2. Develop and execute a framework including the relevant capacity for short, medium and long-term domestic and external resource mobilization for nutrition supplies.
Stakeholders:
• MOH - Department of Planning; MOH – Department of Clinical Services – Nutrition Unit; Department of Nutrition, HIV and AIDS; Ministry of Finance.
Supporters:
• UNICEF, Other Funders

Advocacy for improving sustainability and monitoring of nutrition supplies financing

A key constraint in nutrition supplies financing is that critical information is managed outside of the Government systems and mechanisms for information sharing for decision making remain weak. Table 26 highlights the issue and the advocacy message for improved supply management tools.

Table 26: Advocacy for improved supply management tools for nutrition supplies

Issue:
• Lack of consolidated nutrition financing tracking tools
Advocacy messages:
• Develop web-based tools supply management tool for nutrition supplies
Stakeholders:
• MOH - Department of Planning; MOH – Department of Clinical Services – Nutrition Unit
Supporters:
• UNICEF

ANNEX 1: DISTRIBUTION OF NUTRITION SUPPLIES BUDGET BY FINANCING SOURCE IN MALAWI

Table 27: Distribution of Nutrition Supplies Budgets by Financing Source in Malawi

Item	Financing source type	Financing source	2016/17	2017/18	2018/19	2019/20
Drugs, Medical Supplies and Other Health Commodities	Bilateral /Multilateral	Germany	801,391	1,602,782	1,602,782	1,602,782
		Irish Aid	304,935	706,166	802,461	802,461
		UK	3,911,615	6,750,248	1,734,720	2,365,528
		UNICEF	6,886	25,134	25,840	27,682
		United States	2,497,586	2,497,586	-	-
		World Bank	2,400,000	2,400,000	-	-
		MoE	-	293,700	193,842	193,842
		MoH	-	41,702	51,462	60,715
		Children's Investment Fund Foundation (CIFF)	117,500	117,500	-	-
		Eva Demaya Foundation Netherlands	1,560	3,281	3,650	4,063
		Good Neighbors International	2,850	5,700	5,700	5,700
Drugs, Medical Supplies and Other Health Commodities Total			10,044,322	14,443,798	4,420,456	5,062,772
Procurement and Supply Chain Management		UNICEF	25,885	284,731	-	-
	Private Companies	NUSKIN	290,000	3,480,000	3,480,000	3,190,000
Procurement and Supply Chain Management Total			315,885	3,764,731	3,480,000	3,190,000
Grand Total			10,360,207	18,208,529	7,900,456	8,252,772

ANNEX 3A: SHORT-TERM AND LONG-TERM ACTION PLAN TO ADDRESS VACCINES AND NUTRITION SUPPLIES FINANCING BASED

Table 28: Short-Term Action Plan to Address Vaccines and Nutrition Supplies Financing Bottlenecks

Action Point	Responsibility	Timeframe
Secure Government commitment for MOH's participation in a catalyst DFID-UNICEF Nutrition Project that will catalyze co-financing of nutrition supplies using RTFF as a case study	DPPD, Nutrition Unit, DNHA and UNICEF	February to June 2021
Revise MOH Budget Planning templates to accommodate annual and mid-term immunization and nutrition costing and budgeting	DPPD, EPI, Nutrition Unit, and UNICEF	February to June 2021
Capacitate DPPD, EPI and Nutrition Units in quantification, costing and budget management for vaccines and nutrition supplies (TA Support)	UNICEF, DPP, WFP	Feb 2021
Finalize Quantification and Costing of Vaccines and nutrition supplies in time for the 2021/22 Budget	DPPD, Nutrition Unit, EPI	Feb 2021
Introduce a Budget Allocation for Nutrition Supplies Procurement	DPPD, Nutrition Unit	March 2021
Re-allocate unused and ear-marked drug budgets towards vaccines procurement (Finalize discussions with Treasury on extent and areas of ear-marking) in line with quantification and costing results	DPPD, EPI	March 2021
Conduct a bottleneck analysis and implement a programme to reduce vaccine wastage at the service delivery levels as well as address supply chain system inefficiencies	EPI and DPPD	July 2021 to June 2022
Establish Taskforce and convene meetings to evaluate supply financing options for nutrition and immunization	DPPD, Nutrition Unit, UNICEF and EPI	March to September 2021

Table 29: Medium to Long-Term Action Plan to Address Vaccines and Nutrition Supplies Financing Bottlenecks

Supply Solution (Consolidated)	Actions to be undertaken	Responsibility	Timeframe
Strengthen Government's adherence to vaccines and nutrition supplies funding obligations including co-financing agreements	Sustain allocations towards vaccines and nutrition supplies in line with quantification results and co-financing arrangements for new and under-used vaccines	DPPD, EPI and Nutrition Unit, NLFC, UNICEF, WFP, GAVI	January to June 2021
	Develop a catalyst DFID-UNICEF Nutrition Project that will catalyze co-financing of nutrition supplies using RTFF as a case study	DPPD, Nutrition Unit, Treasury, DNHA, UNICEF and WFP	April 2021 to December 2021
Develop and implement a vaccines and nutrition budget devolution plan with effective mechanisms for pooling funds for bulk procurement	Undertake district specific quantification and costing of vaccines and nutrition supplies	DPPD, Nutrition Unit, DNHA, UNICEF, GAVI, and WFP	February 2021 to December 2021
	Develop and implement procedures for budgeting of vaccines and nutrition supplies at the District Council level	DPPD, Nutrition Unit, DNHA, UNICEF, GAVI, and WFP	Medium Term
	Develop and implement mechanisms for the National Vaccine Store akin to how funds are transferred from treasury to the Central Medical Stores	DPPD, Nutrition Unit, DNHA, UNICEF, GAVI, and WFP	Medium to long term
	Train district councils in vaccines quantification, costing and budget management	DPPD, LGFC and UNICEF	Medium Term
Build vaccine budget planning, execution and resource mobilization capacity for vaccines and nutrition supplies in Health Financing Unit within DPPD	Provide TA to Planning Department to develop vaccines and nutrition financing capacity within DPPD	UNICEF	Medium Term
	Train DPPD and Accounts Department staff in vaccines and nutrition cashflow preparation	UNICEF, DPPD	Medium Term
	Assign and capacitate desk Officers in MoH Department of Finance and DPPD to monitor vaccines and nutrition cash-flow management and adherence	DPPD, UNICEF	Medium Term
Create awareness for responsible officers in MoH accounts and Reserve Bank on the importance of vaccines and need for timely disbursements	Conduct awareness meetings with MOF and RBM staff involved in vaccines	DPPD, UNICEF	Medium Term

Supply Solution (Consolidated)	Actions to be undertaken	Responsibility	Timeframe
Strengthen communication between EPI Program, DPPD and MOH Accounts Department	Conduct quarterly budget planning and review meetings for vaccines and nutrition supplies financing and pipeline monitoring	DPPD, EPI and Nutrition Unit, NLFC, UNICEF, WFP, GAVI	Medium Term to Long-term
Develop and implement supply chain systems strengthening programme that aims to reduce wastage of vaccines at service delivery level to create fiscal space from efficiency savings	Conduct workshop and follows ups on awareness of vaccines wastage programme and service delivery staff	DPPD, EPI and Nutrition Unit, NLFC, UNICEF, WFP, GAVI	Short, medium to long-term
	Develop and implement a supply chain system strengthening programme for addressing root causes of vaccines wastage rates	DPPD, EPI and Nutrition Unit, NLFC, UNICEF, WFP, GAVI	Medium to long-term
Strengthen DPPD's capacity to track vaccines procurement financing across the budget execution stages	Training DPPD staff in tools for vaccines and nutrition supplies financing	DPPD, EPI and Nutrition Unit, NLFC, UNICEF, WFP, GAVI	Short to Medium term
Enhance quantification, costing, budgeting and supplies financing monitoring and evaluation capabilities of MOH in line with multi-stakeholder requirements	Engage consultant to review and update the costing, budgeting, and monitoring and evaluation tools for vaccines and nutrition supplies	DPPD, EPI and Nutrition Unit, NLFC, UNICEF, WFP, GAVI	Short to Medium

ANNEX 3B: CAPACITY BUILDING ACTIVITIES AND PLAN TO ADDRESS VACCINES AND NUTRITION SUPPLIES FINANCING BASED

In the course of this consultancy, the consultant performed the following capacity building activities:

1. Hands-on training / coaching to EPI and DPPD Staff in the preparation of the vaccine multi-year forecasting and budget, conducted in January 2021;
    - Training results à EPI and MOH staff capacity increased as evidenced by the 2021-2025 forecast and budget for vaccine procurement that was developed during this consultancy.

Given that currently there are no comprehensive vaccine forecasting and budgeting tools in place, it was agreed that the next stage of support will include:

1. Development of relevant tools and methodologies;
2. Training of MoH / EPI staff in the tools use (activity linked / dependant on the completion of the above activity 1).

The above action points are included in the Action Plan reflected in "Annex 3A: Short-Term and Long-Term Action Plan to address Vaccines and Nutrition Supplies Financing Based", additionally the details of the proposed capacity building activity are reflected in the below table 30.

Table 30: Joint Vaccines and Nutrition Supplies Financing Capacity Building Plan

Supply Solution	Activity Requiring Capacity Building	Target Audience	Requirements
Build vaccine budget planning, execution and resource mobilization capacity for vaccines and nutrition supplies in Health Financing Unit within DPPD	Train MOH teams in tools and methodology for vaccines and nutrition supplies quantification, costing, and budgeting and budget monitoring	• DPPD Economists • Staff from MOH Accounts Department • Staff in the Nutrition Unit • Staff in EPI • Staff in the Pharmaceuticals Department • Staff in the DNHA, MoF Budget Officer • Nutrition Coordinators at the District level	• DPPD Leadership and Facilitation • UNICEF facilitation
	Developing MOH capacity in vaccines and nutrition resource mobilization	Vaccines and Nutrition Supplies stakeholder Long-term Technical Assistant embedded within DPPD	• DPPD Leadership • UNICEF facilitation

ANNEX 4: PROPOSED REVISION/IMPROVEMENTS OF TOOLS FOR VACCINES BUDGET PROCESS IN MALAWI

A4.1: Introduction

There are several tools that exist for various purposes from vaccine budget process. Potential revision of these tools should:

1. consider what decisions the different actors in budget process need to make and what information will be useful for that purpose;
2. consider developments in digital health that may streamline or replace current tools;
3. Consist of an efficient chronology of actions that has Government at the centre - Government centric processes may entail capacity building for functions that may not currently be in Government hands.

A4.2: Available Tools Vaccines Budget Process Tools

The Table 31 below highlights the budget process, key variables, current stakeholders, the available tool, observed issues around the tool and suggested improvement. As seen in the table, there are presently no Government owned tools and this issue has been raised in the action plan and capacity building.

Table 31: Available Vaccine Budget Process Tools for Malawi

Chronology	Activity	Key variables	Current stakeholders	Current tools	Issues	Questions/ Suggestions
1	Quantification of need	• Population in need • Wastage rates	• EPI • UNICEF • Districts • Pharmaceuticals • DPPD	• SMT	• SMTs are offline • No linkage of tools across levels facility, district, regional and national vaccine stores • Poor Quantification at district levels	• Tools need to be connected through an online platform; • Medium Term - create SMT module in existing or forthcoming digital tools such as the DHIS2, OpenLMIS, integrated community health information system?[13]
2	Determination of quantities to be procured	• Quantification results • Vaccine stock balances	• UNICEF • EPI • DPPD	• UNICEF's Immunization Forecast Template & Instructions	• Weak incentives to use tool • Weak capacity	• Digitize supply management at all l levels
3	Estimation of budget requirement	• Approved Forecast Result • Unit Prices	• UNICEF • EP	• UNICEF's Provisional Plan	• Extensive reliance on UNICEF specific planning quantification and costing tools	• Capacitate DPPD to conduct the budget estimation process • Review MOH Budget templates to support antigen specific costing; if need be, a forecasting and budgeting tool should be developed, along with the written methodology/manual

13 The integrated community health information system (iCHIS) situation assessment report (17 Dec 2019) states from Page 31 "Field visits and consultative meetings found issues with data quality, arising in part from data duplication. Districts often use multiple data sources or registers to collect the same data; for example, Expanded Program on Immunization (EPI) data capture uses both the District Vaccine Data Management Tool (DVDMT) and DHIS2. The EPI Coordinator uses DVDMT, an offline tool, to capture immunization coverage, while the HMIS officer captures the same report in DHIS2. Though DVDMT is preferred to DHIS2 because it doesn't rely on internet connectivity, DVDMT must be emailed to actors at the national level once completed, which then requires manual data handling to further aggregate it. DHIS 2 data, by contrast, is synchronized automatically. In addition, DVDMT holds more data, but DHIS-2 has been adopted nationally and is also being used for other reporting areas. Maintaining both tools at the district level creates confusion and data discrepancies".

A4.3: Proposed Revision of Nutrition Budget Process Tools

Table 32 below shows Budget process, key variables, stakeholders, current tool, issues and questions/suggestions for based on the nutrition budget process mapping. As with vaccines, there are presently no Government owned tools that are used for costing and budgeting of nutrition supplies. This has been raised in the action plan and capacity building plan.

Table 32: Available Nutrition Supplies Budget Process Tools for Malawi and Suggested Improvement

Chronology	Activity	Key variables	Key stakeholders	Current tools	Issues	Suggestions
1	Quantification	• Population • HIV prevalence • SAM & MAM rates	• Nutrition Unit in MoH Clinical Directorate • UNICEF • World Food Program (WFP) • Health Technical Support Services-Pharmaceuticals (HTSS-P) • Others Donors e.g., Irish Aid, USAID, and DFID	UNICEF's Worksheet in Nutrition Quantification (Custom Excel template)	• UNICEF led process • Lack of capacity in Government (Govt only involved in oversight)	• Digitize and link with costing and budgeting
2	Determination of quantities to be procured	• Quantification, results, stock balances	• Nutrition Unit in MoH Clinical Directorate • UNICEF • World Food Program (WFP) • Health Technical Support Services-Pharmaceuticals (HTSS-P) • Others Donors e.g., Irish Aid, USAID, and DFID	• UNICEF's Worksheet in Nutrition Quantification	Procurement for different demographic groups done by different entities	• Institutionalize (and if need be – revise / adjust) tools and develop capacity within MOH Nutrition Unit. • Explore potential linkage to OpenLMIS and the integrated Community Health Information System currently approved for development[14]
3	Estimation of budget requirement		• UNICEF • Nutrition Unit	UNICEF's Worksheet in Nutrition Quantification	Process not led by Government	Develop costing and budgeting tools and capacity with DPPD and MOH Nutrition

14 Forthcoming iCHIS will have a Nutrition module and since most nutrition treatment is community based, inputting in the design of the iCHIS tool will be critical.

Table 33: Brief Information for Files Submitted Electronically

File Name	Commodity	Source	Remarks
Immunization Supply Chain Report Forms.xlsx	Vaccines	EPI	This is a paper-based reporting form used by facilities each month and captures product vaccines movement information including Product, Stock at the beginning of the month, Pieces received during the month, Pieces used, Balance at the end of the month, Pieces wasted during the month, Pieces discarded during the month, Reasons for discarding / loss, Days of Stock Out During Month, Reasons for Stock Out, Earliest Expiry date, Quantity. This information is reported to the District Vaccine Store where it is entered into the SMT. Long-term, this should be digitized as part of a DHIS2/Integrated Community Health Information System.
Malawi - Provisional Plan - 2020.xlsx	Vaccines	UNICEF	This 2020 Provisional Plan for Vaccines covers only non-GAVI-funded forecasts and includes planned deliveries, cashflow, Inner and Shipment Carton Measures, and Vaccine weight and volume requirements.
Malawi Immunization Forecast 2020 Template and Instructions - English.xlsx	Vaccines	UNICEF	This is the 2020 UNICEF specific template used for forecasting products such as vaccines, syringes, safety boxes, and deworming tablets covering the period 2020-2024. The estimated quantities are used to inform the budget estimates in the provisional plan above.
PROCUREMENT STATUS FOR 2020 ANTIGENS.xlsx	Vaccines	UNICEF	This file is prepared by UNICEF country team to track status of procurement. Ultimate goal is to provide an indication of difference between forecast and actual procurement. Its limitation is that it does not have budget and cost information. While a critical piece of information for monitoring, it has to be computed manually and thus cannot inform real time decisions.
SMT_ Malawi_2020 August.zip	Vaccines	UNICEF	This is 2020 the Supply Management Tool for Malawi. It is developed by WHO for use at the National, Regional and District Vaccine Stores to determine vaccines needs, forecast, and track arrivals, issues and stock status among key variables. It contains average prices that were said to be outdated for purposes of developing a budget forecast but this was attributed to limited utilization of the tool at all levels. Moving into long-term, this should inform digitalization of supply management information but will require assessment of the technical requirements as well a potential interoperability with other digital platforms such as the DHIS 2. As used in this assessment, the future SMT could be a mirror of the present SMT simply digitized for real time evidence and decision making.

File Name	Commodity	Source	Remarks
2018 CONSOLIDATED NUTRITION SUPPLIES DP MARCH.xlsx	Nutrition Supplies	Nutrition Unit, MOH	This file is a 2018 excel based consolidation of monthly distribution of nutrition supplies to each facility by distributor (CMST or Ballore). Presently it does not inform the budget but could inform dashboards for monitoring facility specific demand for nutrition supplies.
2019 Distribution Plans.zip	Nutrition Supplies	Nutrition Unit, MOH	Contains 2019 files of product specific distribution plans developed by Nutrition Unit. Presently it does not inform the budget but could inform dashboards for monitoring facility specific demand for nutrition supplies.
2020 DISTRIBUTION PLANS.zip	Nutrition Supplies	Nutrition Unit, MOH	Contains 2020 files of product specific distribution plans developed by Nutrition Unit. Presently it does not inform the budget but could inform dashboards for monitoring facility specific demand for nutrition supplies.
Distribution Plans Jan-Dec 2017.xlsx	Nutrition Supplies	Nutrition Unit, MOH	Contains 2017 files of product specific distribution plans developed by Nutrition Unit. Presently it does not inform the budget but could inform dashboards for monitoring facility specific demand for nutrition supplies.
Copy of Worksheet in Nutrition Quantification_ Edited _02_2019_ FINAL DRAFT_.xlsx	Nutrition Supplies	UNICEF	This is file for final quantification result for nutrition supplies. It is based on a multi-stakeholder process
FASP Nutrition Guide-v3 (002).docx	Nutrition Supplies	UNICEF	This is draft SOP (guide line) for quantification of nutrition developed by Nutrition stakeholders to guide the quantification process

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