Sciences For Prosperity

UGANDA NATIONAL ACADEMY OF SCIENCES

Improving Vaccine and Immunisation Coverage in Uganda

First Policy Brief Second Edition

Advisory Committee on Vaccines and Immunisation

This revised policy brief aims to act as a guide for general understanding of the immunisation programme in Uganda, to highlight the current achievements, challenges and changes within the programme, promote informed policy and decision making, and to guide implementation and advocacy.

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UGANDA NATIONAL ACADEMY OF SCIENCES

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This report was reviewed in draft form by independent reviewers chosen for their diverse perspectives and technical expertise, in accordance with procedures approved by the Uganda National Academy of Sciences (UNAS) Council. The purpose of this independent review is to provide frank and expert criticisms, to enable the authors improve the accuracy and quality of the Policy Brief. The review comments and draft manuscript remain confidential to protect the integrity of the deliberative process.

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PREFACE

The Advisory Committee on Vaccines and Immunisation (ACVI) was formed in July 2012, after the Uganda National Academy of Sciences together with the Ministry of Health recognised the need for evidence based advice to guide the country's vaccines and immunisation programme; which was on a declining trend. A 12 person non-partisan experts committee was constituted with three main objectives:

i. Policy Guidance: Provide the Ministry of Health with apolitical policy advice based on credible scientific evidence.

ii. Context specific prioritisation: Provide the Ministry of Health with recommendations on vaccine priorities, including new and under-used vaccines.

iii. Forward thinking: track the progress of vaccines and immunisation practice in Uganda and internationally, to better advice on planning for Uganda's future needs.

After its inception, the committee's priority was to get a comprehensive understanding of the vaccine and immunisation landscape in Uganda, specifically looking at aspects of coverage, governance and financing. This knowledge would provide the basic platform from which evidence could be generated to guide the future of the vaccines and immunisation programme, equip the civil society with the right information necessary for strategic lobbying, and inform decision makers based on the lessons learned and gaps identified, from which better policies could be crafted by policy makers. The outcome of this in-depth study was the Committee's *First Policy Brief* in January 2013.

This revised edition of the *First Policy Brief* comes after the vaccine and immunisation programme has undergone a series of changes: a two-year UNEPI revitalisation programme has been completed, two new vaccines have been added to the routine immunisation programme, and more are in the pipeline, the immunisation procurement and distribution roles have been moved from UNEPI to NMS, the governance system within the Ministry of Health has been restructured, and the Immunisation Policy has been approved by Cabinet and signed by the Minister for Health. It was, therefore, imperative that the first version be revised to provide more up to date information.

The role of scientific evidence in guiding immunisation policy decisions is also gaining pre-eminence, both internationally and locally. The Advisory Committee on Vaccines and Immunisation, at the time of this publication, has just been formally endorsed by the Ministry of Health as the official National Immunisation Technical Advisory Group for Uganda.

It is the Committee's sincere hope that all immunisation stakeholders find this revised edition of the First Policy Brief – a powerful and additive tool to use in the joint efforts to improve the performance of Uganda's immunisation programme.

Nelson Sewankambo
Chair, ACVI
President, UNAS

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LIST OF ACCRONYMS

ACVI	Advisory Committee on Vaccines and Immunisation
ASADI	African Science Academy Development Initiative
CMYP	country Multi Year Plan
GAVI	Global Alliance for Vaccines and Immunisation
GoU	Government of Uganda
GVAP	Global Vaccine Action Plan
HC	Health Centre
HMIS	Health Management Information System
HSD	Health Sub District
MDG	Millennium Development Goals
MoH	Ministry of Health
NMS	National Medical Stores
UNAS	Uganda National Academy of Sciences
UNEPI	Uganda National Expanded Programme on Immunisation
UNICEF	United Nations Children's Fund
WHO	World Health Organisation

EXECUTIVE SUMMARY

The Uganda National Academy of Sciences (UNAS) exists to promote the growth, acquisition and effective dissemination of scientific knowledge, and to facilitate the use of science in the solution of problems of national interest. The Advisory Committee on Vaccines and Immunisation (ACVI) is an independent body of mostly Ugandan experts across all aspects of immunisation, set up in June 2012 under the auspices of UNAS, with the specific aim of using science to inform the immunisation programme in Uganda.

Immunisation is one of the most powerful and cost effective health interventions, and is a pivotal driving force behind efforts to meet the Millennium Development Goal (MDG) 4 - reduce by two-thirds, between 1990 and 2015, the under-five mortality rate. Apart from saving lives; vaccination can greatly reduce the burden of illness and disability from vaccine-preventable diseases, and contribute to improving child health and welfare, as well as reducing hospitalisation costs.

The purpose of this revised policy brief is to act as a guide for general understanding of the immunisation programme in Uganda; to highlight the current achievements, challenges and changes within the programme, promote informed policy and decision making, and guide implementation and advocacy.

The drafting of this policy brief involved a literature review about the country's health systems and immunisation programme. The information was subjected to critical analysis by a multi-disciplinary group of experts to come to reach consensus. The outcome informed the discusions, conclusions and recomendations presented here.

- The immunisation programme in Uganda is **a growing and dynamic programme**, encampasing many complex challenges including: financing, population growth, manangement of human resource and vaccine logistics, changing variety of vaccines, and policy issues. Therefore, **the programme requires a consistent high level of management and coordination** in order to deliver an effective and quality service.

- Immunisation coverage performance in Uganda has been **varied** in the recent past. Rouine Immunisation **coverage indicators** improved betwen 2000 and 2006 with DPT3 coverage growing from 46 percent to 85 percent. However, from 2002-2012 there was detorioration with coverage dropping below 80 percent. However, **intervention measures put in to place have seen recent improvements** administrative data from the Health Management Information System reporting DPT3 coverage at 97 percent in 2013.
  There is **need to sustain the momentum to attain and maintain coverage** of all routine vaccines above 80 percent, as recommneded by the Global Vaccine Action Plan (GVAP).

- Whereas there is an established hierachy of committees and technical working groups within MoH that offer technical and coordination guidance to the immunisation programme, there are no **clearly defined guidelines for the decision taking process**. Decisions made without scientific evidence and stakeholder engagement, promote lack of clarity, staff disenfranchisement and destabilisation of the immunisation programme. For example, there is no clear framework to guide on the choice of new vaccines introduction, nor guidelines to follow when changing the Uganda National Expanded Programme on Immunisation (UNEPI) roles, as was the case with NMS taking over vaccine procurement and distribution. The decision making process should be streamlined with clear, adhered to guidelines, including stakeholder engagement, and backed by strong scientific evidence. The key state institutions- The Ministyr of Health (MoH), Ministry of Finance, Planning and Economic Development (MoFPED), The Parliament of Uganda, civil society, district governments and local councils, must all act in concert to set immunisation policies, monitor programme and budget performance and keep the public informed. This same kind of collaboration is needed on the programme delivery side.

- **Accurate data** is pivotal to evidence based decision making. However, the recent Data Quality Surveys show that there are inaccuracies in the figures reported for immunisation coverage. Administrative data from the Health Management Information System (HMIS) was reported to have a number of limitations and quality problems, such as missing values, bias and computation errors. Financial data gaps were also identified in the WHO/UNICEF Joint Reporting Forms. Data collection and recording methods need to be harmonised, the staff trained and regularly supervised, and the required tools provided. Accurate data, where avaialable, should be used to inform management decisions.

- Routine immunisation is a "best buy" for Uganda's overall socio-economic development. The economics make government investment in immunisation cost-effective if not cost-saving. **Immunisation financing**, both from the Government of Uganda (which is the major contributor because of its expenditure on salaried labour for immunisation services) and its partners, has increased over the years in absolute terms. Excluding salaried labour, GAVI contributed 40 percent of immnisation financing in 2012/13. However**, analysis of government expenditure on Routine Immunisation per surviving infant** indicates **deminishing trends** when compared to the Gross National Income and populaion growth trends. Gaps were also observed in Uganda's **immunisation financial reporting** (JRF 2010-2013), vital information without which, justification for increased government funding will be hard to articulate.

Given the data we know, Uganda's economic growth will enable the country to be spending on the order of US$70 per fully immunized child by the year 2020 without taking resources from other important health programmes. This will take political will. Sttrategies should be drawn up to reduce reliance on external financing and promote greater country ownership of the immunisation programme. Immunisation financing information should be accurately recorded and trends analyzed to facilitate **accurate forecasting** and justify increased funding requests to the Governent and partners.

- The rapid increase in number of distiricts in the country greatly stretched the **capacity of the health system** in general, including UNEPI's human resource and cold chain capacities especially at the new districts. Whereas Ministry of Health is working to enroll more **health wokers**, **shortages** still exist within the immunisation programme especially in the area of Cold Chain Management. Currently, the National Medical Stores (NMS) delivers vaccines from the Central Vaccine Store to the District Vaccine Store. The districts are then responsible for onward delivery to the health centres; the effectivenss of which is highly reliant on the capacities within each district, many of which are still weak. It is, therefore, recommended that the staff enrollment programme in the Ministry of Health (MoH) should continue untill all gaps have been filled, and immunisation staff should be given regular hands on refresher training courses. Special consideration should be given to training in specific skills e.g. cold chain mainenance under the health sysem strengthening budget. Innovative mechanisms to effectivly deliver vaccines to the lowest level health centres should be developed. Immunisation providers need new/creative incentives to perform.

1. INTRODUCTION

The Uganda National Academy of Sciences (UNAS) is an honorific membership organisation set up in 2000 and granted a Presidential Charter in 2009. It exists to promote the growth, acquisition and dissemination of scientific knowledge, and to facilitate the use of science in the solution of problems of national interest.

The Advisory Committee on Vaccines and Immunisation (ACVI) is an independent body of mostly Ugandan experts across all aspects of immunisation, set up in June 2012 under the auspices of UNAS, with the specific aim of using science to improve the immunisation programme in Uganda. ACVI offers evidence based policy advice to the Ministry of Health, Uganda National Expanded Programme on Immunisation (UNEPI), its partners, and the Ugandan society.

The aims of this revised Policy Brief are to:

- act as a guide for general understanding of the immunisation programme in Uganda;
- highlight the current achievements, challenges and changes within the immunisation programme;
- promote informed policy and decision making, and hence guide implementation and advocacy.

The drafting of this revised Policy Brief inolved collecting relevant data that already existed about the country's health systems and immunisation programme. The information was subjected to critical analysis by a multi-disciplinary group of experts to come to a consensus. The outcome informed our discusions, conclusions and recommendations

The key documents consulted are listed under the References section at the end of this document.

2. BACKGROUND ON UGANDA'S IMMUNISATION PROGRAMME

Child Health is one of the four priority areas in Uganda's Health Sector Strategic Investment Plan (HSSIP) III (2010/11-2014015)[1]. This focus area was selected to facilitate Uganda's achievement of its Millennium Development Goal (MDG) 4 target, of reducing under five mortality to 56 deaths per 1000 live births. Immunisation is listed as one of the priority recommended child health interventions[2]. Apart from saving lives; vaccination can also greatly reduce the burden of illness and disability from vaccine-preventable diseases, and contribute to improving child health and welfare, as well as reducing hospitalisation costs[2]. Consequently, immunisation is one of the most funded and most demanded for health programmes in Uganda[3].

2.1 THE UGANDA NATIONAL EXPANDED PROGRAMME ON IMMUNISATION (UNEPI)

Uganda established a comprehensive Uganda National Expanded Programme on Immunisation between 1962 and 1970; achieving high routine immunisation coverage of infants especially for poliomyelitis and BCG. The country became one of the first in Africa to be certified for smallpox eradication in the early 1970s. However, due to political and civil unrest in late 1970s and 80s, immunisation coverage dramatically dropped. As a response, in 1983, UNEPI was re-launched to ensure full immunisation of infants and women of child-bearing age.

2.1.1 UNEPI MANAGEMENT SYSTEM:

Historically, the management of immunisation services in Uganda can be categorized into four subsystems, namely: immunisation management, vaccines management, healthcare service, and community subsystems. Historically, UNEPI's mandate consisted of five components; namely: vaccine supply and quality, logistics, advocacy and communication, service delivery, and surveillance for action.

Figure 1: Five operational components of immunisation systems. Source: UNEPI (2007). Immunisation Practice in Uganda. A manual for operation level health workers.

Immunisation management subsystem: The immunisation management subsystem develops policy and standards in addition to management and monitoring of immunisation services at the national level. UNEPI is charged with this responsibility.

According to the Uganda EPI Multi-Year Plan 2012-2016[3], the UNEPI functional organisational structure (Figure 2) was constructed to facilitate coordinated functions in the immunisation programme, supervised by the Assistant Commissioner for Disease Control in the Ministry of Health, through a vertical structure. The programme underwent management reforms in 2013, which aimed to integrate UNEPI into the Ministry of Health, as discussed under the revitalisation programme outlined in section 2.3.

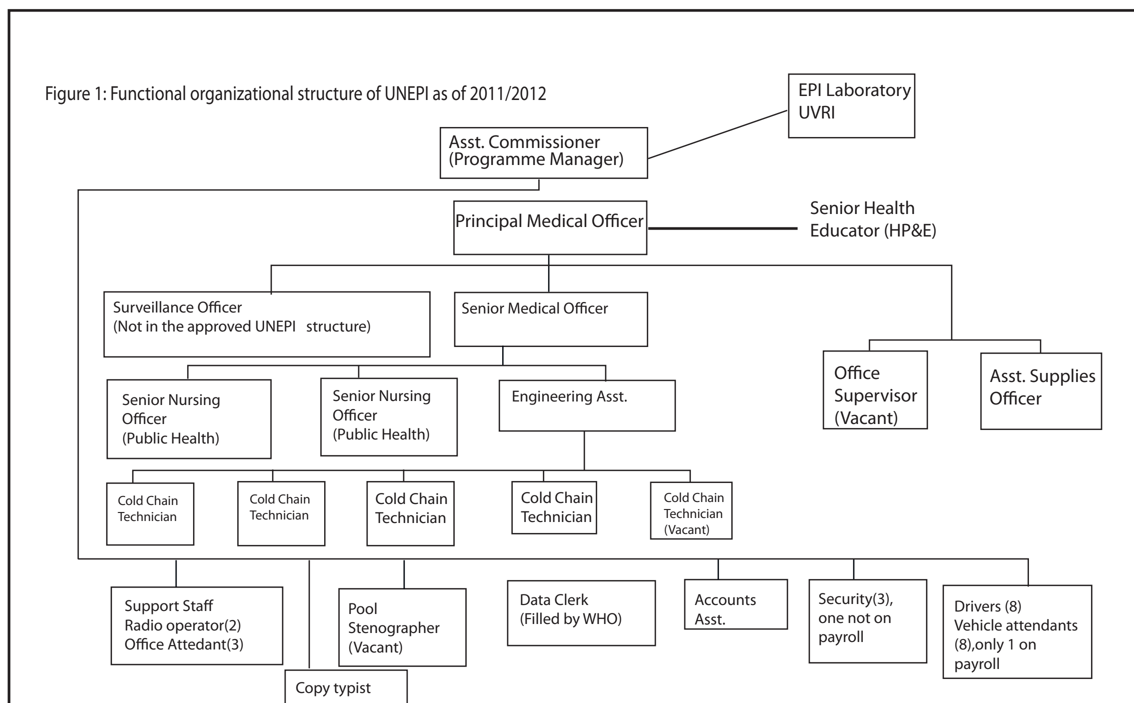


Figure 2: Functional Organisational structure of UNEPI as of FY 2011/2012

Source: Uganda EPI Multi-Year Plan 2012-2016

Role of Partners in Immunisation Management

Partnership is considered a very critical aspect in the immunisation management sub system. Omaswa and Bouffard (2010)[4] strongly recommended the productive engagement of a diverse range of partners if the Ministries of Health are to successfully build strong health systems.[7] The management of immunisation services in Uganda brings on board different structures and stakeholders coordinated through the MoH, as summarised in Table 1, outlining their various roles.

Table 1: Key Immunisation Partners and their Roles:

Partner	Role
Ministry of Finance, Planning and Economic Development (MoPED)	Funding for routine immunisation vaccines and Health System Strengthening through Primary Health Care
National Medical Stores (NMS)	Vaccine storage and transportation
United Nations Children's Fund (UNICEF)	Vaccine and vaccine safety equipment purchase Communication and Immunisation Advocacy
World Health Organisation (WHO)	Monitoring, evaluation and operational research. Training facilitation for immunisation personnel; support for new vaccine introduction and accelerated disease control including polio eradication
Global Alliance for Vaccines and Immunisation (GAVI)	Grant funding for introduction of new vaccines and health systems strengthening
Uganda Bureau of Statistics (UBOS)	Population data collection and analysis
Programme for Appropriate Technology in Health (PATH)	Training facilitation for immunisation personnel Support to new vaccine introduction e.g. HPV
Malaria and Childhood Illnesses NGO Network Secretariat (MACIS)	Civil Society Advocacy and Behaviour Change Communication
Uganda Paediatric Association (UPA)	Technical guidance
Uganda Red Cross Society	Immunisation, training and behaviour change communication
United States Agency for International Development (USAID)	Through the MCHIP programme in selected districts
Clinton Health Access Initiative (CHAI)	Research and analysis of data
SABIN Vaccine Institute	Sustainable Immunisation Financing advocacy
Japan International Cooperation Agency (JICA)	Financing and training for strengthening cold chain capacity
Ministry of Education and Sports (MoES)	Coordination of Immunisation of in school children for example TT
Uganda Medical Journalists Association (UMJA)	Immunisation publicity and advocacy
The Parliament of Uganda (POU)	Immunisation policy makers, budget approval and monitoring

The committee observes:

The involvement of immunisation partners in the immunisation programme is highly commendable. This is implemented through partner participation on the various Ministry of Health Committees (Table 2). The same public inter-institutional collaboration on national level should be replicated on district level. The public institutions need to coordinate, share data, jointly account to the public on UNEPI operations and value-for-money.

Strategies to involve more Ugandan based partners like the Uganda Manufacturers Association, and other members of the Ugandan private sector should also be explored.

The Government and Partnership Coordination within immunisation management subsystem are synchronised through various Ministry of Health committees/technical working groups as outlined in Table 2.

Table 2: Ministry of Health Committees

Structure	Role	Chair	Membership
Top Management Committee	- Strategic policy direction	Cabinet (Minister for Health)	- Ministers for Health (Cabinet and State Ministers) - Permanent Secretary (PS) - Director-General of Health Services (DG) - Heads of Directorates
Health Policy Advisory Committee (HPAC)	- Operational policy direction	Permanent Secretary	- Health Development Partners (HDPs) - Civil Society Organisations (CSOs) - Private partners - Heads of Directorates National Medical Stores (NMS) - Ministry of Finance, Planning and Economic Development - Ministry of Education and Sports - Ministry of Public Service - Ministry of Health
Senior Management Committee	- Technical direction	Director-General of Health Services	- Heads of Departments in the Ministry of Health - Commissioners in the Ministry of Health
National Coordination Committee (NCC)	- Coordination direction	Director-General of Health Services	- Adhoc consultative committee (not structural) - Technical officers - Health Development partners (WHO, UNICEF, SABIN, JICA)
EPI Technical Committee	- Technical direction	EPI manager	- UNEPI technical officers - Civil Society Organisations (CSOs) - Health Development partners - Academia - Private sector partners

Source: Health Sector Strategic Investment Plan 2010/11 – 2014/15

Vaccine Management Sub-system: The vaccines management subsystem delivers vaccines to the healthcare service subsystem at the district level. UNEPI was in charge of purchasing and distributing vaccines in Uganda. This role was transfered to the National Medical Stores in April, 2012.[7]

The District Health Officers requisition for vaccines based on population estimates of their catchment areas as provided by UBOS. UNEPI compiles the vaccine needs projection and forwards it to UNICEF, which is charged with procurement of vaccines and injection safety supplies. UNICEF then delivers the vaccines to the NMS Central

Vaccine Store. NMS transports vaccines to districts once every month to District Vaccine Stores[6]. Following the National Health System (Figure 3), districts are expected to ensure that vaccines are transported to Health Centre IVs which are the headquarters of the Health Sub-Districts (HSDs). An HSD usually includes about 10-20 lower level health facilities. HSDs are responsible for transferring vaccines to HC IIIs where the sub-county vaccine store is located. Each HSD has three to four HCIIIs which is the lowest level at which a vaccine fridge is located as per policy. Because individual districts have varying capacities and resources, many face challenges in moving the vaccines from the HC III to the lower level HC II and HC 1. Thus although vaccine distribution to districts is mainstreamed, the last mile distribution is not.

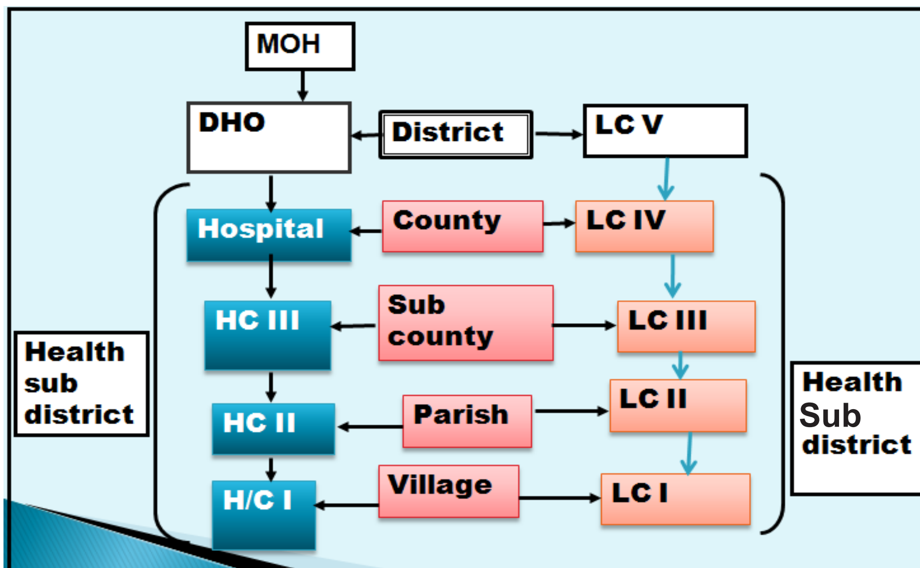


Figure 3: Structure of the Uganda National Health System. Source MoH country Multi Year Plan 2013

One very important area in vaccine management is minimisation of vaccine wastage at both the distribution stages and the utilisation stage. The Vaccine and Injection Materials Control Book is used for stock control at all levels, and the information recorded therein is used to calculate vaccine wastage. Vaccine wastage monitoring data for DPT-HepB+Hib is now reported through the revised HMIS but it is not being fully utilised at district and central levels for devising new ways to minimise wastage.[6]

Healthcare Services Sub-system: Management in the districts disseminates UNEPI policy and standards, ensures maintenance of the cold chain, pays allowances to outreach personnel, conducts support supervision, disease surveillance, receives and analyses EPI data and gives feedback to UNEPI. Management of the health facility delivers routine services to consumers at the health facility or during outreach activities; manages health workers, vaccines and equipment; provides health education; analyses data and submits monthly reports to the district. Under the Healthcare Services Sub-system, are aspects of monitoring, supervision, and capacity building.

Community Sub-system: The community sub-system represents the consumers of immunisation services. The success of immunisation programme through efficiency and effectiveness in delivery of services has its impact measured through the community sub-system. According to the National Health Policy, individuals and communities are supposed to play an active role in health care. Communities should participate in decision-making through Health Unit Management Committees and Village Health Teams.

In 2008, UNICEF commissioned a Strategic Communication Assessment Study regarding Health and Development in UNICEF[7] supported districts in Uganda, which identified low capacities at district levels to engage communities effectively using recommended Behaviour Change Communication models. The cMYP 2013 noted that many health facilities involve community groups, religious leaders and Village Health Teams. Advocacy/communication/mobilisation activities were mainly promoted during periodic immunisation events, such as Child Health Days and National Immunisation Days. The routine immunisation services were not commonly supported.

The committee observes:

The changes in the mandate of UNEPI to focus on policy development, monitoring of immunisation services, and community advocacy and mobilization, did not go through a transparent and participatory policy making process, leading to clashes between UNEPI and NMS, which resulted in adverse negative impacts on the immunisation programme, including vaccine stock outs in several health centers[8]. A transitional committee put in place by MoH has come up with Terms of Reference for UNEPI and NMS, and an effective vaccine management assessment has been carried out with recommendations for each level. A revised UNEPI policy is required, with a revised functional structure and articulating roles and responsibilities and areas of interface with NMS, which is taking over the roles of vaccine procurement and transportation. The five operation components of the immunisation system: Vaccine supply and quality, logistics, surveillance, service delivery, and advocacy and communication (Figure 1) should be equally prioritised and harmonised for a successful immunisation programme.

2.2 IMMUNISATION SCHEDULE

Up until 2000, Uganda had five vaccines on its routine immunisation programme (BCG, DPT-Hep+Hib, Polio (OPV), Measles, and Tetanus Toxoid. PCV 10 was introduced in 2013 and rolled out in 2014. There are plans to introduce Rotavirus, Human Papilloma Virus (HPV) vaccine, Inactivated Polio Vaccine (IPV) and other new vaccines to the routine immunisation schedule. Table 3 outlines the immunisation schedule for Uganda.

Table 3: *Uganda Immunisation Schedule*

Vaccine	Dosage	Doses required	Min. interval between doses	Minimum age at start	Administration mode	Site of administration
Routine Vaccines						
BCG	0.05 ml up to 11 months 0.10 ml after 11 months	1	None	At birth or first contact	Intra-dermal	Right upper arm
DPT-Hep+Hib	0.5 ml	3	4 weeks	At 6 weeks of first contact after that age	Intra-muscularly	Outer Upper aspect of left thigh
Polio (OPV)	2 drops	0+3	4 weeks	At birth or within the first 2 weeks (Polio 0) and 6 weeks or first contact after 6 weeks (Polio 1)	Orally	Mouth
Measles	0.5 ml	1	None	At 9 months or first contact after that age	Sub-cutaneously	Left upper arm
Tetanus Toxoid	0.5 ml	5	TT1 at first contact, TT2 4 weeks after TT1, TT3 six months after TT2, TT4 1 year after TT3, TT5 1 year after TT4	At first contact with a pregnant woman or women of child bearing age (15-45 years)	Intra-muscularly	Upper arm deltoid
Newly introduced vaccine May 2013						
PCV 10		3	4 weeks	At 6 weeks or first contact after that age	Intra-muscularly	Outer upper aspect of right thigh
Planned new vaccine introductions						
Rotavirus		2	4 weeks	At 6 weeks	Orally	Mouth
HPV		3	HPV1 at first contact, HPV2 4 weeks after HPV1, HPV3 5 months after HPV2	First contact girl aged 10-12 years	Intra-muscularly	Upper arm deltoid
Polio (IPV)		1		At 14 weeks or first contact afterwards	Intra-muscularly	Left AnteroLateral fat of Thigh

Source: UNEPI (2013). Country Multi Year Plan 2012-2016

The committee observes

Globally, there are many new vaccines coming online, including vaccines against rubella and malaria. The growing number of vaccines on the country's routine immunisation programme is commendable as it will contribute to lowering morbidity and mortality due to vaccine preventable diseases.

Currently, decisions for new vaccine introduction are driven by global agendas and bodies such as GAVI, WHO and UNICEF. This is a challenge as the country has no national strategy to prioritise which new vaccines to introduce, based on local needs assessments, affordability and sound scientific evidence.

The increased number of vaccines on the routine immunisation programme means more input from the health systems and requires significantly more funding[9]. There is need for repeated trainings, HMIS document updates to include these new vaccines, and infrastructural changes to accommodate these vaccines.

2.3 IMMUNISATION FINANCING

The EPI programme is partly funded by the Government of Uganda through the Ministry of Finance, Planning and Economic Development (MoFPED), and by development partners including GAVI, WHO, UNICEF USAID, PATH, JICA, SABIN Vaccine Institute, and others[2,11]. MoFPED allocates funds to MoH as part of the national budgeting process. A part of those funds are allocated for EPI, and a separate allocation is made for the National Medical Stores (NMS), which funds the procurement of routine vaccines. The Government also provides funds in form of primary health care grants sent to districts for salary payments and allocated immunisation activities. Abewe et al, (2014), reported that for 2009/10 and 2012/13 Government of Uganda funded 55percent of the routine immunisation services. Government immunisation funding mainly contributes to salaried labour and routine immunisation (*Table 4*). A GAVI resource tracking study[10] conducted in 2014 showed that salaried labour accounted for 65 percent of Government immunisation funding in 2012-2013, and that excluding the cost of salaried labour, Immunisation Partners contributed 62 percent of the immunisation budget, while government contributed 38 percent.

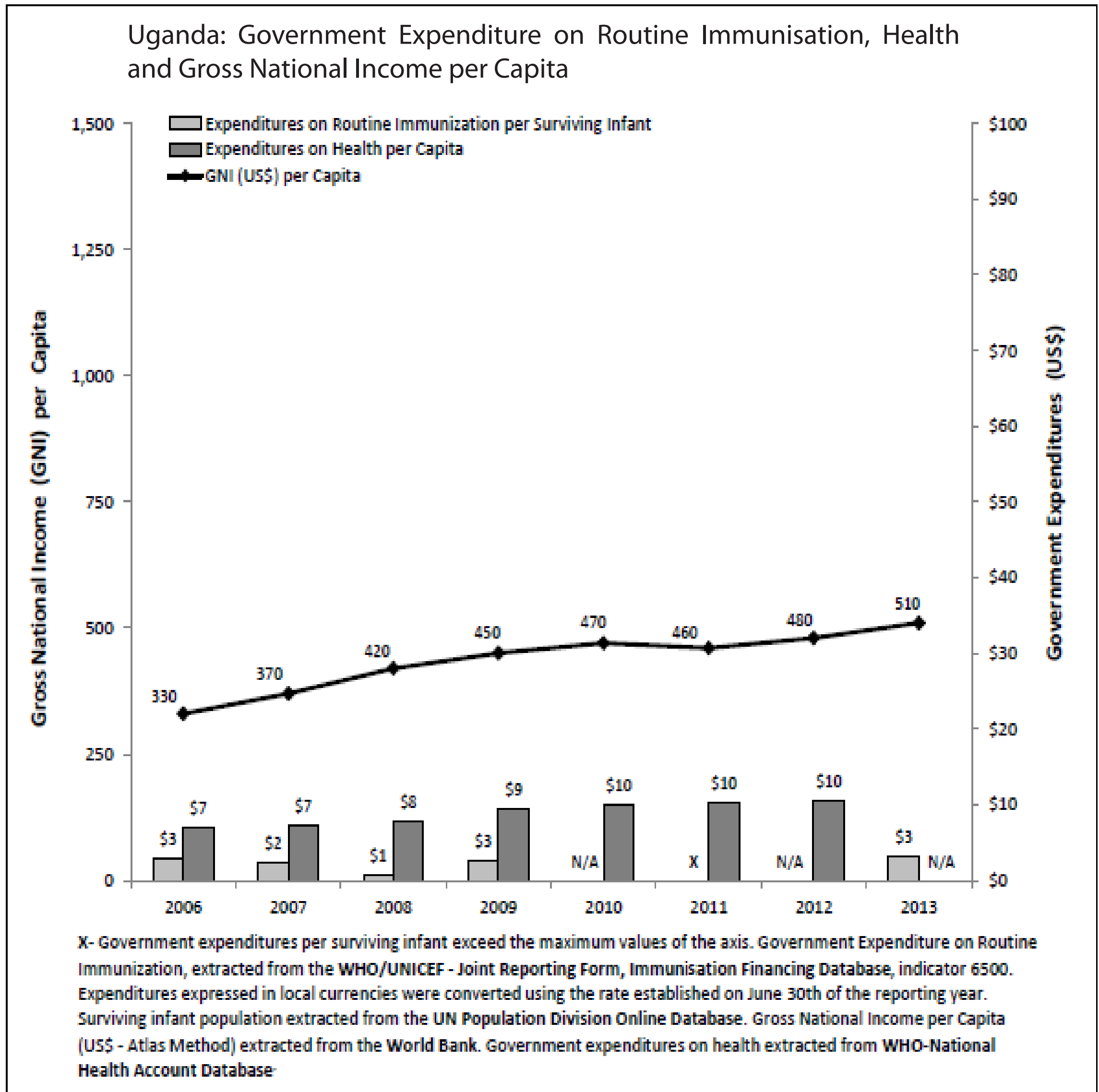
Table 4: Trends of immunisation funding from 2009/10 to 2012/13

Source (Billions of UGX)	2009/10	2010/11	2011/12	2012/13
GoU	30.0	35.1	44.6	44.0
AFENET, MCHIP	0.2	0.2	1.8	1.9
UNICEF	2.2	2.2	4.4	6.9
WHO	0.7	1.8	3.4	5.2
PATH, Red Cross Society Uganda, SABIN Vaccine Institute	0.3	0.1	1.9	1.3
GAVI	16.1	18.2	16.4	20.0
USAID	1.9	0	0	0
JICA	0	10.5	0	0
Grand Total	**51.6**	**68.2**	**72.5**	**79.3**

Source: GAVI Full Country Resource Tracking Study 2014

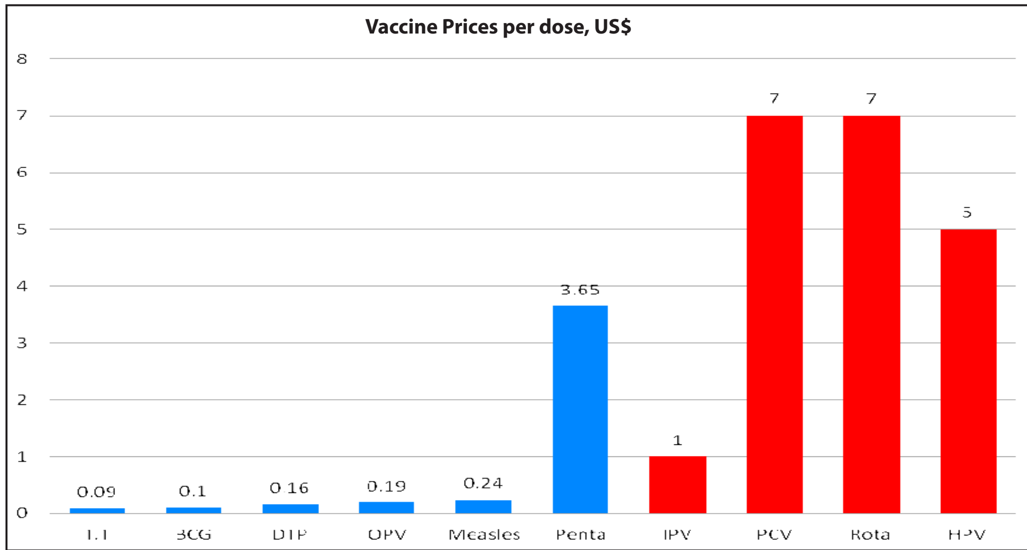
As shown in *Table 4*, there has been increase in absolute figures in the amount contributed towards immunisation. However, an analysis of government expenditure on Routine Immunisation per surviving infant (2006-2011)[12] indicates diminishing trends when compared to the Gross National Income and population growth trends

Figure 4: Government Expenditure on Routine Immunisation based. Source SABIN (2014). GoU Financing Report 2006-2013



Increased immunisation financing is required not just to cater for increasing populations but also for new expensive vaccines being introduced into the Routine Immunisation programme. UNEPI, with support from GAVI, launched the pneumococcal (PCV 10) vaccine in May 2013 and started rolling it out in 2014. UNEPI also has plans to introduce the Rotavirus Vaccine in 2016, HPV in 2015, PCV 13 (replacing PCV10), and IPV (additional to Oral Polio Vaccine, OPV) in 2016.

Figure 5: Vaccine prices per dose for routine and new vaccines



The committee observes:

The Government of Uganda (GoU) per capita contribution to immunisation financing has gone down over time. The diminishing Government contribution per surviving infant and heavy reliance on external financing indicate a weakness of the immunisation programme, making it vulnerable to external shocks, similar to those experienced when GAVI suspended support from 2006 until 2012.

It is pivotal that GoU develop a clear sustainable, country led financing mechanism. The alternative is to remain dependent on external funding and, with it, external directives and controls over those funds. In the short run, the Government needs to increase its share of funding. Accurate financial data is needed to justify increased funding requests and make accurate financial projections. There needs to be public accountability for UNEPI funds. This is even more powerful at sub-national levels. The public needs to appreciate that the state - the Government of Uganda - is capable and efficiently bringing immunisations to them.

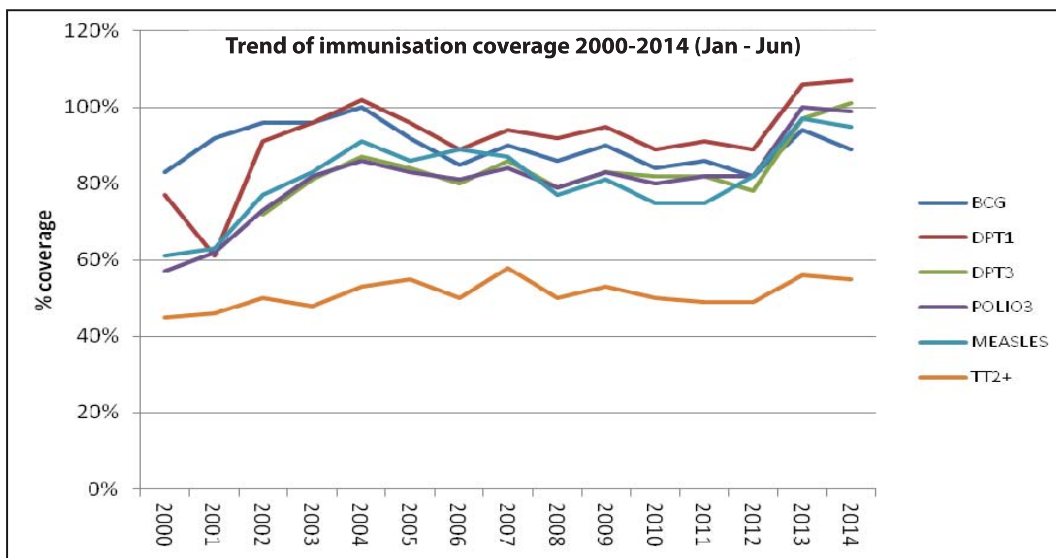
Increased country ownership for the immunisation programme is vital, especially so, considering Uganda's plans for introducing new and more expensive vaccines (Figure 5) onto the routine immunisation programme. In the long term, strategies for increasing the immunisation programme's financial sustainability may include establishment of an Immunisation Fund, and ring fencing all funds meant for immunisation at both national and district levels.

2.4 IMMUNISATION COVERAGE

Uganda's immunisation coverage performance has varied over the past years – fluctuating from high to low coverage – an indication of a vulnerable system. The immunisation programme registered progressive improvement between 2000 and 2004 as all routine vaccines achieved above 80 percent coverage by 2004 (Figure 6). The main contributing factors at the time were GAVI support, Sustainable Outreach Services (SOS), the Reaching Every District (RED) approach and EPI Integrated Disease Surveillance and Response (IDSR) regional supervision strategy. As a result, the country remained polio free and morbidity due to measles declined by over 90percent compared to 2000 with no confirmed deaths in 2004 and 2005. The number of reported neonatal tetanus cases declined to less than 1 per 1,000 per live birth nationally, and in all districts. This led to Uganda being certified for Maternal Neonatal Tetanus Elimination (MNTE)[2].

However, in the period 2004-2012, there was deterioration in immunisation performance (Figure 6) and this led to an increased number of under and immunised children. The Wild Polio Virus (WPV) outbreak in 2009 and 2010 after 13 polio-free years were clear indication of population immunity gap due to un/under immunised children.

Figure 6: Trend of immunisation coverage estimates since 2000



UNICEF/WHO estimates of Immunisation Coverage released in June 2014. Source: HMIS

In 2011, coverage of DPT3 (considered a good indicator of health system performance) fell below 80percent in 80percent of Ugandan districts. In 2012, over 50 percent of districts reported having experienced stock outs of at least one antigen[2]. The causes for this underperformance were varied: The EPI Review 2010, Effective Vaccine

Management Assessment (EVMA) 2011, and the Assessment of Immunisation and External In-depth Surveillance 2012 reports all showed inadequacies in the operational components of immunisation and surveillance system including severe staff shortages, insufficient funding to carry outreach activities as planned, and lack of backup supply of gas cylinders for refrigerators. The GAVI 2013 Full country evaluation[8] noted shortage of critical staff as having greatly compromised the delivery of quality immunisation services. The main reasons for the low staff capacity include: insufficient training and unattractive remuneration leading to high health worker attrition.

Although assessments done in 2013 showed that HMIS immunisation estimates are not very accurate (atleast one third of the 112 districts, the immunisation coverage estimates are often poor, and are likely to lead to incorrect rankings[13] and DPT3 coverage reported under HMIS was found to be over-reported by 20 percent[14]), external surveys like DHIS validate the overall trend as a true representation of facts.

2.5 REVITALISATION OF THE IMMUNISATION PROGRAMME

In response to the deteriorating immunisation performance, UNEPI developed a two-year revitalisation plan (2012-2013), with the overall objective to increase and sustain vaccination coverage or all childhood antigens (BCG, OPV, DPT-HepB+Hib, measles) and TT for women of childbearing age to 80 percent and above in all districts, and a national coverage of 90 percent[15]. During this period, some changes were made to the immunisation programme as outlined below:

Management changes:

Between April 2012 and June 2013, a new acting EPI Manager was appointed and a new substantive manager recruited. The Minister for Health and State Minister for Health were also replaced.

In April 2012, the MOH Director-General of Health Services in an abrupt change commissioned National Medical Stores to take over from UNEPI the roles of vaccine supply, quality and logistics[9]. The NMS is an autonomous government corporation established by the National Medical Stores Statute no. 12 of 1993. The reason given for this change included UNEPI being overstretched by technical issues and not having time for programmematic issues[16]. This was attributed to inadequate staff at UNEPI, increased number of districts, and expanding UNEPI activities to include mass campaign.

Under this arrangement, the NMS was expected to perform the following roles:

- Procurement of vaccines and injection supplies through UNICEF.
- Cold Chain Management: involving receipt of vaccines, storage, transportation and distribution of vaccines from the manufacturers to the central, district and health facility stores and outreaches.

- Vaccine management: including forecasting/estimation, stock control, handling and monitoring, utilisation of the vaccines, diluent and related injection safety materials.

The sudden nature of the change, lack of clearly laid out transfer guidelines, and absence of stakeholder engagement during the policy change process resulted in dis-enfranchisement among some staff and partners.

Initially the transition of roles between UNEPI and NMS experienced several challenges resulting in stock-outs and supply problems between July 2012 and December 2012. However, these have since been mostly rectified[16]. A transitional steering committee comprising of representatives from UNEPI, NMS, World WHO, UNICEF, PATH and CHAI held consultative discussions to define the roles and responsibilities of UNEPI and NMS across the Immunisation value chain, in light of this change. A draft report of their recommnedations has been produced.[17]

The committee observes:

The momentum set by the revitalisation plan, to attain and maintain coverage of all routine vaccines above 80 percent, as recommneded by the GVAP, should be sustained.

The decision making process in the Ministry of Helath should be transparent, based on wide stakeholder consultation and eveidence based. This will promote ownership of the programme among staff and partners, and give credibility to management decisions. Programme changes should be implemented gradually, in a phased manner, to allow for proper handover and smooth transition period.

Data is pivotal to evidence based decision making. Therefore, Data Collection Officers should be adequately trained, equiped with sufficient collection materials (tally sheets, child health cards and summary sheets) and receive consistent support supervision.

The logistical gaps in the cold chain and staffing need to closed for optimum programme performance.

3. COMMITTEE RECOMMENDATIONS

3.1 DECISION MAKING PROCESSES

Observations:

- The MoH has a hierarchy of committees that offer technical and coordination input into the immunisation programme; however, the procedures to guide the decision making processes are not clearly defined. This exposes the decision makers to influences from individuals, industry and other self-seeking lobbyists.

- There is no local evidence based strategy to guide choice of new vaccine introduction. The choice of what new vaccines to introduce and when to introduce them is greatly influenced by global agendas, particularly GAVI funding, rather than local epidemiological data and the country's health needs priorities. Some cost-effectiveness work has been done, led by the ProVac, 2013 initiative that promotes tools for evidence based decisions on new vaccines; but more is needed. Uganda can achieve self-reliance in this technical field (costing, cost effectiveness studies) in the coming years.

- The need for high quality data and scientific evidence is paramount to making credible management decisions. Data on immunisation is still inaccurate in some areas (for example for DPT 3 coverage in distircts).

Recommendations:

- Clearly laid out guidelines for directing the decision making process should be defined, agreed upon with stakeholders, and systematically implemented. Mitigation strategies can be put into place in case of unforeseen challenges. Decisions should be based on local evidence to ensure credibility and freedom from biased influences and lobbyists. Establishment of an independent advisory body in form of a National Immunisation Technical Advisory Group will facilitate this. Key public institutional counterparts need to meet regularly to maintain information sharing and coordination, down to the local government level.

- UNEPI should improve the quality of programmatic and financial data collected on immunisation, through harmonisation of the data recording and collection processes, provision of sufficient data collection tools, and regular supervision and training of staff.

3.2 FINANCIAL SUSTAINABILITY

Observations:

- The Government of Uganda provides the major bulk of funding to support the Immunisation programme. The Government immunisation funding mainly contributes to salaried labour. Excluding labour costs, partners like GAVI, WHO, and UNICEF contribute the bulk of immunisation funding.

- In the last decade, there has been increase in absolute figures in the amount contributed towards immunisation. However, an analysis of government expenditure on Routine Immunisation per surviving infant indicates diminishing trends when compared to the Gross National Income and population growth trends.
- There are gaps in Uganda's financial reporting as captured in the WHO/UNICEF Joint Reporting Forms for the periods 2010 – 2013. This is regrettable as documentation of the cost of immunisation is pivotal; without which justification for increased government funding towards the immunisation programme would be difficult to articulate and advocate.

- The cost of introduction of new vaccine takes a significant amount of the overall budget of immunisation services. These costs have greatly been subsidised with the co-funding arrangements between the Government of Uganda and its partners. GAVI, being the biggest funder for new vaccines, providing grants for vaccine purchase and health system strengthening. However, it is not clear how the GoU will assume the added costs of these newer vaccines after the GAVI support ends.

Recommendations:

- Strategies for increasing and securing the immunisation programme's financial sustainability should be implemented: including establishment of an Immunisation Fund and ring fencing all funds meant for immunisation at both national and district levels.

- Moving towards ownership of the immunisation programme and away from donor support will safeguard the country from external shocks, and provide greater independence. There will be political dividends as well: The public will appreciate and reward the Government for providing an increasingly valuable public good.

- New vaccine introduction should be carefully planned for, beyond the initial introduction phase, to ensure sustainable financial integration within the routine immunisation and overall health system programmes.

- Immunisation financing reports should be kept up to date in a systematic and transparent manner, using the WHO/UNICEF Joint Reporting Form Indicator 6500 reported annually through the GVAP Monitoring and Evaluation/ Accountability Framework.

- Increased government funding is essential to match the growing population due to expanding birth cohorts and GNI per capita trends. This is feasible, given the well performing economy. The Government and Parliament need to continue and increase their collaboration for sustainable immunisation financing, for example, through holding the Government accountable to its health budget commitments as agreed in the Abuja declaration (15 percent of total national budget dedicated to the health sector).

3.3 GOVERNANCE

Observation:

- The immunisation management structure underwent several changes in the previous two years, including change of Ministers for Health and EPI managers.

- The UNEPI Revitalisation Programme resulted in swift changes in roles between UNEPI and NMS, introduced new positions in the leadership structure, and therefore adjustments in the lines of command and reporting. However, these changes were not well prepared for, nor clearly articulated to the staff and other implementing partners, resulting in management clashes, and vaccine stock outs.

Recommendation:

- A revised UNEPI organogram clearly indicating all the programme positions, related roles and qualifications, points of interface and reporting lines should be clearly laid out, and communicated to all implementing staff and partners.

3.4 CAPACITY BUILDING

Observations:

- Rising popular expectations for better public health services create new political incentives for the Government to act. The rapid increase in number of districts (up from 79 in 2006, to 112 in 2010) commensurate increase in the number of health staff and resources, has greatly stretched the capacity of health systems in general, including UNEPI. Capacity at the district level and below is particularly stretched, negatively impacting the last mile delivery of vaccines.

- The MoH is working with the Ministry of Public Service to increase staffing numbers and improve remuneration in the overall health sector. However, there is shortage of critical staff necessary for the delivery of quality immunisation services. The challenge of low staff capacity due to insufficient training and high health worker attrition still persists.

Recommendations:

- The momentum of increasing staffing numbers and remuneration is commendable and should continue until all the human resource gaps are filled.
- The MoH with support from partners including WHO and JICA should put emphasis on training, particularly for skills unique to immunisation, (for example, cold chain maintenance) through the health systems strengthening programme. A re-evaluation in the training approaches being used to more hands on/onsite mentorship approaches should be considered. In addition, the pre service training institutions should be guided to include immunisation/vaccination in their curricula.

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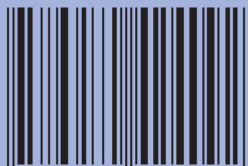
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