

# 13

## Managing Health Technologies to Advance Universal Health Coverage in Uganda

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### Key Messages

- Efficient procurement, deployment, maintenance and the use of equipment and technologies require effective implementation of the Health Technology Management (HTM) harmonisation policy at the different levels of the health care system.
- A national health technology audit and needs assessment will be necessary to provide a landscape of HTM in Uganda in order to establish gaps, diagnose wastages, estimate requirements or human resource expertise and vital supplies as well as maintenance costs.
- The Ministry of Health (MoH), working with the National Advisory Committee on Medical Equipment/Technologies (NACME), should lobby for equipment and technologies for non-communicable diseases (NCDs) such as cardiovascular conditions, blood pressure, diabetes and the treatment of injuries for better coverage and to mitigate catastrophic expenditures associated with seeking private sector services.
- The regional laboratory hub system – where several facilities send samples to an upgraded laboratory nearest to them – has improved access to diagnostics, especially for HIV and TB services. However, there is need to strengthen these hubs to address human resources shortages and irregular pattern of supplies, reagents and consumables.
- The current competency gaps in the use and maintenance of medical equipment/technologies can be mitigated by standardisation of

equipment specifications and training of all users. This is critical during the formative professional training as well as during the installation of new generations of equipment/technologies.

- A robust health technology information system will be needed to improve the monitoring of equipment/technologies and related resources as well as ensuring smooth functioning of the diagnostic sub-systems by enabling quick turnaround time of laboratory results at all levels.

## **Introduction**

### ***What are health technologies?***

Health technologies comprise inputs, processes, knowledge and skills used in the prevention, diagnosis and treatment of diseases and injuries, including rehabilitation as well as the organisational and support systems within which health care is provided. Using the broader terms of the World Health Organisation (WHO), service delivery inputs include devices, drugs and other consumables while processes include knowledge and skills associated with the requisite medical and surgical procedures used (1). Health care technology is such an important part of health care because equipment/technologies are used to correctly diagnose diseases, treat them, monitor care, provide rehabilitative therapy, control the environment for optimum treatment success, provide necessities such as running water and transport patients and staff, feed patients and staff and provide clean surroundings.

Health care technology includes pharmaceuticals, e.g. aspirin, beta blockers; biologics, e.g. vaccines; procedures, e.g. coronary artery angioplasty; support systems, e.g. electronic medical records; consumables, e.g. ECG electrodes, cardiac catheters; and medical devices, e.g. CT scanners, thermometers and systems. Health care technology management (HTM) ensures that cost-effective, efficacious, safe and appropriate technologies are available to meet the demands of quality care (2). The right mix of these technologies determines the success of a health system. Oftentimes medical interventions involve several of the above, combined with clinicians, facilities and other resources. Timely and proper diagnosis is important in attaining universal health coverage (UHC) since it corresponds to improving decisions in clinical and non-clinical processes and health outcomes.

Health technologies constitute one of health service's next most valuable assets (i.e. after human resources) that must be managed to ensure that health facilities deliver a full service that is unimpeded by inadequate and

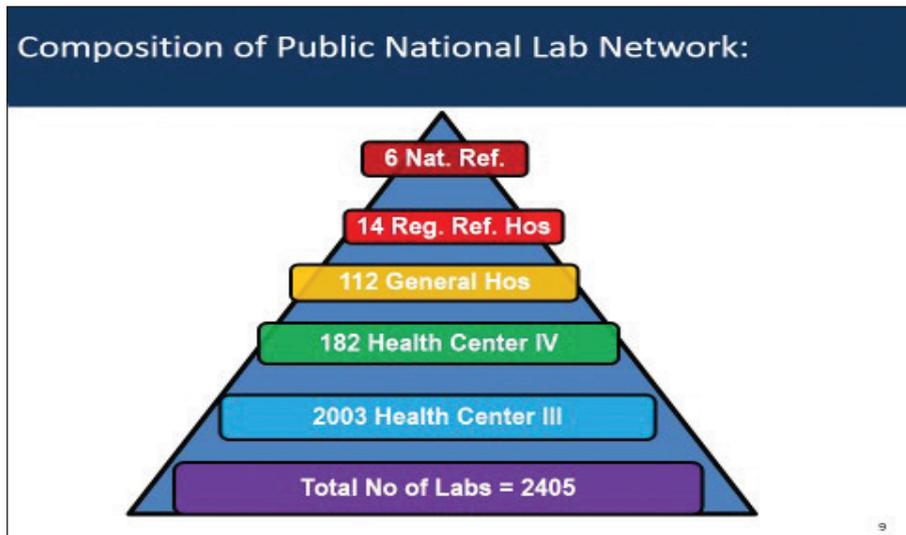
non-functional health care technology. If properly used, equipment leads to greater efficiencies in health care that, in turn, increase service quality, improve outcomes and bring down costs. The health workers who use, handle and manage the equipment play a vital role in safeguarding and controlling the huge financial investment in medical equipment. The ultimate goal of effective and efficient health care provision depends on a correct balance between these roles to optimise the value for the money invested in the equipment by maintaining the functionality of equipment and advance health care objectives.

According to the National Medical Equipment Policy of 2009, it was observed that before 2004 the rate of equipment acquisition and deployment far exceeded capacity and skills acquisition to manage and maintain it. The shortfalls included lack of a regulatory framework for medical equipment acquisition within the health sector, inappropriate equipment utilisation by health personnel, poor equipment maintenance and equipment disposal.

### ***The laboratory sub-sector in Uganda***

Figure 14.1 illustrates the tiered nature of the public health laboratory network in Uganda.

**Figure 14. 1: The public health laboratory network in Uganda, 2016 to 2017**



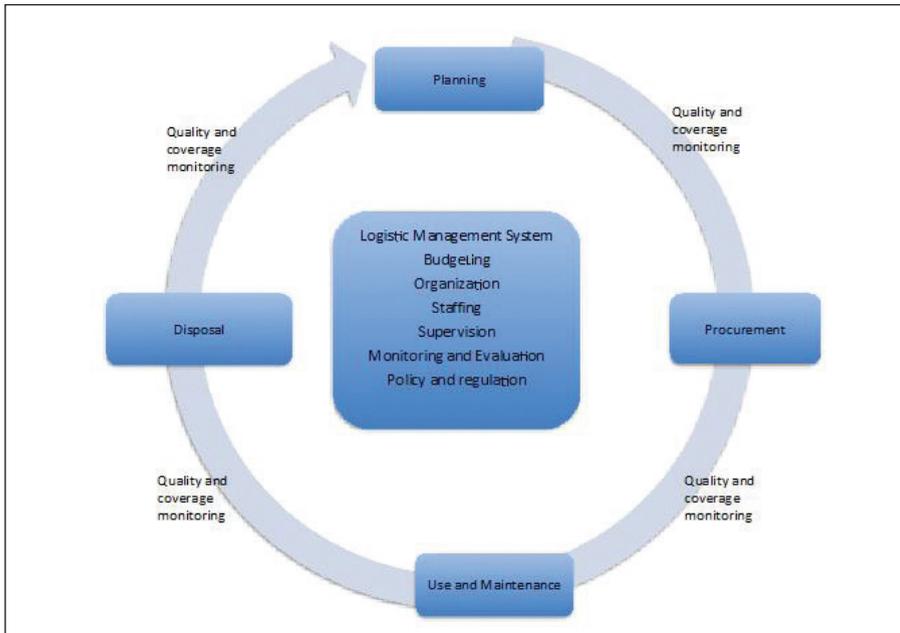
**Source:** National Strategic Plan Health Laboratory Services 2016/21, MoH, Uganda

Before 2004, there was no harmonised equipment and supply chain for laboratory services in Uganda. The sub-sector was characterised by chronic stock-outs and the absence of essential laboratory equipment. Based on the equipment gaps at the time, the Central Public Health Laboratories (CPHL) developed, documented and adopted standardised test menus required for the different levels of care. This led to MoH, in collaboration with laboratory stakeholders, to develop and adopt the “Equipment Standardisation” guidelines on procurement and placement. Development partners have adapted these guidelines for planning, procuring and deploying or effecting infrastructure, equipment and maintenance.

Even with the harmonised equipment listing, procurement and deployment, there are challenges in the processes. For instance, the costs of procurement contracts for equipment are not harmonised. There is inadequate funding to cover all equipment maintenance costs and bureaucratic delays when renewing maintenance contracts by the MoH are common, leading to lapses in the maintenance contracts. The vendor coordination mechanism remains weak, with many new equipment procured without maintenance contracts (3). There is inadequate user training for the maintenance of technologies/equipment and lack of a harmonised equipment training curriculum, especially for preventive equipment maintenance. This, therefore, explains the considerations made by the National Laboratory Policy and the National Health Laboratory Services (UNHLS) while drafting the new UNHLS Bill and the national policy and guidelines for point of care testing (POCT) that is cognizant of the roles and responsibilities of the various players in the rapidly evolving/changing field of HTM. The Medical Equipment Policy should ensure that HTM is appropriate and cost-effective to enhance health care delivery and minimise the risks associated with poor technology management.

### **An Assessment of HTM in Uganda: Implications for UHC**

This section provides an assessment of the performance of HTM across the spectrum of the HTM cycle (Figure 13.2) and the key concerns that need to be addressed as the country progresses towards UHC. It also highlights strengths, gaps and opportunities for the improvement of HTM in Uganda. Some of the material in this chapter were gathered through a consultative policy dialogue with key stakeholders, including policymakers, practitioners and experts in medical technologies and equipment (4).

**Figure 13.2: The HTM cycle**

*Source: Modified HTM cycle adopted from the logistic management cycle (1)*

HTM, being cognizant of the supply chain management cycle, involves essential activities which ensure that equipment is effectively planned and budgeted for, procured, installed, operated, maintained and disposed of appropriately (1).

### ***Planning for medical equipment in Uganda***

The planning process should be based on the equipment needs of health facilities (as per test menu), staffing capacity to manage the equipment, space and safety requirements as well as maintenance plans. Proper planning ensures that there is full facility coverage of medical equipment rather than covering specific facilities and leaving others uncovered, hence being unable to deliver required medical care equitably to populations. Proper planning ensures that medical equipment is in line with the population needs and extends to the non-covered health facilities.

It is important that during initial equipment planning, the following conditions are met to help in the decision-making process: demonstrated

clinical needs; availability of qualified users or arrangements for training users if the capacity is lacking; assessment of safety and space requirements for the new equipment to be installed; approved and reassured source of recurrent operating budget; confirmed maintenance services; and support, disposal needs and environmental safeguards (5).

An audit of the process of medical equipment acquisition conducted in 2015 revealed that planning for medical equipment is still inadequate. Inadequate planning for medical equipment has often led to situations in which health facilities are given equipment that they do not need, the supply of equipment that staff cannot operate and the supply of equipment with no storage space. This greatly affects efficiency in health care delivery and undermines the country's efforts towards achieving UHC. In addition, inadequate planning compromises equitable access to health care technologies and eventually increases the costs of seeking diagnostics. The planning process should be consultative with the involvement of key stakeholders, especially the users of medical equipment.

### ***Procurement and acquisition of medical equipment***

Notably, a significant proportion of equipment in Uganda is acquired through donations from various agencies. According to the medical equipment policy (5), it is mandatory that all equipment donated is based on stated needs of the country and should be relevant to the health services provided. All donated equipment should also be on the standard list for the particular health care level. However, the acquisition of donated medical equipment in Uganda is often negotiated without consulting the users, and without taking into account the technical implications of equipment functioning. In addition, no consideration is given to standardisation and inadequate consideration is given to servicing and the acquisition of spare parts. As a result, donated equipment may lie idle for months while a spare part is being sourced. Besides, not infrequently these spare parts may be out of production from the source manufacturers (6).

### ***Managing donations of medical equipment in Uganda***

The World Health Organisation (WHO) set guidelines for medical equipment donations and they have four principles of “good donation practice”: (a) ensuring of maximum benefit to the recipient; (b) respect for the wishes and

context of the recipient; (c) avoidance of quality double standards; and (d) effective donor-recipient communication and planning (7).

The MoH in Uganda works with the National Drug Authority (NDA), which is the regulatory body in the country. The NDA is mandated to monitor equipment imported into the country for both government and non-government health facilities to ensure that the equipment being acquired is safe (5). The country has also developed a policy on equipment procurement for laboratory equipment. This policy gives a provision for the Director General of Health Services (DGHS) to approve any new technology before it is accepted as a donation. The recommendations made by the Laboratory Technical Committee are based on the harmonised equipment list, which has equipment that has been approved for Uganda. In addition, the Laboratory Technical Committee ensures that there is capacity to maintain a particular type of equipment within the country before a recommendation to supply the equipment is done. Although tools on how to manage donations are in place at the central level, the dissemination and appropriate use of these tools need to be done peripherally. The regulation of medical devices in Uganda still faces challenges. The challenges include the following:

- a) Very weak enforcement. There is no legal back-up or legal framework that guide NDA regulation of donation equipment.
- b) Medical devices that have never been used in the country and which have not been approved by the NDA have been brought into the country and used mainly as experimental devices, which ultimately morph into donations without being screened for their appropriateness. It is important that every new technology that comes into the country is based on evidence and clearance by NDA.
- c) Oftentimes engineering experts are not invited for meetings when planning for the purchase of new equipment. Unfortunately, when equipment fails, experts are then expected to fix them.
- d) Decisions on buying equipment are based on the capital cost while many other costs that affect the performance of HTM remain hidden and not catered for. These include the recurrent costs of reagents, cartridges, strips, maintenance and other supplies that cost much more than the unit/equipment. It is important that proper guidelines for medical equipment donations are followed stringently in order to ensure that the health care system survives catastrophic emergencies as a result of costly equipment downtime .

***Medical equipment maintenance in Uganda***

At referral level, the responsibility for medical equipment maintenance lies with the respective administrative units since referral hospitals are semi-autonomous and are self-accounting. At the district level, District Health Officers (DHOs) are responsible for medical equipment maintenance. However, maintenance support services are controlled by regional medical equipment maintenance workshops, established under regional referral hospitals (RRHs). The Health Infrastructure Division at the MoH supervises all the maintenance functions and activities of the maintenance workshops. The NDA is mandated to monitor the importation of medical equipment and ensure safe, appropriate acquisitions. When the NACME was established in 1989, it was intended to formulate policies on the procurement, standardisation, maintenance, rehabilitation and disposal of medical equipment in a cost-effective and appropriate technology environment. Currently NACME is purely advisory while the Health Infrastructure Division is responsible for formulating policies and guidelines to manage medical equipment and health infrastructure. Unfortunately, as alluded to earlier, qualities and quantities of human resources for medical equipment and infrastructure management and maintenance in the country is inadequate even at the higher levels, grossly limiting their capacity to function.

***Disposal of medical equipment***

Medical equipment may be considered for disposal when it becomes obsolete, when it cannot meet the current treatment standards, when it causes risk to the user or when it becomes uneconomical to service and maintain. Obsolete equipment leads to economic losses since in health care delivery such equipment is no longer effective. In Uganda, maintenance workshop managers recommend disposal of medical equipment. Timely disposal of medical equipment is critical for ensuring that only necessary resources are maintained for efficiency, quality and equitability in health care delivery. Unfortunately, several facilities country-wide still possess equipment which should be disposed of but is currently taking up space.

***Quality management in medical equipment***

Quality runs across the HTM spectrum. Merely providing equipment is not enough. Equipment needs to be of good quality so that it can be used

effectively in health care delivery. For instance, proper diagnostics cannot be done with old and out-of-date equipment or with equipment that does not meet the required specifications for disease diagnosis. Quality should focus on addressing issues of effectiveness and patient safety.

### **Harnessing HTM for UHC**

The myriad of challenges faced by Uganda in HTM, including, among other things, non-functioning medical equipment (8,9), inadequate planning, inappropriate procurement (10) poorly organised maintenance services, and a shortage of skilled personnel (8), are a reflection of a system-wide challenge manifesting in other health system physical assets such as buildings, plant and machinery, furniture and fixtures, communication and information systems, catering and laundry equipment, waste disposal and vehicles. Ensuring that health technologies and infrastructure deliver quality, access, equity and systems resilience towards the achievement of UHC will require a harmonised approach to resource management, with all stakeholders playing their roles and enforcing the available regulations.

### ***Managing the Trade-offs: Equipment, Quality, Coverage and Costs***

Globally, health technology advances in the past 2-3 decades have yielded vast improvements in health care delivery and patient outcomes. Advances in technology have included antivirals, anticoagulating drugs, antidiabetic drugs, antihypertensive drugs, vaccines, pharmacogenomics, targeted cancer therapies, cardiac rhythm management, diagnostic imaging, minimally invasive surgery, joint replacement, pain management, infection control and health information technology. This proliferation of health care technology and its expanding uses have, in turn, led to burgeoning health care costs (11–13).

In Uganda, like elsewhere in the world, optimum health sector performance will not be achieved without adequate and functional equipment at service delivery points (14,15). One of the goals of UHC is to increase the coverage of good quality services by ensuring an adequate and affordable service package of acceptable standard (WHO, UHC) (see Chapter 1). For purposes of boosting health sector performance, addressing the HTM issues within the sector is a crucial objective towards achieving UHC. Treatment costs in Uganda have been escalated by treatment plans, especially for

antimalarial and antibiotics that have often been administered to patients with insufficient diagnostic support owing to syndromic management of illnesses – where short-gun therapeutic regimens were developed to guide clinical management in situations of low diagnostic capacity (16). These therapeutic plans used omnibus categories of illness symptoms and signs to dispense antibiotics and other medicines – one of the situations currently being blamed for antibiotic resistance (17). Although proper diagnosis cuts down treatment costs, especially for expensive remedies, and eventually reduces catastrophic expenditures on health, the overall increase in the costs arising from deploying more diagnostic and therapeutic technologies are associated with escalating costs to the health system.

### ***Regulating the Acquisition and Use of Technologies***

Since health care technology advances are inevitably accompanied by increased costs, health technologies should be managed in a way that considers costs whether by the government or by third-party payment, managing provider competition, ensuring effective marketing of technologies, and raising consumer awareness. In the United States of America, it was reported that roughly half of the increase in health care spending during the past several decades was associated with the expanded capabilities of medicine brought about by technological advances (18). HTM ensures that the right equipment is procured, commissioned and continues to function effectively in a good working condition in order to extend its life. This is essential for ensuring that scarce resources are used optimally and quality health care is provided. Since HTM constitutes one of the most costly capital and recurrent expenditures of the system, decisions related to HTM must be strategically made to ensure the best match between the supply of technology and health system needs, the appropriate balance between capital and recurrent costs, and the capacity to manage technology throughout its life (1). In advanced countries like Canada and the United Kingdom, institutions like NICE (the National Institute for Health and Care Excellence) were established to guide the national health system in the selection and regulation of technologies utilisation – partly to control costs and partly to improve value for money in securing improvements in well-being and clinical outcomes (19). Although Uganda has committees and a policy to support this function, more HTM governance is required to streamline the regulatory capacity and national guidance for enhancing technologies and equipment performance in the Ugandan health system.

The success of HTM in the health sector depends on close collaboration between health planners and policymakers, government staff in charge of regulating and supervising health systems, technical (maintenance) staff at the different levels of the HTM service, health management teams, external support agency staff, health managers and administrators, finance officers, equipment users and purchasing officers, each with specific responsibilities (2). In addition, the functioning of HTM requires well-thought-out regulations and standards, technical requirements, models for delivery, organisational structure, human resource and monitoring progress throughout the HTM cycle. To develop effective HTM, policies, regulations, standards and legislations need to be in place. The regulation of medical devices is important for ensuring safety, performance and approval for clinical use. In addition, partners responsible for the different activities and programmes need to be identified at the global and local levels.

### **Key Considerations for Harnessing HTM for UHC Advancement in Uganda**

The core domains of HTM that Uganda needs to address in order to achieve UHC are highlighted in this section.

#### ***Implementation of policies and standards on HTM***

How are policies and guidelines on medical equipment implemented to build a robust HTM system to support the UHC agenda in Uganda?

In Uganda, the first National Medical Equipment Policy was produced in 1991 by the NACME. The policy has assisted both government and non-government agencies in rationalising the procurement and management of medical equipment. The policy has been reviewed thrice (i.e. in 2002, 2003 and 2008) for purposes of updating equipment specifications to conform to new technology advancements and medical techniques. The second and third editions incorporated the WHO policy guidelines on health technology. Over time, these policies have guided the drafting of lists of medical equipment for health facilities in a rational and coordinated manner.

Since 2010, Uganda has been able to scale up HTM in a number of areas. For instance, in the area of multi-drug resistance TB, the use of Gen-Xpert has escalated from two machines in 2008 to 120 machines in 2016 across the country, in a bid to achieve nationwide coverage (universal

coverage by technology). However, this has not gone as smoothly as expected. This expansion has encountered several challenges, including frequent breakdowns of the modules/machines in the absence of in-country capacity for calibration and maintenance because engineers with the requisite capacity are based in Kenya. Moreover, the installation of these machines often does not follow the standard procedures provided under the standardised equipment harmonisation policy. For instance, the Gen-Xpert machines procured under USAID are installed with power back-up systems but a number of machines procured under the Global Fund lack power back-up. Consequently breakdowns and loss of cartridges due to interrupted power supply during the testing are frequent. In addition, laboratory staff who work on other laboratory tests perceive running/using a Gen-Xpert machine as cumbersome because it is new technology. There is need to build capacity to sustain these machines.

In 2014, the equipment and the supply chain for laboratory services in Uganda were characterised by chronic stock-outs and pseudo-inadequacy of essential laboratory equipment yet there was an abundance of technologies that had been used. A national laboratory assessment was conducted, leading to the establishment of a national laboratory supply chain system. In addition, stakeholders recommended the creation of a credit line for laboratory supplies and equipment harmonisation at different levels of care. Customised menus of laboratory tests for the different levels of care were also put in place by the Central Public Health Laboratory (CPHL) after the assessment, which further helped in standardising the techniques, the operating procedures as well as the equipment to be procured. Harmonisation also helped in establishing the capacity to maintain the range of laboratory equipment that was available across the health care levels.

For the supplies, the vital, essential and non-essential (VEN) classification was developed for the different levels of laboratories. In addition, various tools have been developed to support data capture, ordering and reporting for laboratory commodities (e.g. GX alert has been put in place to monitor the consumption/utilisation of the Gen-Xpert machines and monitor their workload as well as their functionality). Development partners are currently using the guidelines that CPHL developed and shared on equipment procurement and replacement to improve the infrastructure at facilities within the country.

***Balancing diagnostics for communicable and non-communicable diseases***

What efforts should be in place to ensure a balance for diagnostics for communicable and non-communicable diseases?

Uganda is one of the countries with the highest orthopaedic injuries (20). At the Mulago National Referral Hospital (NRH), for every 10 traffic injury victims registered, six are motorcycle accident victims, which presents an epidemic of road traffic injuries in the country. The therapeutic and rehabilitative equipment that is available is mainly found in private health facilities, which forces patients to seek care at very high costs. Reports from the national referral hospitals (NRH) indicated that in the past, donors were sending in donations to the Department of Orthopaedics, especially to support the equipment and production of rehabilitation devices like prostheses and tools after surgery but these donations have ceased over time. Although the MoH has supplied some hospitals with orthopaedic devices and implants, the adequacy of these supplies still remains a challenge.

In many instances, clients who are discharged from health facilities with orthopaedic complications need equipment to use during rehabilitation. Rehabilitative services are currently allocated at only national and RRHs. Rehabilitative equipment is very expensive and not readily available to populations that seek care in public health facilities. This leaves many people who seek care at public facilities in a state of dependency since they fail to be self-reliant when discharged. This creates access challenges since clients find it very burdensome to access services when they need them. The extension of rehabilitative services to health centre IV level would allow a larger proportion of the population to access orthopaedic services. However, this would require training and recruiting of adequate personnel to manage orthopaedic complications at lower levels of care.

Despite the epidemic of injuries in Uganda as a result of road traffic accidents, no in-depth studies have been done to map the current therapeutic and rehabilitative technology needs of the country. There is, therefore, no current information to inform planning for the technology needed to serve injury clients in the country.

### ***Expanding coverage for both communicable and non-communicable diagnostics services***

In Uganda, CPHL is the coordinator of laboratory services (21). In a survey that was conducted in 2016 to establish the status of laboratory services, CPHL found major gaps in the availability and accessibility of basic diagnostic laboratory services. Although massive investments had been made in malaria, tuberculosis and HIV/AIDS, these investments have not cut across other disease diagnostics, especially NCDs. The survey found that the majority of laboratories had non-functional equipment or lacked equipment to undertake routine laboratory tests. In many cases, this was due to inadequate supply of consumables and human resources. Equipment breakdowns were also frequent (22).

Laboratory commodities and consumables are distributed using a “push system” through three recognised warehouses: National Medical Store (NMS) for the public sector; and Joint Medical Store (JMS) and Medical Access Uganda Limited (MAUL) for the private sector. The bulk of financing for these commodities is supported by United States Government (USG), US Centres for Disease Control and Prevention (CDC), USAID and PEPFAR. Laboratory capacity to deliver services depends on the availability of the required technology and supporting commodities (consumables/supplies) to perform the required tests and most tests require the availability of multiple commodities simultaneously. Comprehensive planning for laboratory supplies is necessary to avoid redundancy that may arise from the inadequacy of one or two ingredients in the laboratory processes. Moreover, while investments have been made aggressively in the areas of communicable diseases like HIV, TB and malaria, non-communicable disease diagnostics have been largely neglected (3). There is, therefore, need to balance investment in laboratory technology for communicable and NCDs to provide comprehensive laboratory services.

### ***Information systems that are needed to manage health technologies in Uganda***

What information systems should be in place to ensure proper management of health technologies in Uganda?

On the whole, other than the TB and national reference laboratory, other equipment do not have a system for equipment calibration. To mitigate some of the maintenance challenges, CPHL is introducing, through the health laboratory information system, both paper-based and electronic equipment

inventories as well as equipment breakdown monitors which will monitor events or incidents when equipment breaks down.

### ***Competency gaps regarding medical equipment in Uganda***

Uganda has not trained sufficient human resources to manage medical equipment. It was not until 2016 that biomedical engineers were put on the scheme of service for human resource. There is need to bridge the skills and competency gap in Uganda to ensure the proper use and maintenance of medical equipment and this does not only apply to biomedical engineers. Everyone in the health care system needs to be trained to boost the way human resources handle equipment, maintain it and install it. In many hospitals, electricians are employed to repair equipment yet many of them have never obtained any training in equipment maintenance. This is not only dangerous to the technicians and to all the health workers within the system but it exposes the system to potential losses whenever equipment is inadvertently destroyed. It should be noted that most of the capacity-building initiatives focus on training technicians to manage the equipment and this is often done once – on the day the equipment is delivered at the facility. Moreover, in a system where health workers get transferred frequently, those who are trained may not be the ones handling the equipment in due course. In such instances, the equipment remains unmaintained, which eventually reduces the resilience of the health care system.

## **Policy Implications and Recommendations**

### ***At the national level***

There is need to establish a robust and autonomous laboratory governance structure to regulate and harmonise laboratory services in Uganda and to oversee the overall functioning of the laboratory system. This body should be adequately resourced to make policies to strengthen HTM in the country and to ensure balanced investments in UHC.

There is need to develop a policy to allow cost-sharing to enable facilities to generate operational funds for procuring reagents to minimise the redundancy of capacity and unnecessary referral of samples or clients.

The country needs to update the laboratory human resources for the health scheme of service to allow and increase the numbers of laboratory

technologists at general hospitals and post-graduate laboratory scientists at RRHs, given the services delivered at these levels.

The country needs to boost training for histo-pathologists and equipment for related diagnosis and the availability of this service at regional level, given the growing burden of non-communicable diseases. Without this capacity the samples transport system will not improve access or quality of care for the aforementioned conditions.

There is urgent need to establish and equip the remaining five regional medical equipment maintenance workshops at the RRHs where they have not been established.

The MoH should ensure that all staff have been trained as users of the equipment they use. Therefore, there is need to put in place a module of HTM in the curriculum for doctors and other medical workers who handle medical equipment.

### ***At the facility level***

Health managers should leverage the funding agencies available (USAID, UKAID, private companies) that are willing to fund HTM.

In order to improve equipment care, handling and first line maintenance, hospitals, HSDs, and districts should designate user trainers in their respective institutions. These user trainers should be retrained and equipped to train others in the following: operation, care and handling of basic medical equipment; basic medical equipment maintenance; basic equipment inventory management; handover reports preparation; and equipment management, equipment performance monitoring and evaluation. User trainers should also carry out support supervision on equipment management as part of the routine support supervision and monitoring. Central and regional workshops supported by the HID should organize training of trainers in the general hospitals.

Health service providers at the various levels should be given comprehensive, timely and reliable information on: the functional status of the equipment; the performance of the maintenance services; the operational skills and practice of equipment-user departments; the skills and practice of staff responsible for various equipment-related activities in a range of departments, including finance, purchasing, stores and human resources.

There should be a referral network of workshops where maintenance staff with technical skills are based. However, equipment management should also take place where there are no workshops, by involving health facility staff.

At every health care level, there should also be a committee which regularly considers all equipment-related matters, and ensures decisions are made that are appropriate to the health system as a whole.

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