

The Integration of vertical and horizontal programmes for health systems strengthening in Malawi: a case study

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Abstract

A challenge for the health system in Malawi is that funding allocation is heavily influenced by donor priorities. As a result, mandated routine elements of service delivery may not be fully offered owing to lack of resources or programmatic priority. Integration of currently active 'vertical' programmes (those focused on a specific priority disease entity) into existing 'horizontal' services (meaning provision across the range of clinical and public health need) has potential to improve access and quality of service delivery for Reproductive, Maternal, Newborn, Child and Adolescent Health (RMNCAH) in Malawi.

We identified and tabulated the main vertical funding streams currently available in Malawi and identified where these could intersect with existing horizontal health sector programmes in order to strengthen RMNCAH. We have indicated how each of the main vertical programmatic components can be adapted and integrated to support broader system strengthening within RMNCAH focusing especially on drug and commodity procurement, supply chain logistics, health facility and equipment maintenance/upgrading, health service activity data systems, human resources for 'front line' RMNCAH provision, as well as community engagement and mobilization.

By circumventing the various limitations of vertical programmes in the delivery of health services in the country, they would complement existing funding streams rather than operating in a vacuum as independent activities. We therefore recommend the integration of horizontal and existing vertical programmes in order to improve RMNCAH in Malawi.

Keywords: health financing, horizontal programmes, RMNCAH, vertical programmes, health systems strengthening

Introduction

Health services are primarily delivered using two delivery modes, namely through vertical and horizontal system and programme designs. In horizontal programming, services are delivered through publicly mandated and financed health systems commonly referred to as comprehensive primary health care or universal health coverage. The vertical delivery of health services implies a selective targeting of specific interventions not fully integrated in health systems¹, often linked with particular interests of the funding entity. In general, vertical programmes are attractive because they show time bound results and they may be easier to manage than horizontal programmes². This is largely because they employ more robust monitoring and evaluation mechanisms owing to the strategic interests and requirements of the funding agencies involved³.

On the upside, vertical funding for health care has had quite a remarkable impact on recipient low- and middle-income countries where development assistance has reached unprecedented levels, resulting in noticeable improvements on multiple fronts. A review of literature by Ejughemre in 2013 established that in many instances primary health care services have been improved and health systems have been strengthened, even though that implies a heavy reliance on the availability of donor grants and loans to finance health care

delivery by such beneficiary countries. The evidence indicates that about 20% of the total health expenditure in about 48% of the 46 countries in the World Health Organization (WHO) African region is provided by external sources such as the United Nations agencies and other non-governmental agencies⁴. Some studies have also highlighted a strengthening of the general leadership and governance of health care systems⁵, more robust information management systems, steady and reliable healthcare financing, uninterrupted supplies of essential medical drugs and supplies, as well as more robust capacity-building of the human resources as some of the benefits of vertical programming in health care⁶.

On the other hand, vertical programmes have been blamed for the collapse of the same aspects of health systems for which they are supposed to be taking credit, like information management systems, health financing, human resource capacity building and the actual delivery of health services across the continuum of care. In a study of the interface between health systems and vertical programmes in selected Francophone African counties for instance, Keugoung and others found that vertical programmes jeopardize district management teams' leadership functions, bring about multiple and overlapping planning procedures due to accountability to various funders, lead to the establishment of parallel health information systems, demotivate staff

that are excluded from trainings and implementation plans, as well as negatively affect or altogether neglect activities that are not financed by the vertical funding stream⁶. This has the propensity of crippling a health service system if not well-managed. While giving Zambia as a case in point, Ejughemre also argued about bias that programmes like the United States President's Emergency Plan for AIDS Relief (PEPFAR) might be perceived to bring into the health sector, whereby HIV positive patients are provided with free care, while others with more 'routine' diseases receive poor care and still have to pay⁴. Such discrepancies also result into salary discrepancies between healthcare providers working for donor funded vertical programmes and the other government workers in the same public health sector⁴ leading to an internal 'brain drain', whereby health workers flock to the vertically-funded programmes leaving the rest of the health system neglected.

All of the preceding, therefore, might underpin a case for a hybrid approach to the management of vertical funding for health service delivery, an approach that marries such vertical programmes to already-existing horizontal programs within the health system, so that the two become complementary in the strengthening of health services. Based on this rationale, we propose a focused and contextually appropriate agenda for action that can ensure that the existing vertical programmes in Malawi⁷ complement the existing government programmes to strengthen service delivery for reproductive, maternal, newborn, child and adolescent health (RMNCAH). This case study aimed at identifying approaches that could be explored to foster integration of vertical and horizontal programmes for more effective delivery of health services with a focus on RMNCAH. We conducted document review and literature search through online search engines including Google Scholar, Medline and PubMed. The key words used include vertical and horizontal programmes, Reproductive, Maternal, Newborn, Child and Adolescent Health, HIV and TB, Malaria and vaccination in Malawi.

Reproductive, Maternal, Newborn, Child and Adolescent Health (RMNCAH) in Malawi

As one of the low income countries within the Sub-Saharan region, Malawi's health system is organized at four levels namely: community, primary, secondary and tertiary⁷. These different levels are linked to each other through an established referral system. A majority of health facilities are under public management and health services are largely provided for free.

The Malawi government adopted Sustainable Development Goals (SDGs) that replaced Millennium Development Goals (MDGs) and the country has so far managed to achieve some of the health related MGDs like reducing child mortality and combating HIV, malaria and other diseases⁸. However, the country was unable fully to meet the goal on improving maternal health. According to 2015-16 Malawi Demographics and Health Survey, neonatal deaths were at 27 per 1000 live births, adolescent pregnancies were reported to be at 29% and maternal deaths at 439 per 100000 live births^{8,10}. Therefore, improving RMNCAH services can not only improve the health status of the population but also assist the country to achieve the SDGs by the year 2030. Further, integration of horizontal and vertical programmes for RMNCAH has potential to improve delivery of the Essential Health Package as mandated in the 2017-2022 Health Sector Strategic Plan II (HSSP II)⁷.

The Current Vertical Funding Streams and Associated Programmes Active in Malawi

We used the internet to search relevant documents and policies that guide the provision of health services in Malawi. We analyzed each document in order to understand whether the focus was horizontal or vertical programmes. We then categorized the documents into those describing vertical programmes and those describing horizontal programmes. Our search endeavour was limited in scope and duration as this case study was part of the requirements for our academic assessment.

The vertical health funding modes in Malawi may be broadly classified into two types; namely transitional and pure vertical¹¹. Transitional funds are those that were vertical in nature but are transitioning to the Sector Wide Approach (SWAp) pool arrangement; for instance, Global Fund programmes such as the TB and Malaria Control Programmes, the Extended Programme on Immunization (EPI), as well as Sexual and Reproductive Health. On the other hand, pure vertical funds include programmes by, among others, Global Alliance for Vaccines and Immunization (GAVI), PEPFAR, the United States President's Malaria Initiative (PMI) as well as private initiatives such as the Clinton Foundation and the Bill & Melinda Gates Foundation. On an annual average, the Global Fund is the largest vertical health funder in Malawi followed by PEPFAR⁶.

The vertical funding streams in Malawi over the last couple of decades have largely been directed towards the implementation of the programmes summarized in Tables 1 and 2 below, under both transitional and pure streams, according to information sourced from a case study of Malawi by the African Development Bank Group¹¹.

Tabulating the Intersection of Vertical Programmes and Existing Horizontal Programmes in RMNCAH

This section tabulates the existing vertical funding streams in Malawi and endeavors to portray where they are already intersecting with the horizontal programmes currently in existence in Malawi under the Ministry of Health (MoH). This analysis is detailed in Table 3 below.

Adaptation and Integration of Vertical Programmes to Support Broader System Strengthening within RMNCAH

This section proposes ways in which the existing vertical programming streams in Malawi can be adapted and integrated into existing programs. This can effectively support and strengthen the provision of services within the realm of reproductive, maternal, newborn, child and adolescent health. This discussion will focus on the four vertical programmes; namely the HIV Programme, TB Control Programme, Malaria Control Programme and the Extended Programme on Immunization. Further, we will discuss how these can support existing programmes to strengthen service delivery under the broad areas of drug and commodity procurement, supply chain logistics, health facility and equipment maintenance, health service activity data systems, human resources for RMNCAH provision as well as community engagement and mobilization.

Table 1: Transitional Vertical Funding Streams in Malawi

Vertical Programme	Funding Agencies	Comments
HIV /AIDS Program	DFID, Sweden, CIDA and the World Bank, and discrete donors such as ADB, CDC, UNDP, JICA and the Global Fund	The National AIDS Commission (NAC) coordinates and provides leadership in the HIV and AIDS national response through the Integrated Annual Work Plan (IAWP)
National TB Control Programme (NTCP)	USAID provides support to NTCP through the TB Control Assistance Program (TB CAP) and Project HOPE.	The NTCP was incorporated into the SWAp in 2006. The SWAp offers a good opportunity to move away from the vertical planning, funding and financing of operations at national, intermediate and district levels, on which NTP has relied very much for its development since 1984.
Malaria	Integrated in terms of planning, procurement, financial and other programmatic aspects into the SWAp program of work	Previously the National Malaria Control programme (NMCP) was a vertical disease specific programme funded mainly by DFID, JICA, Norway and USAID, as well as UNICEF, WHO and UNDP
Extended Programme on Immunization (EPI)	Like malaria and TB, EPI is programmatically and financially part of the SWAp	Previously, EPI was a pure vertical programme supported by bilateral donors such as DFID, JICA and KFW as well as WHO and UNICEF

Table 2: Pure Vertical Funding Streams in Malawi

Vertical programme	Funding agencies	Comments
Global Alliance for Vaccines and Immunization (GAVI)	The Fund is a financially independent mechanism designed to raise new resources for immunization and was set up with an initial grant of US\$ 750 million from the Bill and Melinda Gates Foundation. The fund has bilateral and multilateral donors as well as private corporations and foundations.	Established in 1999, this is an alliance of organizations involved in global immunization efforts. GAVI partners include WHO, UNICEF, the World Bank and the Bill and Melinda Gates Foundation, and the alliance works with national ministries of health to develop strategies and plans to strengthen childhood immunization as well as provide technical support. A country has to have a GDP per capita of less than US\$ 1,000 to qualify. Actual implementation of activities is done by EPI under the MOH.
PEPFAR	The United States Government (USG) team in Malawi (USAID, CDC and the US Department of State).	While the country is classified as a non-focus PEPFAR country, Malawi is receiving resources of over US\$ 15 million per year to fight HIV/AIDS.
President's Malaria Initiative (PMI)	USAID in collaboration with CDC and the Department of State.	The PMI is a United States Government initiative to reduce malaria related deaths by 50 percent in target countries.
Private Vertical Health Funds (VHFs): Clinton Foundation, Bill and Melinda Gates Foundation.	Clinton Foundation, Bill and Melinda Gates Foundation	Clinton Health Access Initiative (CHAI) and the Clinton-Hunter Development Initiative (CHDI) are run by the Clinton Foundation, focusing on lowering the cost of treatment, implementing large-scale treatment and prevention programmes building infrastructure such as a maternity wing. The Bill and Melinda Gates Foundation has been supporting a Malaria Research Project in Blantyre, among other initiatives.

Drug and Commodity Procurement

Under the HIV programme, development partners support the procurement of viral load machines, HIV test-kits and anti-retroviral drugs; provide support for transport and logistics, capacity building of health personnel, supportive supervision and mentorship. Further, they also support demand creation through awareness campaigns, support policy-making processes with regard to HIV and AIDS, and

also provide support to the HIV and AIDS service delivery design processes, in addition to supporting programme quality processes through monitoring and evaluation activities⁸. Since the above support is largely tailored towards the provision of HIV and AIDS services, areas of integration within RMNCAH would include supporting the procurement of commodities required for the nutrition care, support and treatment of HIV positive and malnourished children, adolescents and pregnant or lactating women, and for women, cervical cancer screening and detection of other

Table 3: A Tabulation of the Existing Horizontal Programmes Versus some selected Vertical Programmes in Malawi

Family Planning (FP)		Existing Horizontal Programmes				
	Safe Motherhood	Youth Friendly Health Services (YFHS)	Nutrition	Child Health		
Vertical Programmes	HIV/AIDS Programme	<ul style="list-style-type: none"> - Provision of HIV testing services (HTS) to FP clients - Provision of FP counselling and services to ART clients 	<ul style="list-style-type: none"> - Provision of HTS at antenatal clinics (ANCs) - Initiation of ART all HIV positive pregnant, labouring and post-partum women on ART - Early Infant Diagnosis and follow-up of HIV exposed infants 	<ul style="list-style-type: none"> - Provision of HTC Services to adolescents attending youth-friendly clinics - Provision of ART and counselling services to HIV positive adolescents in teen clubs. - Provision of condoms - Provision of family planning methods 	<ul style="list-style-type: none"> - Provision of HTC services to malnourished children in CMAM (Community Management of Acute Malnutrition) programmes - Provision of supplementary feeds to HIV infected/positive clients such as Chiponde (RUTF) 	<ul style="list-style-type: none"> - Provision of Nevirapine syrup to HIV exposed infants - Provision of confirmatory HIV tests to HIV exposed infants at 6, 12 and 24 months of age (Early Infant Diagnosis).
	TB Control Programme	<ul style="list-style-type: none"> - Provision of FP counselling and services to clients on TB treatment 	<ul style="list-style-type: none"> -Provision of TB screening to pregnant women on Option B+. 	<ul style="list-style-type: none"> - TB screening services for young people living with HIV (YPLHIV) enrolled in teen clubs 	<ul style="list-style-type: none"> - Provision of TB screening services to malnourished children in CMAM (Community Management of Acute Malnutrition) programmes 	<ul style="list-style-type: none"> - Provision of isoniazid preventive therapy to Under 5 children living with TB-positive caregivers - TB Screening of under 5 children living with HIV.
	Malaria Programme	<ul style="list-style-type: none"> -Provision of treated nets to lactating mothers on family planning 	<ul style="list-style-type: none"> - Provision of intermittent preventive therapy (IPT) and nets to pregnant women. 		<ul style="list-style-type: none"> - Provision of MRDT test to malnourished children. - Provision of treated nets to malnourished children. 	<ul style="list-style-type: none"> - Provision of MRDT test-kits and anti-malarial drugs to village clinics under the Integrated Management of Childhood Illnesses (IMCI) programme. - Provision of treated nets to under five children
	Extended Programme on Immunization	<ul style="list-style-type: none"> -Provision of tetanus toxoid vaccine. 	<ul style="list-style-type: none"> -Provision of tetanus toxoid vaccine. 	<ul style="list-style-type: none"> - Provision of Human Papilloma Virus (HPV) vaccine to girls aged 9-14 years 	<ul style="list-style-type: none"> -Provision of vitamin B and Deworming of malnourished children. 	<ul style="list-style-type: none"> - Provision of comprehensive support for the ministry's immunization programme (vaccines, cold-chain equipment, logistics, e.g., transport, supervision, etc.)

sexually transmitted diseases such as Chlamydia, currently not supported by this vertical programme.

Integration can also be undertaken within the EPI programme¹². Current support from this funding stream includes procurement of vaccines and cold-chain equipment

and support to immunization clinics, among others¹³. As an area of integration to strengthen RMNCAH service provision, this procurement of cold-chain equipment can be combined with the procurement of solar-power back-up equipment to cater for both cold-chain systems and

other service areas such as maternity wings. In addition, procurement of vaccines for child health services could also include procurement of Amoxicillin and other antibiotics for village clinics to supplement the lean supply that district health offices order from the Central Medical Stores Trust.

The National TB Control Programme – which currently focuses its support to the procurement of drugs, TB screening activities, as well as other logistical support to service delivery, TB treatment and supportive supervision – could also consider procuring nutrition supplements for the patients on treatment. In addition, they could also include the procurement of radiology imaging equipment which could serve both TB patients and others, like women and children.

Supply Chain Logistics

Under supply-chain and logistics, the robustness of the supply system for HIV commodities – which has proved to be very effective over the years – can also be used to accommodate other medicines and supplies. For instance, HIV and malaria commodities can be delivered and stored under one programme consignment¹³. Furthermore, TB commodities can also be delivered and stored along with the HIV and malaria commodities. This would save costs and simplify commodity delivery systems and receipt accountability. Vertical programmes can also support supply chain logistics for commodities in RMNCAH. In EPI, commodities are usually transported and delivered and stored separately from other commodities. For storage, some of the EPI fridges could be reserved for some drugs used in maternity and general health services such as Oxytocin and anti-rabies vaccines. In addition, EPI commodities could also be integrated with HIV, malaria and TB commodities in both transportation and storage¹².

Health Facility and Equipment Maintenance

The HIV vertical programme could also be engaged to provide infrastructural support¹⁴. The programme could consider incorporating youth-friendly health services in construction projects. Currently, there is a lack of constructed youth centres in most districts. This is depriving adolescents of youth-friendly health services. The HIV programme could consider supporting the construction of these such centres. In addition, separate buildings could be constructed to cover for the teen clubs so that the teens can easily interact and receive health care, unlike the current scenario where they have to make do with existing structures that have other uses.

The TB programme can also support maternal health services. In its effort to construct rooms for TB patient care, some funds can also be allocated to construction of children TB wards and maternity rooms for TB-positive pregnant women. This can also include procurement of labour and delivery beds. In addition, construction of Multi-Drug Resistant TB (MDR-TB) isolation rooms could also include some rooms for children suffering from rabies and other cases that need isolation. Recently, the EPI programme has procured solar-powered refrigerators for hard-to-reach facilities. This could include extending the solar-power back-up to maternity and children's wards. This would ensure uninterrupted maternal and child services attributed to power outages.

Health Information Management Systems

On data systems, the vertical programmes can support an integrated monitoring and evaluation for RMNCAH and for HIV/AIDS which will help ensure accountability for results at all levels, and promote learning across contexts on addressing constraints and building on successes to promote women's, children's and adolescents' health¹⁵. The programme can achieve the above by having a set of common indicators which can be routinely monitored in a cross-cutting manner, and whose data can be collected using integrated M&E tools. For example, the current TB register has a column that captures HIV status of an individual, a feature which can also be applied to the ART register by including a column that can capture the nutritional status of the client or patient. It is possible to design it to capture this important data which would make it easily accessible. The HIV register can also include a column indicating whether the client has been screened for TB or not. In addition, TB registers can also include nutrition data as well. This would ensure planning for the holistic care of the patients. Similarly, the malaria register does not include immunization status for under-five children. A provision can be made to include this data in order to improve the care of all children who come for malaria screening and treatment.

Human Resources for Frontline RMNCAH Provision

The frontline human resource for RMNCAH can be trained in a range of services to provide to children and women of child-bearing age¹⁶. For example, a nurse/midwife working in the gynecological ward should be trained in HTS, ART, Post-abortion Care (PAC) and care of the newborn, with due regard for the impact on workload and needed staffing ratios. This will mean that for a client (whether an adolescent or adult) who has come to the ward with issues of abortion and unknown HIV status might be assisted right in the ward with all the necessary care that includes HTS, and ART initiation if found positive, all without moving from one department to another. Such an approach has been proven to work before in Tanzania for example¹⁰. The HIV programme can include the health workers in HTC and ART trainings. The TB programme can add to them skills on TB screening and STI management. This would ensure that all HTC and/or ART sites also serve as one-stop centres for all RMNCAH services as well.

Community Engagement and Mobilization

Finally, another area of integration is on community engagement and mobilization^{18,19}. There are also potential opportunities on how the vertical programmes can support the RMNCAH activities. The HIV/AIDS programme is one of the opportunities where when it comes to engaging with or mobilizing communities²⁰, the focus can also be put on other RMNCAH activities as well. For example; maternal and child nutritional messages can be incorporated in HTC campaigns. In addition, messages on providing family planning and STI screening services can also be disseminated together with HIV messages. Health messages on malaria prevention and significance of early patient-seeking behavior could also be integrated with immunization messages. In addition to incorporating health-seeking behavior, messages on timely attendance to antenatal clinic can also be communicated. Integration of some of the HIV and AIDs vertical programming activities with some adolescent health services would also help to promote community mobilization and engagement in RMNCAH. For example, incorporating

adolescent health activities such as counseling, provision of family planning services into the Community Home Based Care (CHBC) and Home visits of HIV infected clients²². During this time community health worker would also be providing information to the clients and families on malaria prevention including the importance of sleeping under long-lasting insecticide treated nets (LLINs) and also community health workers would be supervising the individual families if they use the LLINs for the intended purpose. Visited clients diagnosed with STIs would also be treated during this time as well.

Conclusion

We consider that it is possible to circumvent the various shortfalls of vertical programmes in the delivery of health services in the country. The key is to ensure that in the implementation of any vertical programmes in Malawi, consideration is given to making funding streams complementary to already existing programmes under the Ministry of Health, rather than implementing them as independent stand-alone programmes, within the constraints that development partners may have regarding funds utilisation. As this paper has demonstrated, service delivery for reproductive, maternal, newborn, child and adolescent health has potential to be greatly improved if existing horizontal programmes are integrated with the existing vertical programmes. Since Malawi suffers from a perennial shortage of health care financing, horizontal programmes can greatly benefit from the consistent inflow of vertical funds for the betterment of service delivery in the country. In the end, vertical programmes will end up achieving their funding agencies' objectives more satisfactorily when they complement existing programmes because they will comprehensively utilize the existing human resources, information systems, and the political will of existing stakeholders.

Limitations

One of the limitations for this case study was time. This case study was done in partial fulfilment of the requirements of for our Master's studies, as such there was a time limit for submitting the final paper. However, we used the available time to look for necessary data. Another challenge faced was on access to policies and documents regarding funding. There is relatively little documentation available on funding for both horizontal and vertical programmes in Malawi. However, we managed to get some relevant documents in that regard that were in the public domain.

List of abbreviations

RMNCAH: Reproductive, Maternal, Newborn, Child and Adolescent Health, PEPFAR: President's Emergency Plan for AIDS Relief, SWAp: Sector Wide Approach, EPI: Expanded Programme on Immunisation, PMI: President's Malaria Initiative, PAC: Post-abortion Care, HIV: Human immunodeficiency Virus, TB: Tuberculosis, WHO: World Health Organisation.

Authors Contributions

JS and CSC planned, analyzed the data and drafted the first manuscript. RS, AK and JK reviewed analyzed data and checked the manuscript. WS supervised the planning process, data analysis and the manuscript writing. All authors have read and agreed to the final version of this manuscript and have equally contributed to its content. All authors read

and approved the final manuscript.

Ethical Review

Not applicable.

Acknowledgements

The manuscript was developed from a case study undertaken as part of the Master of Public Health program at the College of Medicine.

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