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Task shifting and its Effect on Health Surveillance Assistants in Malawi

By

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A thesis submitted to the School of Postgraduate Studies, Division of Population Health Sciences, Royal College of Surgeons in Ireland, in fulfilment of the degree of Doctor of Philosophy (Health Systems and Health Policy Research)

Supervisors: Professor Ruairi Brugha
Dr. Elaine Byrne

June 2018

Candidate Thesis Declaration

I declare that this thesis, which I submit to RCSI for examination in consideration for the award of a higher degree of Doctor of Philosophy (Health Systems Research), is my own personal effort. Where any of the content presented is the result of input or data from a related collaborative research programme this is duly acknowledged in the text such that it is possible to ascertain how much of the work is my own. I have not already obtained a degree in RCSI or elsewhere on the basis of this work. Furthermore, I took reasonable care to ensure that the work is original, and, to the best of my knowledge, does not breach copyright law, and has not been taken from other sources except where such work has been cited and acknowledged with the text.

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A List of abbreviations

Acronym	Name in Full
ADC	Area Development Committee
AEHO	Assistant Environmental Health Officer
AIDS	Acquired Immune Deficiency Syndrome
AIP	Annual Implementation Plan
ART	Antiretroviral Therapy
CBO	Community Based Organisation
CCM	Community Case Management
CDC	Centres for Disease Prevention and Control
CHAM	Christian Health Association of Malawi
CHW	Community Health Worker
CMS	Central Medical Stores
DEC	District Executive Committee
DEHO	District Environmental Health Officer
DFID	Department for International Department
DHMT	District Health Management Team
DHO	District Health Officer
DHS	Demographic and Health Survey
DOTS	Directly Observed Treatment System
EHP	Essential Health Package
EHRP	Emergency Human Resource Programme
FP	Family Planning
GF	The Global Fund
GHI	Global Health Initiative
GHIN	Global Health Initiatives Network
GHWA	Global Health Workforce Alliance
GOM	Government of Malawi
HC	Health Centre
HCAC	Health Centre Advisory Committee
HCMC	Health Centre Management Committee
HDP	Health Development Partners

HIV	Human Immunodeficiency Virus
HMIS	Health Management Information System
HR	Human Resources
HSA	Health Surveillance Assistants
HSSP	Health Sector Strategic Plan
HTC	HIV Testing and Counselling
IMCI	Integrated Maternal and Child-health Interventions
INGO	International Non-Governmental Organisation
MACRO	Malawi AIDS Counselling and Resource Organisation
MAP	Multi-country AIDS Programme
MDG	Millennium Development Goal
MDHS	Malawi Demographic and Health Survey
MGDS	Malawi Growth and Development Strategy
MOH	Ministry of Health
MSF	Medicines Sans Frontiers
MTP	Medium Term Plan
NAC	National AIDS Commission
NACP	National AIDS Control Programme
NAF	National Action Framework
NGO	Non-Governmental Organisation
NHSRC	National Health Sciences Research Committee
NSF	National Strategic Framework
NSO	National Statistical Office
OGAC	Office of the US Global AIDS Coordinator
OPD	Out Patient Department
OVC	Orphans and Vulnerable Children
PE	Peer Educator
PEPFAR	The US Presidents' Emergency Programme for AIDS Relief
PFP	Private for Profit
PHC	Primary Health Care
PITC	Provider Initiated Testing and Counselling
PLHIV	People Living with HIV

PMTCT	Prevention of Mother to Child Transmission
PNFP	Private Not for Profit
PPP	Public-Private-Partnerships
QECH	Queen Elizabeth Central Hospital
SWAP	Sector Wide Approach
SWEF	Sector Wide Effects
TB	Tuberculosis
TWG	Technical Working Group
UN	United Nations
UNAIDS	United Nations AIDS Programme
UNDP	United Nations Development Programme
UNGASS	United Nations General Assembly Special Session
USAID	United States Agency for International Development
VHC	Village Health Committee
WBRT	Western Blot Rapid Test
WHO	World Health Organisation

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Abstract

Introduction: Published literature suggests that task shifting is a very affordable way of providing health services in resource constrained settings. However, there is less empirical evidence on its effects on the mainstream tasks and workload of the cadres to whom the tasks are shifted. This thesis examines the consequences of delegating HIV Testing and counselling services to Health Surveillance Assistants (HSAs) on their community work, workload and on their motivation in Malawi.

Methods: Client records for Pentavalent, family planning and HTC for the period 2006-2010, when task shifting using HSAs just started, were collected from eight health facilities in Salima and Mangochi districts. Semi-structured interviews with 243 HSAs and in-depth interviews with 12 managers at national, district and health facility levels were also conducted to get their views and experiences with task shifting. Quantitative data and qualitative data were analysed separately and then later triangulated to identify recurring patterns and areas of commonality and discrepancies.

Key findings: In 2007 when task shifting using HSAs was just being introduced, PHC and HTC services scaled-up especially at the facility and district levels. However, at the individual HSA level, PHC delivery declined arising mainly from high workload, difficulties with managing competing tasks and other health system challenges. Even though successful in service scale-up, the arrangement did not satisfy most recommendations by WHO on implementing task shifting and the success could be attributed to historical task shifting in the Malawi health sector. The HSAs reported facing challenges, common to the Malawi health sector, including long distances to catchment areas; large catchment populations, mobility problems, high workload, difficulties to schedule activities and unclear career path and low remuneration.

Conclusions: Task shifting led to service scale-up in 2007 but mainly at the district and facility levels which may not have translated into similar improved PHC provision at the HSA catchment area level as the HSAs were grappling with

many challenges which were affecting their motivation and job satisfaction. To sustain the success with task shifting, it may be prudent to provide more support to the HSAs, increase their numbers and consider some form of incentives.

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John Mandoloma Kadzandira

Dedication

I dedicate my PhD thesis work to my wife, Frida, and children Chiyambi and Chimwemwe and all friends who have had to endure long periods of my absence during data collection, analysis and write up of this thesis. A special feeling of gratitude goes to my mother, sisters and in-laws who also missed me during the entire period that I was working on this thesis.

I also dedicate this dissertation to all the HSAs in Malawi, who, I believe, are doing commendable job of bringing health services closer to the people. To those HSAs who participated in my PhD research, I say thank you.

Definition of key terms used in the Thesis

Term	Definition
Essential Health Package (EHP)	A set of minimum health care services provided to all Malawians for free at point of use
Health Surveillance Assistant	The lowest cadre in the organogram of the Ministry of Health primarily responsible for delivering the preventive and health behaviour promotion interventions of the Essential Health Package (EHP) at the community level
Pentavalent	This is a vaccine which besides diphtheria, pertussis and tetanus (DPT) also contains Haemophilus influenza for meningitis and Hepatitis B components and has been in use in Malawi since min-2000s years replacing DPT
Task Shifting	The delegation of some tasks from highly qualified and skilled health workers to those with lower qualifications and skills

1 STUDY AIMS, OBJECTIVES AND RESEARCH QUESTIONS

1.1 Introduction

This PhD research examined the effects of shifting HIV testing and counselling (HTC) services to Health Surveillance Assistants (HSAs), a cadre of community of health workers in Malawi, on their ability to deliver their mainstream community Primary Health Care (PHC) activities, their workload, and on their job satisfaction and motivation. Data collection for the study took place between 2010 and 2012, 3-5 years since Malawi massively scaled-up HIV services through task shifting.

In the 2000s, the world witnessed an increased global commitment to scale up programmes on HIV/AIDS, TB and malaria especially in developing countries with the establishment of Global Health Initiatives (GHI) which made available huge amounts of funding to address these diseases in the worst affected countries including Malawi (Brugha, 2008). Two of the GHI that have made significant contribution to combat HIV and AIDS globally are the Global Fund to fight HIV and AIDS, TB and Malaria (popularly known as the GF) and the United States President's Emergency Plan for AIDS Relief (PEPFAR)[1].

When this large financial support became available, the implementation of interventions exposed weaknesses in the health systems of recipient countries especially with regard to absorptive capacity, human resources, governance, logistics and monitoring and evaluation (Biesma R. et al, 2012; Kober & Van Damme, 2004; MoH, 2006a). This created a situation some commentators called 'Medicines without Doctors' because the countries had suddenly received huge funding for drugs and other medical supplies yet there were no health workers to take them where they were needed the most (Ooms et al, 2007). In 2006, almost 800,000 children globally

[1] See Section 2.1 for a more detailed discussion on GHIs

were in need of ART worldwide, but only 15% of those children were accessing treatment because of health worker shortages (Ojikutu B., 2007). In Malawi, less than 10% of the people in need of ART were receiving the treatment at the end of 2006 (GoM & MoH, 2011; NAC, 2011).

In order to bridge the human resource gap, task shifting, the delegation of some tasks to cadres with lower professional qualifications and skills, also called alternative cadres (Mannan et al, 2012), has been used to provide and scale-up HIV services in Malawi since 2007 using a cadre called HSAs (Hermann et al, 2009; WHO & GHWA, 2008). The Ministry of Health in Malawi classifies HSAs, who are the main focus of this thesis, as 'community health workers assigned to provide preventive and minor curative health services at the community level[2]' and they act as the link with the formal health services (GOM, 1997).

1.2 Aims, objectives and research questions of the PhD research

Research and evaluations conducted in Malawi and elsewhere on the effects of task shifting have reported service scale-up, good or similar quality of care in the tasks shifted, some reduced workload among clinicians and nurses, and a mix of both positive and negative feedback from clients (Bemelmans et al, 2010; Biesma R. et al, 2009b; Gabriel A.P. & C.P., 2011; Hermann et al, 2009). An analysis of routine facility client data for 39 health facilities in Zambia and 52 health facilities in Malawi between 2005 and 2008 at the start of task shifting of HIV services showed remarkable achievements in the scaling-up of HIV and AIDS services alongside increases in some reproductive health services (Brugha et al, 2010; Brugha R. et al, 2010). The results of the analyses further showed that in Malawi, the scale-up was made possible by a large increase in lower trained cadres mainly the HSAs who were recruited with the funding support from the GF to support the scaling up of the HIV programme (Brugha et al, 2010).

[2] Under the Primary Health Care (PHC) Programme

While these studies have demonstrated that national or district level HIV services increased (Brugha et al, 2010), less attention has been placed on studying the consequences of shifting HTC services to the HSAs on the mainstream services that the HSAs are supposed to be providing at the community level. This PhD research was therefore conducted in order to assess the consequences of task shifting HTC services on the Health Surveillance Assistants and their main stream community work. Specifically, the PhD research was conducted in order to:

(i) explore and describe the HIV task shifting models taking place in the Malawi's hospitals and health centres;
(ii) assess and describe client trends for HTC services and some selected PHC services and health worker (HSAs, nurses and clinicians) numbers between 2006 and 2010;
(iii) assess the consequences of shifting HTC services to HSAs on their mainstream community PHC services, their motivation and job satisfaction; and,
(iv) assess and describe workload trends for HTC and PHC services among the HSAs

The results of this PhD research contribute to the understanding of task shifting in Malawi and to the global debate on task shifting which has largely concentrated on the quality and quantity of the services provided through task shifting and not on the consequences on the mainstream services that these new cadres are formally recruited to deliver. This research builds on earlier studies that the PhD Researcher has participated in (see Section 1.4 below).

Malawi continues to face critical health worker shortages in order to effectively deliver health services to its population and task shifting seems to be the way out of the problem in the medium to the long term partly because of the low training capacity for doctors, clinicians and nurses but also because of challenges with attracting and retaining the highly trained health workers (GoM 2015). HSAs, who are primarily recruited to conduct disease surveillance and to provide PHC services at the

community level, continue to be used for the scaling up and providing HIV and health services in the communities. While research on the quality and quantity of the services provided through task shifting has been conducted in Malawi, there is a general lack of empirical research evidence on the consequences of such task shifting arrangements on the mainstream tasks of the HSAs, their workload and job satisfaction and motivation. This PhD research contributes some information to the general lack of knowledge so as to contribute to the debate on the consequences of task shifting.

This research looked at the overall objectives of the Essential Healthcare Package and the Malawi Health Sector Strategic Plan (HSSP) 2011-2016 (see Section 3.2.4) both of which put emphasis on promotive health behaviours which are central to the work of HSAs in the communities. As stated above, the aim of shifting some HIV services to HSAs was to scale-up the HIV services to the population particularly those in remote underserved areas so as to achieve universal coverage (see Sections 2.7 and 2.8). The results of this research would be used to inform the Ministry of Health regarding future re-assignment of tasks to cadres such as HSAs.

1.3 Why Malawi was best suited for the study?

Malawi is considered a model for its new innovations to the responses to HIV and AIDS (GoM 2015) which have included task shifting HTC to HSAs and community volunteers and the Prevention of Mother to Child Transmission of HIV (PMTCT) Option B+ which is aimed at putting all HIV positive pregnant women on life-long ART treatment. In 2016, Malawi has just introduced the ‘test and treat’ initiative through which all newly tested HIV positive people in Malawi will be started on treatment regardless of their CD4 count status (GoM 2016). These new initiatives may put more pressure on the current health workers regarding provision of care, supervision and follow up of clients. This research was important for Malawi and other similar countries for three reasons:

1. Firstly, with more new innovations being introduced to the national response to HIV and AIDS, the HSAs (or community health workers), who are already

performing most of these tasks, will take on more clients alongside their community PHC work. The findings from this PhD research will therefore contribute to the understanding of the current task shifting arrangements and help to project future task shifting needs and plans because of these continued innovative plans;

2. Secondly, most studies on task shifting in Malawi and elsewhere have focussed on the effects of task shifting on the quality and quantity of the outcomes of the task shifted tasks taken on by the new health workers. On the contrary, this PhD research focussed on the consequences to the mainstream community PHC services previously delivered by HSAs, a cadre of community health workers who were assigned HTC services starting 2006/07.
3. Thirdly, Malawi needs to plan and balance its human resources properly in order to achieve maximum benefits from its health workforce while leveraging the potential of its health workers and matching the needs of the health sector with the existing skills mix especially for HSAs who are charged with preventive health services at the community as prevention has the potential to reduce treatment costs for the country (GoM 2015).

1.4 The PhD research journey

The PhD researcher works at Centre for Social Research of the University of Malawi's Chancellor College in the Public Health Research Programme. Since joining the Centre 18 years ago (in 1998) his research interests have been on the social and cultural aspects of HIV and AIDS and on human resources in the health sector. In 2001, the PhD Researcher led a study that was commissioned by the Government of Malawi and UNICEF on the historical contributions and effectiveness of HSAs in the delivery of health services. The results of the 2000 Malawi Demographic and Health Survey had shown a 10% decline in immunisation coverage rates from around 80% in the late 1990's to around 70% in 2000. This study reported that among others, the HSAs, who were considered by the Ministry of Health and partners as the 'super health worker' capable of delivering everything at the community felt overworked, had difficulties managing competing tasks and lacked training and skills in some of the

delegated tasks which were not in their original job descriptions (Kadzandira & Chilowa, 2001).

In 2007, the PhD Researcher led the first ever comprehensive census of health workers in Malawi whose results confirmed the level of understaffing in Malawi's health facilities despite the nearly 7,000 HSAs which were recruited with the support of the GF in 2007. The results of the census fed into the design of the Emergency Human Resource Programme (EHRP, see Section 3.2.11) which was supported by United Kingdom's Department for International Development (DFID) and the GF.

Between 2006 and 2009 the PhD researcher participated in another study that was conducted with a colleague at the University of Malawi's College of Medicine to assess the Sector-Wide Effects (SWEF) of the Global Health Initiatives (GHI) on Malawi's health system (Mwapasa & Kadzandira, 2009). This study was funded by the Alliance for Health Policy and Systems Research of the World Health Organisation and was part of a multi-country research jointly led by the Royal College of Surgeons in Ireland (RCSI) and the London School of Hygiene and Tropical Medicine[3].

Findings from the three studies above highlighted the important roles of the HSAs in scaling up the delivery of HIV-related services in Malawi. However, there were reports that their community work was being compromised by the delegation of additional tasks to their original tasks. The hypotheses that emerged in these findings prompted the PhD Researcher to conduct this research through the Irish Aid funded PhD Programme of the Connecting Health Research in Africa and Ireland Connections (CHRAIC) at the Royal College of Surgeons in Ireland (RCSI). This PhD research was aimed at contributing to the understanding of task shifting arrangements in Malawi and its consequences on the delivery of health services and on the workload, motivation and job satisfaction among the HSAs. In 2015/16, the PhD researcher also led the implementation of the Malawi Population Based HIV

[3] For more information about the SWEF studies visit: www.ghinet.org

Impact Assessment (MPHIA), a nationally representative bio-maker survey whose aim was to assess population level indicators of HIV infection, related risk factors, and the uptake and effectiveness of HIV prevention and treatment interventions. In the MPHIA survey, HSAs were found to be central to community mobilisation and the PhD researcher used the opportunity to better understand and validate findings from the PhD research concerning their time allocation to competing tasks.

1.5 Contribution of the PhD research to original knowledge on task shifting and human resource management in the health sector

A review of published and grey literature suggests that studies on task shifting have mostly focussed on the consequences of task shifting on the quality of care and patient outcomes and on the scale up of health services (quality and quantitative effects of task shifting). To the knowledge of the PhD Researcher, few of these studies have attempted to describe what happens at the facility level regarding decision making, supervision and the adherence of the task shifting programmes to the guidelines on implementing task shifting programmes proposed by the WHO (see Section 4.2.1) or to institutionalise task shifting programmes, as recommended in the 8-point framework of Herman et al (2009, see Section 4.4). Secondly, most studies on task shifting have analysed its effects on the new tasks undertaken by lower cadres but without necessarily focussing on the effect or impacts on their mainstream tasks. In this study, the PhD researcher has made an analysis of the consequences of shifting HTC services to HSAs on their main stream community PHC work, the resulting workload and on their job satisfaction and motivation.

1.6 Research methodology, methods and study design

A combination of both quantitative and qualitative methods of data collection were used in the study in order to obtain a fuller picture of task shifting and its impact on service delivery in Malawi. Firstly, client records for Pentavalent, family planning and HTC services for the period 2006-2010 were collected from eight health facilities in two districts of Malawi, Salima and Mangochi, in order to compare trends in the

services (see Section 7.1). Secondly, after the 2006-2010 trends were constructed, in-depth interviews were held with 12 health managers at national, district and health facility levels to get their interpretations and explanations of the trends and to obtain their views on task shifting. Thirdly, semi-structured interviews were also conducted with 243 HSAs from the two districts regarding their HSA work and experiences with task shifting (Sections 7.2-7.5). Quantitative data were analysed using SPSS and Stata software packages deriving both descriptive and analytical statistics (see Section 5.11.1) while thematic analysis was used for the open ended questions to explore experiences, perceptions and motivation for task-shifting among the health managers and HSAs who were interviewed (see Section 5.11.2).

1.7 Thesis structure and outline

Chapter 2 outlines the background to HIV and AIDS (globally and in Malawi) and the response to the epidemic at the global and national levels including funding, policy and programme changes so as to illustrate why task shifting was, and is, necessary in health care delivery. The Chapter also presents a historical overview of HTC services and how task shifting of HTC to HSAs and other community cadres such as volunteers and expert patients took place. Chapter 3 gives an overview of the Malawi economy and the Malawi health system and ends with a presentation of the major health system challenges including health worker shortages.

A review of current literature (both published and grey) on task shifting and its applications in various disciplines including HIV and AIDS is presented in Chapter 4. The Chapter ends with an identification of gaps in empirical research evidence which this PhD research sought to address as a contribution to the general debate on task shifting. The PhD research design, methods of data collection, selection of study districts and participants, the process of ethical clearance and data management and analysis are presented in Chapter 5. This Chapter also brings together four analytical frameworks identified through the review of literature (see Sections 5.3) and the 22 guidelines for implementing task shifting programmes recommended by the WHO (see Section 4.2.1) which were adopted and outlines how these were integrated in the

PhD research and how the integrated framework guided the further design of the study and the data collection tools and the process of data analysis.

Findings from the PhD research aligned with the major pillars of the integrated analytical framework (presented in Section 5.3) and the research PhD research questions (see Section 5.1.3) are presented in

- Chapter 6: Task shifting models in the health facilities – This Chapter outlines findings on
    - the availability of Guidelines and standardised protocols;
    - selection and motivation of HSAs who were on task shifting;
    - training and supervision; and;
    - staff, remuneration and career structure
- Chapter 7: Staff trends, service scale-up and task shifting – This Chapter presents findings relating to one of the key objectives of this PhD research – effects of task shifting on service scale-up and on the delivery of PHC services; and
- Chapter 8: Task shifting and workload – This Chapter presents findings on the effects of task shifting on the workload for the HSAs, nurses and clinicians in line with one of the key objectives of this PhD research

Chapter 9 presents the PhD researcher's interpretation of the findings highlighting the significance of the findings in view of published literature and debates on task shifting. The discussion in this Chapter also highlights the implications of the findings from this research on HR policy in Malawi.

2 HIV AND AIDS GLOBALLY AND THE SITUATION IN MALAWI

Since HIV was first reported in the mid-1980s, sub-Saharan African has been host to the largest proportion of people living with the virus. In 1990, 8.1 (95% CI: 7.0-10.3) million people were living with HIV globally and of these 70.4% (5.7 million) were living in sub-Saharan Africa (UNAIDS, 2013). At the end of 2012, an estimated 35.3 (95% CI: 32.2–38.8) million people were living with HIV globally, representing 0.8% (95% CI: 0.7-0.9%) of the global population and of these 70.8% (25 million) were living in sub-Saharan Africa. HIV and AIDS has therefore been one of the major challenges affecting the development of almost all the countries in sub-Saharan Africa. In 2015, 36.7 million (34.0 million - 39.8 million) people globally were living with HIV and of these, 19 million (17.7 million – 20.5 million) were in East and Southern Africa[4].

Since the start of the epidemic, 78 million (69.5 million – 87.6 million) people have become infected with HIV and 35 million (29.6 million – 40.8 million) people have died from AIDS-related illnesses. In 2015 alone, 2.1 million (1.8 million – 2.4 million) people became newly infected with HIV. Although the rate of new HIV infections has declined by 14% between 2010 and 2015, East and Southern Africa has continued to bear the largest proportion of new HIV infections as in 2015 alone, there were an estimated 960,000 (830,000-1.1 million) new HIV infections accounting for 46% of the global total of new HIV infections (UNAIDS 2016).

Malawi is among the worst affected countries with HIV and AIDS in sub-Saharan Africa. In 1990, an estimated 570,000 Malawians (11.6% of the population, 95% CI: 9.0-12.7%) were living with HIV and the prevalence continued to rise up to 1999 when it peaked at 16.0% (95% CI: 15.2-16.9%) and started to decline in the period after (UNAIDS, 2013). For example, in 2005 and 2006, HIV prevalence rates were estimated at 13.4% (95% CI: 12.8-14.2%) and 12.9% (95% CI: 12.3-13.6%),

[4] See: http://www.unaids.org/en/resources/fact-sheet

respectively. In 2010, the HIV positive population was estimated at 966,000 out of 13.9 million people or 10.6% of the population (NSO, 2012) and at the end of 2012, the UNAIDS reported that an estimated 1.1 million Malawians (10.8%, 95% CI: 10.2-11.4%) were living with HIV (UNAIDS, 2013). The prevalence of HIV in Malawi is gradually going down. At the end of 2015, three years after the endpoint of data collection for this thesis, UNAIDS estimated that 9.1% (8.4%-9.9%) of the adult population (15-49 years old) in Malawi were living with HIV (UNAIDS 2016). A more detailed discussion of the HIV situation in Malawi including the national response to the epidemic is presented in Section 2.2.

2.1 Global response to HIV and AIDS

Since the start of the last decade, there has been increased global commitment to scale up programmes on HIV/AIDS, TB and malaria especially in developing countries evidenced through, among others, the establishment of GHIs which made available huge amounts of funding (Brugha, 2008). Two of the GHIs that have made significant contribution to combat HIV and AIDS globally are the GF and PEPFAR.

The GF was created in 2002 and since then, has become one of the main financiers of programs to fight AIDS, TB and malaria in the world with approved funding of US$ 28.68 billion for more than 1,000 programs in 151 countries by 2013[5]. It is also estimated that by 2012, programs supported by the GF had provided antiretroviral treatment (ART) for 4.2 million people worldwide (up from 0.77 million people in 2006), anti-tuberculosis treatment for 9.7 million people and 310 million insecticide-treated nets for the prevention of malaria (Hurst, 2012). At the end of 2015[6], the GF was supporting 9.1 million people on ART, 15.1 million people tested and on TB treatment and had distributed 659 million mosquito nets in Malaria endemic

[5]For more information about GF funding, visit: http://portfolio.theglobalfund.org/en/Home/Index

[6] See: http://www.theglobalfund.org/en/

countries including Malawi. This signifies the fast rate at which the support from GF has enabled countries to scale-up their programmes on HIV/AIDS, TB and malaria.

The PEPFAR has also been very instrumental in mobilizing resources to support efforts to combat HIV and AIDS. Launched in 2003, PEPFAR is America's commitment to fighting the global HIV/AIDS pandemic and has since its inception in 2003 up to 2013, committed approximately $52 billion to bilateral HIV/AIDS programmes, the GF and bilateral TB programs (PEPFAR 2015). As of September 30 2015, PEPFAR had provided support for Anti-Retroviral Treatment (ART) programmes to more than 9.5 million people worldwide and had also supported 8.9 million voluntary medical male circumcision procedures, 5.5 million orphans and vulnerable children, 14.7 million HTC services for pregnant women and 68.2 HTC services to the global population[7]. In Malawi alone, PEPFAR had provided ART support to 538,600 people as of September 30 2015. This illustrates the magnitude of scale of HIV services during the period of data collection for this thesis. A detailed discussion of HIV funding globally and in Malawi is presented in Sections 2.2.3 and 2.2.4 below.

2.2 HIV and AIDS in Malawi

2.2.1 Trends in national HIV Prevalence

The first cases of HIV and AIDS in Malawi were reported in 1985 and the government responded by setting up an HIV prevalence surveillance system involving pregnant women attending antenatal clinics in the late 1980s (GoM, 2009b; GoM & NAC, 2005). The prevalence of HIV among pregnant women in that period was very low (~2%) and this rose to 26% by 1998 (Kalipeni, 2000). HIV prevalence peaked in 1998/99 before starting to decline in the period thereafter (Figure 2-1). Over the last decade, HIV prevalence among adults aged 15-49 years has remained stable at around 10-12% with the 2007 sentinel surveillance survey estimating the HIV

[7] See: http://www.pepfar.gov/documents/organization/250324.pdf

prevalence at 12% (MOH & NAC, 2007; UNAIDS, 2013) and the 2010 Malawi Demographic and Health Survey (MDHS) putting the prevalence at 10.6% (NSO, 2011). The prevalence of HIV in Malawi has continued to decline with UNAIDS reporting a prevalence of 9.1% (8.4%-9.9%) among adults aged 15-49 years at the end of 2015[8] whereas in 2015/16, the prevalence of HIV was at 8.8% (95% CI: 8.8-9.5) and was higher among women aged 15-49 (10.8%, 95% CI: 9.8-11.7%) compared to men aged 15-54 (6.4%; 95% CI: 5.6-7.3%) (NSO and ICF 2017).

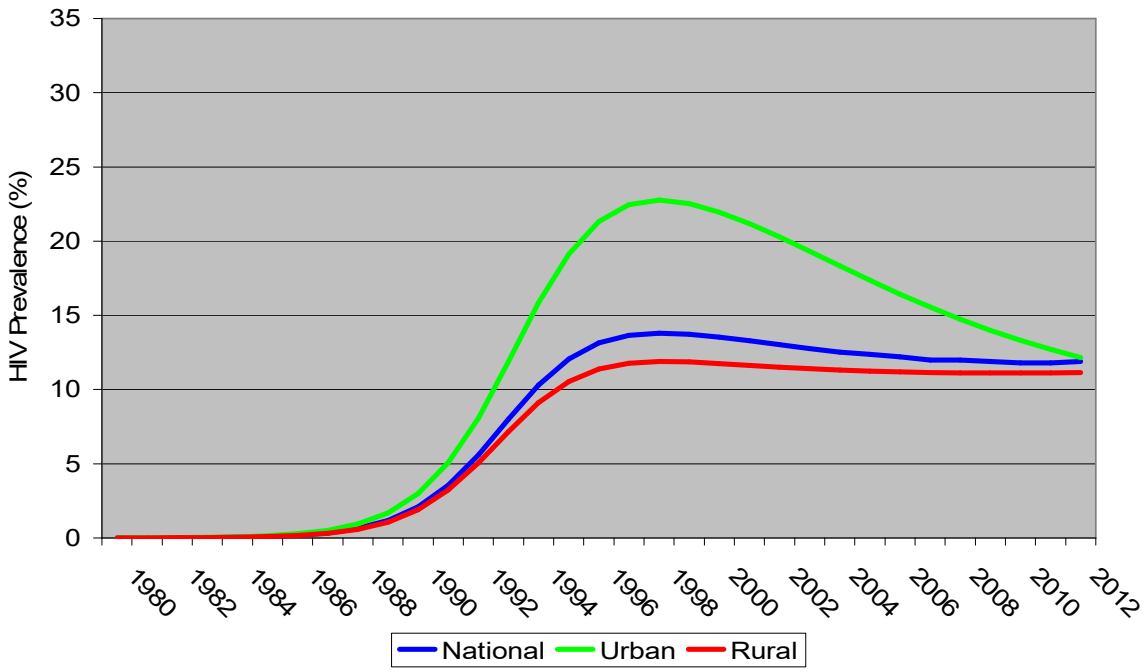

Figure 2-1: Estimated national HIV prevalence for urban and rural populations in Malawi (1980-2012)

Source: (MOH & NAC, 2007; NSO, 2011; UNAIDS, 2013)

Note: *MoH & NAC figures were from spectrum estimates using data from antenatal clinics; NSO figures are from the 2010 MDHS which measured HIV prevalence at the population level which UNAIDS figures were from modelling exercises. HIV prevalence from same type of survey are presented below*

[8] See: http://www.unaids.org/en/regionscountries/countries/malawi/

Geographically, HIV prevalence has been higher in urban areas at 17.4% compared to rural areas at 8.9%, but the prevalence in urban areas has been declining steadily in the last decade compared to the rural areas (NSO, 2010a). Although prevalence of HIV has been lower in the rural areas compared with the urban areas, the majority of people (86% of the national population (NSO, 2010b)) and HIV infected persons live in rural areas. Consequently, Malawi's HIV response programme has since 2006/07 emphasised the needs of the rural areas alongside those of the urban with regard to service provision and human resources. However, as discussed in Section 3.2.8, rural areas of Malawi continue to be underserved with very low health worker densities (an average health workforce density of 0.4 versus 1.2 in urban areas[9]) and many areas do not have access to health facilities within reasonable distance as recommended by the WHO (within ~5-8 Km radius).

Before 2004 when the first national population-based HIV prevalence estimates were derived through the MDHS, Malawi was estimating national HIV prevalence through antenatal surveillance data from selected sentinel sites across the country and its was difficult to derive district level estimates because of data availability problems. Since the 2004 MDHS, Malawi has also conducted similar surveys in 2010 and 2015/16 which also collected data on HIV prevalence. In 2015/16, Malawi also conducted the first ever national population based biomarker survey, the 'Malawi population based HIV impact assessment – MPHIA' which in addition to estimating HIV prevalence, also provided an opportunity to estimate HIV incidence and viral load suppression.

Table 1 shows the prevalence of HIV and AIDS in Salima and Mangochi districts where the PhD study was conducted (See Section 5.8) as estimated from the three MDHS stated above and the 2015/16 MPHIA study. The prevalence of HIV and AIDS in Mangochi district has generally been more than two times higher than in Salima. In 2004, the prevalence of HIV and AIDS in Mangochi was 20.8% where as in Salima the prevalence was at 8.9%. The 2010 and 2015/16 MDHS and the 2015/16 MPHIA

[9] Health work force density is defined as 'total number of clinicians and nurses per 1,000 population' (WHO 2006)

study reported HIV prevalence rates of 13.1%, 10.1% and 12.8% for Mangochi whereas for Salima, the prevalence rates reported from the surveys were 5.2%, 3.0% and 6.3%, respectively (NSO and ICF 2017). As the figures in Table 2-1 show, the prevalence of HIV and AIDS in Mangochi is higher than the national prevalence but slightly lower than the regional prevalence (southern region) whereas in Salima the prevalence is lower than the national prevalence but matching the regional prevalence as reported from the four surveys described above.

Table 2-1: The prevalence of HIV and AIDS in the PhD study districts (Mangochi and Salima) 2004-2015/16

Region or district		**2004**	**2010**	**2013**	**2015/16**	**2015/16 MPHIA**
	Malawi	11.8	10.6	12.0	8.8	10.0
Region	North	8.1	6.6	-	5.1	7.3
	Centre	6.5	7.6	-	5.6	5.3
	South	17.6	14.5	-	12.8	15.6
Study Districts	Mangochi	20.8	13.1	11.8	10.1	12.8
	Salima	8.9	5.2	10.7	3.0	6.3

Estimates (presented in Table 2-2) show that 79,340 new HIV infections and approximately 61,233 AIDS-related deaths occurred in 2010 in Malawi. Of the 79,340 new infections in 2010, 22,863 occurred among children aged 0-14 years representing 28.8% (GoM, 2010a; 2011b). As of 2006, there were an estimated 916,414 people including children under the age of 15 who were living with HIV and AIDS, 929,327 in 2007 and estimates show that in 2010, there were 966,447 PLHIVs in Malawi (GoM, 2011b). Five years later, at the end of 2015, Malawi had 980,000 (900,000 million – 1.1 million) people living with HIV (UNAIDS 2015)[10], which may

[10] See: http://www.unaids.org/sites/default/files/country/documents/MWI_narrative_report_2015.pdf

point to a stabilisation of the HIV epidemic, although such a judgement would depend on both the rates of new infections and of deaths associated with HIV.

Table 2-2: Trends in HIV incidence, prevalence, total PLHIV and HIV deaths in Malawi 2006-2010[11]

Indicator/Year	**2006**	**2007**	**2008**	**2009**	**2010**
Estimated new infections					
- # Adults (15+)	61,107	57,535	56,204	56,671	56,477
- # Children (0-15)	26,743	25,966	24,469	23,958	22,863
- Total	87,850	83,501	80,673	80,629	79,340
- Estimated adult incidence (%)	1.05%	0.96%	0.91%	0.89%	0.86%
Total HIV population					
- # Adults (15+)	760,811	766,080	771,311	778,512	786,603
- # Children (0-15)	155,603	163,247	169,677	174,978	179,844
- Total	916,414	929,327	940,988	953,490	966,447
- Estimated adult %	11.3%	11.0%	10.8%	10.6%	10.4%
Adult HIV population					
- # Males (15+)	302,204	302,875	303,923	306,149	309,069
- # Females (15+)	458,608	463,205	467,387	472,364	477,534
- Total	760,811	766,080	771,311	778,512	786,603
Estimated AIDS deaths					
- # Adults (15+)	51,812	52,156	52,223	52,068	52,144
- # Children (0-15)	13,495	12,797	11,343	10,723	9,089
- Total	65,307	64,953	63566	62,791	61,233

Source: (GoM, 2011b)

[11] The emphasis on the period 2009 and 2012 is because this is the period when most of the data collection for the PhD research was conducted

2.2.2 The National Response to HIV and AIDS

In the period before 1994, public and political commitment towards HIV and AIDS was low as HIV and AIDS were associated with issues of sex and sexuality and as such was not discussed publicly in Malawi (MOH & NAC, 2007). Nevertheless, the government undertook a number of steps in the fight against the epidemic and these included the establishment of: a National AIDS Committee at the end of the 1980s (to coordinate the national response); blood screening centres in all the major cities of the country; and a nationwide HIV and AIDS awareness campaign. A number of policy instruments were developed as a result of this including the Medium Term Plans (MTP I and II) for the period 1989-1999 (MoHP, 1999) and 1999-2004 which guided health services delivery including HIV and AIDS services in the country (GoM, 2003). These guided the early decades of the response.

During the period 1989-1994, the national response to HIV and AIDS emphasized blood screening, HIV and AIDS awareness campaigns, public awareness and the setting up an epidemiological HIV surveillance system. The period 1995-1999 largely focused on addressing the critical shortage of human resources within the health sector, the mobilization of resources for the national response and the setting up of programs for the care and treatment of PLHIV (GoM & MoH, 2008). A National AIDS Control Program (NACP) was established within the Ministry of Health in 1998 and was later replaced with the National AIDS Commission (NAC) in 2001 (Table 2-3). This was done to enhance the multi-sectoral nature of the response because AIDS was initially seen as a health-sector response when NACP was in the Ministry of Health (GoM & NAC, 2005).

Table 2-3 : Evolution of the HIV and AIDS response in Malawi from 1985 to 2007 when task shifting using HSAs started

Year	Activity or Programme
1985	First case of HIV reported in Malawi
1985-90	Antenatal HIV surveillance started at Queen Elizabeth Central Hospital in Blantyre; then extended to ~36 sites nationally Cabinet Committee of HIV and AIDS set up
1989-99	Medium Term Plan I (MTP I) and MTP II focussing mainly on blood screening, awareness campaigns and setting up epidemiological HIV surveillance system addressing human resource shortages and mobilisation of resources
1998	Setting up National AIDS Control Programme (NACP) within the MoH
2001	First National AIDS Policy developed to guide the national response
2001	Setting of the National AIDS Control Programme to promote multisector response to HIV and AIDS
2002-2004	NGOs start ART programmes e.g MSF in Thyolo and Chiradzulu districts **4000 patients on ART out the 150,000 in need of treatment and this figure rose to 223,437 by 2008 (see Section 2.2.2)**
2000-04	National HIV and AIDS Strategic Framework developed promoting participation of PLHIV and the youth
2005-09/13	National Action Framework (NAF) developed, implemented and extended to 2013 to align it with end of the Malawi Growth and Development Strategy
2006 - 2014	351 were providing HTC nationally, 588 sites by 2007 and 772 sites by 2010 and 912 sites by 2014 (see Section 2.2.2)
2013-17	NAF II Currently being implemented
2004	Global Fund starts providing support to the national response with US$897,869 by 2015, GF has provided US$32billion

Year	Activity or Programme
2004	First task shifting starts in with HIV testing, ART and PMTC introduced in some health facilities implemented by trained clinicians and nurses only
2005	PEPFAR and other donors start supporting the national response
2006/7	Malawi changes HIV testing algorithm from ELISA to Rapid testing
2007	GF supports Malawi to recruit 7,000 HSAs to support the national HIV and AIDS Programme Task shifting begins using HSAs

The first National HIV and AIDS Strategic Framework (NSF) was implemented in the period 2000-2004 and this was multi-sectoral in nature and promoted the participation of People Living with HIV and AIDS (PLHIVs), a community-based approach and had a strong emphasis on the youth (MOH & NAC, 2007). A second National HIV and AIDS Action Framework (NAF) 2005-2009 succeeded the NSF and was planned to guide the national response up to 2009. However, this plan was extended to 2012/13 for it to expire at the same time as the Malawi Growth and Development Strategy I (MGDS I), the overall development policy of the government of Malawi (GoM, 2010a). A successor plan to the NAF to guide the implementation of HIV programmes for 2013-2017 was prepared and agreed by all the stakeholders and this was prepared soon after the country developed a new Health Sector Strategic Plan for 2011/16. Malawi's first HIV and AIDS policy was developed in 2003 to provide the overall policy direction in the fight against AIDS in the country and was reviewed in 2013 to incorporate other emerging issues such as the rights of men having sex with men (NAC, 2011). However, the new policy had not been adopted at the time of submitting this Thesis in the last quarter of 2016.

In the period prior to 2005/06, the ART program in Malawi was not well developed (MoH, 2006a). In May 2004, only about 4,000 patients were on ART in Malawi out of the estimated 150,000 in need of treatment and this rose to 223,437 patients by 2008 (Harries et al, 2009). In 2004, the major ART providers were: the Lighthouse

centre at Kamuzu Central Hospital (about 800 patients), Queen Elizabeth Central Hospital (about 1,500), African Bible Clinic in Lilongwe (146 patients), Ekwendeni Mission Hospital in Mzuzu (78 patients), and Medicines Sans Frontiers (MSF) in Thyolo and Chiradzulu (about 2,000 patients) (Muula A.S., 2004). During this period access to ART was at the cost of the patient at subsidized rates except in the catchment districts of MSF in Thyolo and Chiradzulu where ART was free.

In 2006, Malawi had 351 sites providing HTC and this rose to 588 sites in 2007 and by 2010, the number of HTC sites had risen to 772, a rise by 2.2 times between 2006 and 2010 (GoM, 2011b). By end of September 2014 Malawi had 724 static HTC sites and 188 outreach sites, 912 in total (GoM 2015). As Table 2-4 shows, there were only 60 PMTCT sites in 2006 in Malawi; by 2010 the number of sites had risen to 491 sites; and by 2014, 2 years after the completion of data collection for this thesis, the number had risen to 638. Client volumes for HTC, PMTCT and ART have been rising steeply and fairly consistently from 2006 to 2014, illustrating the effectiveness of the HIV and AIDS response in Malawi during this period.

Table 2-4: Trends in HTC, PMTCT and ART sites and clients, 2006-2014

Indicator/Year	2006	2007	2008	2009	2010	2014
PREVENTION						
HIV testing and counselling						
- # sites providing HTC services	351	588	713	735	772	912
- # tests undertaken (million)	0.66	1.08	1.71	1.72	1.73	1.90
- # 1st time tests (million)	NA	NA	NA	1.08	0.93	0.84
PMTCT						
- # ANC clinics providing min. package	60	454	454	454	491	638
- # pregnant women attending ANC who are counselled, tested & receive results	137,996	411,204	327,400	333,335	432,354	520,789
Condom distribution						
- # Condoms distributed	32,090,000	20,980,000	18,601,000	21,100,000	NA	40,478,216
TREATMENT						
ART Program						
- # sites providing ART	141	163	221	377	417	706
- # people ever started on ART	85,168	146,856	223,437	312,476	345,598	745,133
- # people currently alive and on treatment	59,980	100,649	147,497	198,846	250,987	521,319
IMPACT MITIGATION						
Cash transfers						
- # OVC supported with cash transfers	NA	16,900	47,000	67,900	68,400	41,264

Source: (GoM, 2011b) (GoM 2015)

The increased HIV prevalence in Malawi in the late 1990s and early 2000s 'crippled' the Malawi health sector because of the increased patient volumes at OPDs and in hospital wards and reduced availability of health workers because of their own illnesses or attending to sick relatives and funerals (Aitken J.M. & Kemp J., 2003; Palmer D., 2006). A 2002 study of health facilities and health workers reported annual death rates of 2% among the health workers (UNDP, 2002). These aggravated human resource shortages at the time where the need to scale-up HIV services to the rural areas was imminent, warranted the use of task shifting and decentralization of the services (Bemelmans M. et al, 2010).

2.2.3 Funding for HIV and AIDS: the Global Picture and in Malawi

In June 2006, member States of the United Nations (UN) made a commitment to achieve "universal access to comprehensive prevention programmes, treatment, care and support for people living with HIV and AIDS by 2010". This was in line with the '3 by 5' Initiative of the World Health Organisation which aimed to put 3 million people on antiretroviral treatment (ART) by the end of 2005 and also a commitment of the 2001 United Nations General Assembly Special Session (UNGASS) Declaration on AIDS which was the first highest international commitment to the fight against HIV and AIDS globally, popularly known as the 'UNGASS Declaration of Commitment on HIV/AIDS' (WHO, 2006).

Consequently, in the decade following UNGASS, there were large increases in external funding and global political commitment for HIV/AIDS, TB and malaria both at national, regional and international levels (WHO, 2008). Mechanisms for external funding for the health sector in developing countries have also evolved quite a lot in the last 20-30 years stemming from supporting stand-alone projects and programmes in the 1970-90's to general budget support and sector-wide approaches (SWAps) in late 1990's and to performance-based GHIs in the 2000s (Brugha, 2008).

2.2.3.1 Global funding

GHIs which include the GF and PEPFAR, have been defined as 'a blueprint for financing, resourcing, coordinating, and/or implementing disease control across at least several countries in more than one region of the world' (Brugha, 2008). The GHIs have become significant players in mobilising financial resources towards scaling up of the responses to HIV and AIDS in countries with high infection rates. The GF, started operating in January 2002 and by the end of 2004 the Fund had disbursed US$859 million out of which US$482 million (56.1%) was for HIV/AIDS (Table 2-5). At the end of 2016, the GF will have disbursed US$30.983 billion globally and out of this amount US$16.384 billion is for HIV and AIDS[12]. In the same period, the GF disbursed to the government of Malawi a cumulative US$650.9 million including US$473.6 million (73%) for the HIV and AIDS programme and US$39.3 (6%) towards health system strengthening.

[12] See: http://www.theglobalfund.org/en/financials/

Table 2-5: Total funds disbursed by the Global Fund to fight HIV and AIDS, TB and Malaria globally and in Malawi

	GLOBALLY			MALAWI					
Year	Cumulative disbursement since establishment	HIV specific disbursement	% total disbursement for HIV	Cumulative disbursement since establishment	HIV specific disbursement	TB specific disbursement	Malaria specific disbursement	Health System Strengthening specific disbursement	% total disbursement for HIV
2002	897,869	429,599	48	-	-	-	-	-	-
2003	232,098,115	121,505,343	52	314,000	314,000	-	-	-	100
2004	859,603,937	482,354,903	56	26,253,844	26,253,844	-	-	-	100
2005	1,911,917,951	1,060,488,260	55	41,444,923	41,444,923	-	-	-	100
2006	3,233,746,380	1,753,244,683	54	70,660,690	64,297,183	-	6,363,507	-	91
2007	4,960,463,544	2,826,835,960	57	150,036,611	129,151,779	-	17,957,714	2,927,118	86
2008	7,213,991,836	4,161,818,648	58	242,125,842	189,174,000	2,825,106	32,919,377	17,207,359	78
2009	9,969,107,752	5,481,433,177	55	308,995,224	248,183,534	2,825,106	36,640,917	21,345,667	80
2010	13,020,384,989	7,071,158,941	54	377,334,040	292,509,663	21,345,667	42,133,043	21,345,667	78
2011	15,658,853,575	8,585,364,244	55	513,300,250	347,564,968	39,317,312	87,100,658	39,317,312	68
2012	18,974,884,102	10,385,400,180	55	583,339,662	415,131,110	39,317,312	89,573,928	39,317,312	71
2013	22,922,815,111	12,512,478,145	55	650,876,743	473,583,995	39,317,312	98,658,124	39,317,312	73
2015	30,983,678,818	16,384,506,273	53	879,938,926	672,362,818	8,521,555	144,829,704	40,211,129	76

Sources: UNAIDS Report on the Global AIDS Epidemic (UNAIDS, 2013) and http://www.theglobalfund.org/en/financials/

PEPFAR was launched in 2003 and has since committed approximately $52 billion to HIV and AIDS, malaria and TB. As stated above, as of September 30 2015, PEPFAR had provided support for Anti-Retroviral Treatment (ART) programmes to more than 9.5 million people worldwide and had also supported 8.9 million voluntary medical male circumcision procedures, 5.5 million orphans and vulnerable children, 14.7 million HTC services for pregnant women and 68.2 million HTC services to the global population[13]. Hence, the scale of the external GHI funding (from GF and PEPFAR), and the HIV service scale-up achieved supported by these funds, illustrates the degree of 'shock' to Malawi's health system, during the period 2006 to 2012.

2.2.3.2 Funding for HIV and AIDS in Malawi

The national response to HIV and AIDS in Malawi is funded by the government, development partners and the private sector (GoM, 2011b). The importance of donor funding for the HIV and AIDS programme in Malawi cannot be over-stated. In the 2007/08 financial year, the national budget for the HIV and AIDS programme was US$107.4m of which US$104.8m (or 97.6%) came from donors (comprising of 74.6% multilateral, 21.3% bilateral and 9% other funds). Support from the Global Fund accounted for 54% of total expenditure in 2008/09 (Asante F.A., 2010). In the financial year 2011/12 when the last National Health Accounts Assessment was done, the HIV programme was funded to a tune of US$145.5 and the donors contributed US$133.6 or 91.8% of the budget (Table 2-6). According to the Government of Malawi, international funding for the HIV response programme has since 2010 been declining with the financial year 2013/2014 donor contribution being at 83.6% (GoM 2015).

[13] See: http://www.pepfar.gov/documents/organization/250324.pdf

Table 2-6: A breakdown of sources of funding for 2010/11 and 2011/12

Source	2010/2011	(%)	2011/2012	(%)
Public Funds	2,666,009	1.7	11,827,301	8.1
Private Funds	415,211	0.3	119,323	0.1
International Funds	148,891,014	98.0	133,575,811	91.8
Grand Total	151,972,234	100	145,522,435	100

Source: GoM (2013 and 2015)

According to the Ministry of Health, the share of international funding for the HIV programme has increased from 46% in 2002/03 to 98% in 2008/09 with the bulk of this funding coming from multilateral organisations, especially the Global Fund (GoM, 2011b). The national response to HIV and AIDS in Malawi has had a number of external donors and these include the Global Fund, World Bank, the Government of the United Kingdom, the Kingdom of Norway, Government of Canada, Government of the United States of America (through USAID and CDC), and the United Nations family of organisations (GoM 2015). Other partners provide funding directly to implementing partners and not through the National AIDS Commission (NAC). The pattern of funding for the HIV programme is in line with the funding for overall health sector which relies on external funding, as such, donor support is very important in the delivery of health services in Malawi.

In Malawi, the GF started providing funding in 2003 with an initial US$314,000 meant for the HIV and AIDS programme. In 2004, the GF increased its cumulative HIV funding to US$26.3 million and to US$70.7 million in 2006 (Table 2-7). This was the time that the Government of Malawi (GoM) recognised that the country had insufficient health workers to scale-up HIV services especially to rural and underserved communities, hence the introduction of task shifting using HSAs and other cadres to deliver HTC services. The funding that the GF provided in 2007 and 2008 (US$150 million and US$242.1 million, respectively) was partly used for health systems strengthening which included the recruitment, training and

deployment of additional 7,000 HSAs to assist with the scale-up of the HIV programme (see Sections 3.2.10 and 3.2.11).

Table 2-7: External funding for HIV and AIDS Programme in Malawi (2003-2013)

	Donors			
Year	**GF**	**PEPFAR**	**DFID**	**World Bank**
2003/4	314000			
2004	26,253,844			
2004/2005	41,444,923			
2006	64,297,183			
2007	129,151,779			
2007/2008	189,174,000		4008819	4150000
2008/2009	248,183,534		7359750	689202
2009/2010	292,509,663	18,000,000	6797216	*
2010/2011	347,564,968	55,275,000	*	*
2011/2012	415,131,110	65,000,000	*	*
2012/2013	473,583,995	*	*	*

* Previous funding was still in use

Sources: Donors' Websites

The GoM officially signed a Partnership Framework with the US Government in 2010 which guided PEPFAR funding up to 2014 and was extended to 2017. In the period 2014-2017 the US government, through PEPFAR, has committed to support the HIV and AIDS programme by providing US$86[14], or nearly 52% of the funds for the HIV and AIDS programme (Figure 2).

[14] https://www.pepfar.gov/countries/malawi/index.htm

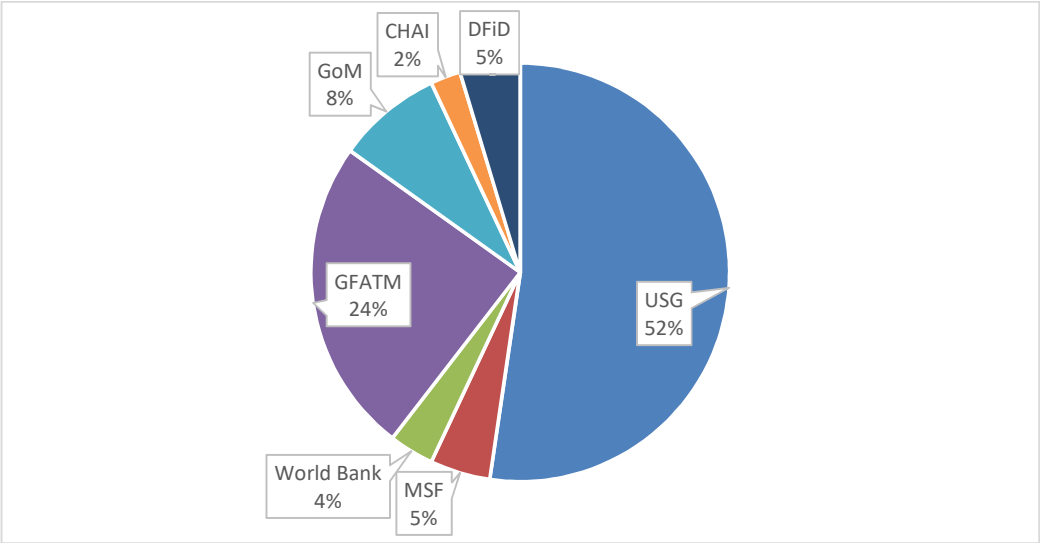

Figure 2-2 : HIV Financial Resources (2014-2017)

DFID was up to 2010/11 one of the major funding partners in Malawi contributing through budget support, pooled funding to the health sector wide approach (SWAp) and project funding to non-profit organisations (Table 2-7). The World Bank was also disbursing its funding through the common approach to budget support, direct project support, pooled funding and sector support. Allocation to NAC of World Bank or overall funding was US$4,150,000 in 2007/08 and US$689,202 in 2008/09 (GoM, 2010b).

Globally, the increase in these financial resources brought down the cost of delivering ART to approximately US$140 per patient per year by reducing production costs as well as transportation (through economies of scale). In the process, this changed the debate that persisted about the cost-effectiveness of delivering treatment as opposed to prevention (Kober & Van Damme, 2004). However, in the period before 2007/08 the GHIs had not made a significant impact on the availability of health care workers to sustain the massive investments in the availability of drugs and HIV prevention activities (Hanefeld & Musheke, 2009). There was also some evidence emerging suggesting that some of the GHIs were recruiting public sector staff to work for GHI-funded nongovernmental implementing agencies and in some cases affecting the policy priorities of recipient countries (Biesma R. et al, 2009a; Hanefeld & Musheke, 2009).

Research conducted in mid-2000s also showed increased workload among health workers in the few HTC and ART sites that were operational (Mwapasa & Kadzandira, 2009; Walsh et al, 2010a). The need to scale-up the HIV services to rural and underserved areas through the additional support provided by the GHIs would not be possible because the system was already overstretched in terms of human resources and other constraints. Task shifting and service decentralisation were therefore introduced as mechanisms to achieve service scale-up in the short to medium term (WHO, 2008).

2.3 HIV testing in Malawi: from laboratory testing to rapid test

Testing for HIV in Malawi was introduced in 1985 using the enzyme-linked immunosorbent assay (ELISA) test (GoM, 2003; 2009b), a test which requires lab facilities to determine result. As such, testing for HIV in the late 1980s and early 1990s was limited to the major referral hospitals in the country because they had laboratory facilities and the HIV and AIDS epidemic had not become a major issue in the country (GoM, 2009a). In 2001, the Malawi AIDS Counselling and Resource Organisation (MACRO) initiated HIV testing using the Western Blot Rapid Tests (WBRT) which can be used without laboratory facilities and is easy to interpret results. The WBRT was subsequently adopted by the government of Malawi in 2003.

The WBRT testing had been in use for the period 2003-2005/6 when the Government decided to scale-up HIV services to almost all parts of the country and in line with the international push to achieve universal coverage (GoM & NAC, 2005). As stated above, funding for HIV services had become available mainly from development partners but the country faced human resource challenges to scale-up the HIV services.

With funding becoming increasingly available and the government realizing the urgent need to scale-up HIV services to all parts of the country, a solution had to be found regarding the health worker shortages. A decision was therefore made to delegate (i.e. task shift) HIV services to other cadres including HSAs, HIV

counsellors, CBOs, NGOs and community volunteers. The scale-up of the HIV and AIDS programme (including HTC) was guided by the 2003 national HIV and AIDS policy, the 2005-09 National Action Framework (NAF) which was extended to 2013 and the HTC scale up plan (2006-2010) and HTC guidelines. In addition, task shifting using community health workers (including HSAs) was also guided by the National HIV Prevention Strategy (GoM, 2009a).

The main HTC approaches introduced in Malawi were (MSF, 2011);

1. Client initiated HTC: this is where a client goes to a health facility or to a provider to seek the service out of one's own will
2. Provider initiated HTC: This HTC takes place in static sites, outreach sites, mobile clinics, home based door-to-door and HTC national campaigns. The provider initiated HTC is being done for two main reasons:
    i. As part of the Maternal and Child Health – HTC is offered to clients but with an opt-out option where a client could choose to decline taking an HIV test. This service is routine for ANC clients for purposes of the PMTCT programme and FP services
    ii. STIs & diagnostic HTC as an integral part of diagnosis and management of various illnesses (for example, suspected TB cases, TB patients etc.)

In line with recommendation No. 2 of the WHO on implementing task shifting (see Section 4.2.1), the GoM undertook rigorous consultations with various stakeholders including people living with HIV and AIDS in formulating the national Action Framework (2005-2010) which accommodated task shifting as a means to hasten the scale-up of HIV services in the country (GoM & MoH, 2011). The consultations enabled various stakeholders to be identified for participation in the HIV programme including people living with HIV and AIDS, community based organisations, faith based organisations, HSAs and other community volunteers.

In 2007, the GoM commissioned a national census of all health workers in the country to obtain information on the demography of human resources for health both in the public and private sectors, which was led by the PhD researcher (Kadzandira et al, 2008). The country also undertook several studies to identify

gaps in service provision (GoM, 2009b). All these studies were also in line with the Recommendation No. 4 of the WHO for implementing task shifting programmes (WHO, 2008). The government also reviewed the rules that prevented non-clinical health workers to counsel and test people for HIV or to stage and consider putting HIV positive people on ART and several other revisions to the country's regulatory mechanisms including revising the 2003 HIV and AIDS Policy to include issues of nutrition and HIV testing by the lower cadres (GoM, 2009b).

The HIV programme received high level of political support, in that at the higher political levels, there are two committees, one at the cabinet level and the other at the parliament level. The political day to day running of the ministry are managed by a Cabinet Minister (sometimes together with a Deputy). For the HIV and AIDS Programme, the Head of State is the Minister responsible for HIV and AIDS (GoM & MoH, 2008; GoM & NAC, 2005). A Department responsible for nutrition, HIV and AIDS was also set up in the Office of President and Cabinet headed by a Principal Secretary.

Regarding regulatory frameworks, the HIV scale-up programme was also regulated through:

- National HIV/AIDS Policy: A Call for Renewed Action (GoM, 2003)
- The 2005-2010 National Action Framework (NAF) on HIV and AIDS which was extended to 2013 (GoM & NAC, 2005)
- HIV Testing and Counselling (HTC): The 5 Year Plan to Scale Up HIV Testing and Counselling Services in Malawi 2006-2010 (MoH, 2006b)
- The National HIV Prevention Strategy and Action Plan 2009-2013 (GoM, 2009b)

As such, task shifting is well recognized by the policy environment in the country. All these policy instruments supporting the use of HSAs and other cadres were developed by the government together with development partners. As stated in Section 2.8, task shifting in the Malawi health sector is not a new phenomenon. Given the fact that Malawi has had an acute shortage of qualified specialists and doctors, the government in the 1960's decided to establish a number of cadres to

support the provision of health services (MoH, 2012). These include clinical officers who receive four years of clinical training, medical assistants (three years of training) and heath surveillance assistants (ten weeks of training). As such task shifting has become entrenched in the provision of health services in Malawi including HIV services.

The foregoing grey literature review implies that task shifting has had good political support and takes place within a regulatory framework because all the documents cited above placed emphasis on the use of community health workers and community participation in the delivery of HIV and other health services. With the political support in place and the regulatory framework available, task shifting in Malawi may continue to be the cornerstone of service provision and this satisfies one of the 8-point framework for implementing successful task shifting programmes suggested by Hermann et al (2009) discussed in Section 4.4.

2.4 The Global Health Worker Shortfalls

The 2006 World Health Report produced by the World Health Organisation (WHO) recognises the complexities with trying to agree on a common definition of a 'health worker' (WHO, 2006). The report firstly chooses to broadly define health workers as "*all people engaged in actions whose primary intent is to enhance health*". The difficulty with this definition is that it includes other workers who are not directly involved in the provision of health services but whose work contributes to health such as mothers with young babies. The 2006 World Health Report then narrows down the definition to "*all paid workers employed in organisations or institutions whose primary objective or intent is to improve health as well as those whose personal actions are primarily intended to improve health but who work for other types of organisations*". The latter part of the definition includes doctors or nurses, for example, working for companies not directly in health (such as tobacco or sugar companies in Malawi). The WHO, however, generally categorises health workers into two categories namely health service providers and health management and support staff (WHO, 2006).

The category of health service providers includes doctors, nurses, clinicians and technicians whose prior training is health related. In Malawi, this category would

also include HSAs even though their inclusion in the category of ‘health workers’ is considered as a ‘stop-gap measure’ while the country trains more doctors, clinicians and nurses to serve in rural areas. As stated above, HSAs are the community health service providers mainly responsible for health promotion and preventative activities and treating minor ailments especially among young children. The management and support staff are ‘common service’ workers who can be posted to work in any government department or institution.

Globally, health service providers, i.e. those who directly provide health care, constitute approximately two thirds (67%) of the health workforce, but there are regional variations with a general trend showing richer countries having a larger share of the health service providers (WHO 2006). In Africa, these constitute 83% of the workforce on average, whereas in Malawi these constitute71% (Kadzandira et al, 2008; MoH, 2008) implying that there are more health management and support staff in the Malawi health sector than the regional average. The implications of Malawi’s health sector spending more on the health management and support staff compared to the continental average is that these resources would otherwise be allocated to training more health service providers and in the long run reduce the need for task shifting as a strategy for improving health service delivery.

Health management and support staff are considered the ‘invisible backbone’ of the health system because discussions on health workforce usually excludes them but these provide useful support and managerial functions that enable the system to perform or not (WHO, 2006). These include economists, health statisticians, clerks, administrators and security and maintenance staff. These staff do not provide health services directly to the population but they help the health system to function. In facilities with fewer clinicians and nurses, clerks and other support staff have been reported to provide useful back-up services with regard to record keeping and provision of group counselling to clients before they see nurses and clinicians for the actual testing (Chirwa et al, 2005; Patterson et al, 2007).

The health worker shortage is a global problem not only affecting Africa (WHO, 2008). The causes of health worker shortages are many and they include deficiencies in source countries to produce enough numbers to meet demands,

migration to the West in search of better paying jobs, internal migration from rural to urban areas and resignations (Lynch & Lynch, 2008). Rising deaths due to HIV and AIDS have also been added to the list of causes of health worker shortages especially in sub-Saharan Africa (Huddart & Picazo, 2003).

Some research has also shown that health workers shortages are not only due to health worker shortfalls but health worker mismanagement or poor deployment of the existing health workers. This argument is supported by a study of task shifting for HIV treatment and care services from nurses to community health workers at 12 primary health care centres in South Africa. The researchers found inefficiency in nurse deployment and that mostly the nurses spent considerable amount of time on training, counselling and administrative tasks that could easily be done by the community health workers (Wet K et al, 2011).

Health worker shortfalls in Malawi and other developing countries are also a result of migration. Reasons for health worker migration (both internal and external) are discussed and summarised in a paper presented at the Global Policy Advisory Council Meeting on Health Worker Migration in May 2008 (Lynch & Lynch, 2008) and in a number of other reports and papers (McAuliffe et al, 2008; McCoy et al, 2008b) to include both 'push and pull' factors, emanating from the source and destination countries, respectively[15]. In Malawi, the root cause of the country's human resource crisis is 'poverty' (Palmer D., 2006) and the following associated reasons:

- migration (especially of doctors and nurses) in search of better pay and working conditions particularly outside the country;
- inadequate training capacity of the existing training institutions
- the impact of HIV and AIDS on the health workers themselves and on their time while attending funerals and sick relatives.

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[15] The push factors include poor remuneration, undefined or unclear career structures, poor health service management, political reasons and poor living and working conditions whereas the pull factors include better remuneration, opportunities for further training and improvement in skills and better living conditions including better education for their children

With health worker to population ratios of 1:53,176 for physicians, 1:2964 for nurses and 1:7,959 for clinicians (Kadzandira et al, 2008), the government of Malawi has had to find means of delivering health services to its population, including training cheaper cadres who could be delegated to take on some simple tasks (task shifting) and some to work in the rural communities. These cadres also are unlikely to emigrate.

2.5 Human resource constraints and HIV service scale-up

The increased interest to scale up programmes on HIV and AIDS, TB and malaria led to large investments by donors for the three diseases in the mid-2000s, consequently enabling countries with high HIV infection to start scaling up HIV services to their populations in line with the Declaration to achieve Universal Access to HIV services to all by 2010 as discussed above. The massive financial investments provided by the international community as well as national governments provided the required resources to achieve this goal. However, countries faced many challenges including the lack of health workers to deliver the services which had become available because of the increased funding.

A 2004 study in Malawi, Mozambique, Swaziland and South Africa concluded that financial resources were no longer considered as the main immediate constraint any more in these countries, but that the lack of human resources for health was cited as the single most serious obstacle for implementing national treatment programmes (Kober & Van Damme, 2004). All policy makers and health programme managers they interviewed in the four countries bemoaned the lack of frontline staff to implement the activities.

At the global level, countries and donor groups all acknowledged that there was a need to overcome the major barriers to achieving universal access if the targets are to be met (WHO, 2008) and many initiatives were being undertaken in different settings to try and address the human resource crises that developing countries were facing. One such initiative was ‘task shifting’ which became popular mainly in sub-Saharan Africa. Some countries such as Malawi, Uganda, Tanzania, Zambia and South Africa were applauded for having scaled-up their

national responses to HIV and AIDS through the use of alternative cadres (Mannan et al, 2012) and community health workers, in a process of 'Task Shifting' (WHO, 2008).

2.6 Malawi's human resource challenges to scale up HIV services

As stated above, Malawi's response to the HIV/AIDS epidemic started soon after 1985 when the first case of AIDS was reported in the country but the response was slower and mainly concentrated in urban areas for various reasons, amongst which were limited funding and scarcity of health workers (GoM & NAC, 2005). The GF commenced support to the national response in Malawi in 2003 when it provided US$314,000 and this increased to US$26,253,844 in 2004 (See Section 2.2.3 and Table 2-5). By 2005, the Fund had committed a cumulative US41,444,923 to Malawi's national response to HIV and AIDS.

When this large financial support became available, the implementation of interventions exposed weaknesses in the health systems of recipient countries (including Malawi) especially with regard to absorptive capacity, human resources, governance, logistics and monitoring and evaluation (Biesma R. et al, 2012; Kober & Van Damme, 2004). This created a situation some commentators called 'Medicines without Doctors' because the country had suddenly received huge funding for drugs and other medical supplies yet there were no health workers to take them where they were needed the most (Ooms et al, 2007). In 2006, almost 800,000 children globally were in need of ART worldwide, but only 15% of those children were accessing treatment because of health worker shortages (Ojikutu B., 2007). In Malawi, less than 10% of the people in need of ART were receiving the treatment at the end of 2006 (GoM & MoH, 2011; NAC, 2011).

2.7 Task shifting as a response to human resource challenges

In order to bridge the gap in human resources, Malawi employed different strategies both short and long-term so as to deliver the services to the population. As stated above, task shifting, the delegation of certain responsibilities from more

skilled health workers (for example doctors) to those with lesser training (for example clinical officers, nurses and lay counsellors), became a popular strategy for scaling-up HIV services particularly in sub-Saharan Africa (WHO, 2008; WHO & GHWA, 2008). In Malawi, HIV testing and counselling (HTC), a service which was previously laboratory-based and provided only by clinicians and nurses with the help of laboratory technicians, was shifted to HSAs (GoM & NAC, 2005). Within 2-3 years of HSAs involvement, Malawi registered 2-4 fold increases in HIV-related services, a situation that was predicted would put the country on target towards achieving HIV and AIDS universal access targets by 2010 (GoM & MoH, 2008). Elsewhere, HIV service scale-up alongside increases in reproductive health services were also being reported. In Zambia for example, HTC, ART and PMTCT client numbers and coverage levels increased rapidly alongside increases in reproductive health services when the country started receiving high donor support for HIV and AIDS services (Brugha R. et al, 2010).

Research that has been conducted on the effects of task shifting in many parts of sub-Saharan Africa has reported impressive HIV service scale-up as a result of task shifting (Ejembi C.L. et al, 2013; WHO, 2008). Some research studies have also gone beyond reporting service scale-up to assessing quality of services provided under task shifting arrangements (Davies N.E. et al, 2013; Emdin C.A. et al, 2013; Johns B. et al, 2014; Mdege N.D. et al, 2013; O'Malley G. et al, 2014; Van Rie A. et al, 2014) . *"….in Haiti, task shifting allowed nurses and community health workers to provide essential health services that would otherwise have been unavailable particularly in rural poor areas, loss to follow-up of patients living with HIV was less than 5% at 24 months, and staff were satisfied with the model of care…"* (Ivers et al, 2011).

As stated above, there is less empirical evidence on the consequences or implications of task shifting on the mainstream tasks of the lower cadres and on their resulting workload and motivation. This thesis addresses this gap by examining the effects of delegating some HIV services to HSAs on their community work and on their workload, and on their motivation and job satisfaction in Malawi. As stated above, this PhD research was aimed at assessing the consequences of task shifting HTC services to HSAs on the main

stream community PHC work, their workload and on their job satisfaction and motivation.

2.8 A brief historical overview of task shifting in Malawi

In Malawi, task shifting can be traced back to the 1960's when the government decided to start training non-physician clinicians (clinical officers and medical assistants) after noticing the slow pace with training medical doctors who were by then only being trained outside the country (WHO & GHWA, 2008). The first medical college for training doctors in Malawi was only opened in 1991/92 (the College of Medicine, Blantyre) and since then, training of medical doctors has been going on in-country as well as outside. This is being done alongside training of nurses (both at the University of Malawi for graduate nurses and other colleges for diploma and certificate level nurses), medical assistants and clinical officers. A discussion on the numbers and distribution of nurses, clinicians, HSAs and other health workers in Malawi is presented in Section 3.2.8.

Task shifting for HIV service scale up using HSAs mainly started in 2004 when the country started receiving large donor support for HIV services mainly from the Global Fund and the government and partners agreed on the urgent need to scale-up HIV services to all parts of the country (GoM & NAC, 2005; Harries et al, 2009); Until then, HIV services were being provided in major urban areas and by clinical officers and highly qualified nurses whereas testing of blood samples was being done in laboratories by trained technicians. The government then realised that the process of scaling up HIV services would not be achieved if the provision of the services were only limited to clinical officers, nurses, medical assistants and laboratory staff. The policy was then amended and HSAs and lay counsellors were trained to provide HTC services as well as assisting in the ART and PMTCT programmes initially as providers of just counselling, but later allowed to provide both counselling and testing services (GoM & NAC, 2005). The change in policy in line with the need to scale-up coincided with the introduction of the Rapid HIV test and introduction of ART services to more number of sites and districts across the country. The introduction of ART attracted more HTC clients which

overstretched the workload of the existing trained clinicians and nurses (Singleton et al, 2007).

2.9 Rationale for using task shifting

A detailed discussion of task shifting in health care is presented in Chapter 4. Globally (including Malawi), it was generally recognised that the scale-up of services would not be possible if solutions to the health worker shortages were not found in the short to medium term. Task shifting was therefore used in many countries as one of the solutions. Among other reasons, task shifting was considered a better solution for the following reasons (WHO & OGAC, 2007a):

- Training new doctors, nurses, clinical officers and technicians takes a long time (3-6 years depending on the cadres) and it is very costly. Task shifting was therefore considered as the fastest and cheapest way of scaling up service delivery to most rural areas.
- The cost of delivering the HIV services is lower through the lower cadres (such as HSAs and lay counsellors in Malawi) in terms of their remuneration requirements. A more detailed discussion on the economic benefits of task shifting is presented in Section 4.2.2;
- Most countries have inadequate training infrastructure (schools and tutors) for doctors and nurses. As such, in the short to medium term, it would be better to find solutions so as to provide a stop-gap measure while governments are establishing the schools and training more tutors/teachers;
- Research has also shown that task shifting helps to build bridges between the community and health facilities and that it creates local jobs and new opportunities for people living with HIV/AIDS (Chirwa et al, 2005) (Lehmann S. & Sanders D. 2007); and,
- Because of their lower academic training background, community-based health workers have lesser chances of migration outside their working environment compared to nurses and doctors. Therefore, more investment in such cadres of staff would ensure their availability for the services in the long-term.

2.10 Overview of the Health Surveillance Assistant programme in Malawi

Health Surveillance Assistants (HSAs) are the lowest paid cadres in the official organogram of the Ministry of Health assigned to work at the community level but reporting at the health centres (Figure 3) (GoM, 2004c; MoH, 2012). The HSA cadre is specific to Malawi but the roles and responsibilities of HSAs are similar to those of the community health workers (CHWs) in other African countries and even beyond[16] (Ejembi C.L. et al, 2013; Findley S. et al, 2014; MoH, 2012). CHWs promote health services at the community level by increasing health knowledge and service uptake through a range of activities such as outreach, community education, informal counselling, social support and advocacy. In the case of Malawi, CHWs also include community volunteers (working as individuals or in groups such as the community based organizations) and family planning or condom distribution agents. The difference between HSAs and the other CHWs is that HSAs are recognized in the structures of the Ministry of Health as salaried employees of the Ministry but placed and assigned to work and live in a catchment community (GoM & MoH, 2011; MoH, 2004a). The number of HSAs at any health centre depends on the catchment population and geographical features. HSAs fall under the Department of Environmental Health at the district level and this directorate falls under the Director of Preventive Health Services in the Ministry of Health.

[16]For example see: http://explorehealthcareers.org/en/Career/157/Community_Health_Worker

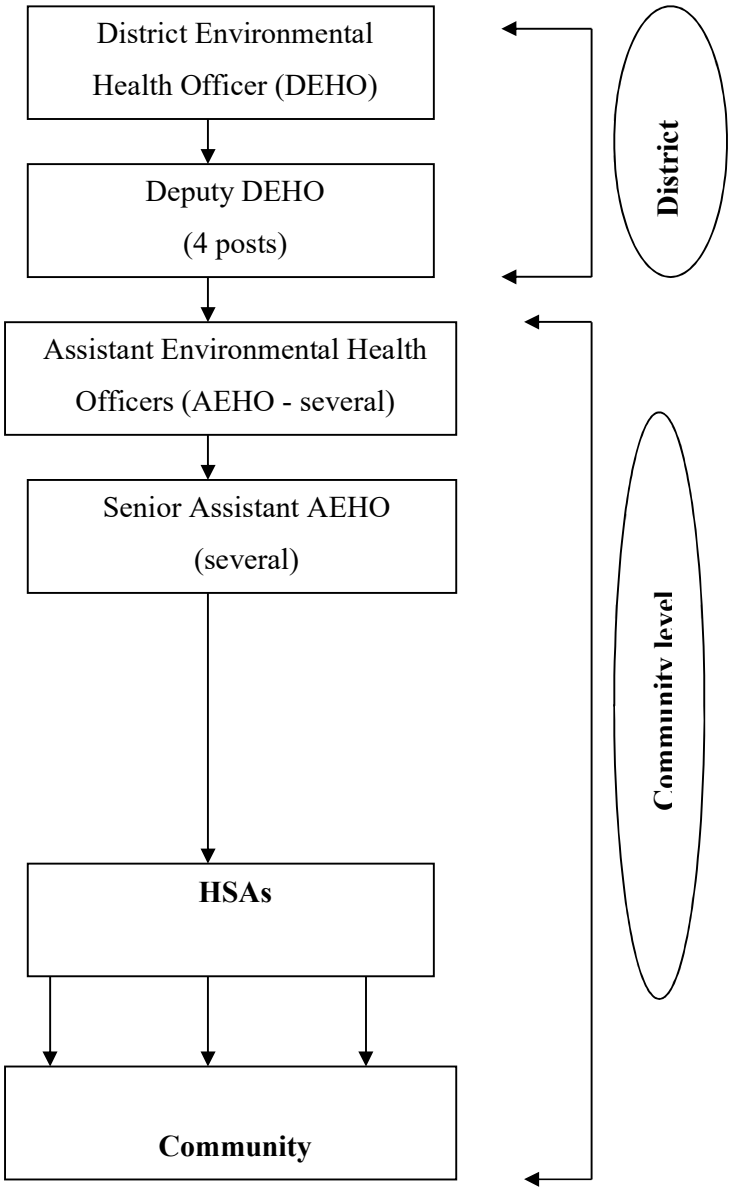

Figure 2-3: Position of a Health Surveillance Assistant in the District Health Office Organogram (Environmental Health Division)

2.10.1 History of HSAs

The Health Surveillance Assistant (HSA) programme dates back to the 1960's when the country was hit by an outbreak of smallpox (MoH, 2012). The government, realising that the health system did not have the human resource capacity to respond, recruited a cadre of temporary staff specifically to deal with the outbreak and called these cadres 'Smallpox Vaccinators'. When smallpox was almost eliminated in 1973/74, Malawi experienced a cholera outbreak particularly in the Southern District of Nsanje (Namilaza, 1998). The government responded by establishing Village Health Committees (VHCs) mainly comprising untrained village volunteers and the Smallpox Vaccinators (now called Cholera Assistants) were redeployed to Nsanje to help fight the cholera by working with the VHCs. From Nsanje the Vaccinators were redeployed to do similar work in other districts of the country because the outbreak had spread throughout. New and additional Cholera Assistants were also recruited to scale-up the fight against cholera.

The position of HSA was created in mid-1980's as temporary staff from Cholera Assistants to work in the communities with a new mandate of 'surveying' factors and behaviours that put people's health at risk and providing primary assistance before referring complicated cases to health centres and hospitals, hence the name 'Health Surveillance Assistants' (MoH, 2004a; 2012; Namilaza, 1998). The use of HSAs was seen as a faster mechanism of implementing the interventions relating to the Alma Alta Declaration on Primary Health Care (PHC) because the nurses, doctors and clinicians could not manage to do all the preventive community PHC work because they were very few in numbers. It was not until 1995 that the position of HSAs was officially recognised in the HR structures of the Ministry of Health (MoH) when the ministry decided to regularise their employment from being 'temporary workers' to become permanent in the Department of Environmental Health (MoHP, 2004).

HSAs were thus taken as the vehicle through which the interventions of the PHC programme which the government had ratified in 1978 in Alma Ata would be

implemented (Benett & Cole-King, 1982; Msukwa, 1987). The HSA as a health worker serves as a linkage between fixed district health services and the community. The HSA works directly with village and community leaders in identifying and providing services for the community; works with community health workers and volunteers from other ministries in providing environmental and personal services; collaborates with Enrolled Community Health Nurses, Medical Assistants and reports to Environmental Health Assistants. In community settings according to an assigned catchment area [1000-2,500 population], the HSA provides several tasks as summarised in Textbox 2-1 while Annex 4 at the end of this Thesis shows a full job description of an HSA.

Textbox 2-1: Summary job description of an HSA

- health education concerning prevailing health problems: HSAs conduct health talks and meetings in villages in their catchment areas teaching people about the prevailing health problems (for example diarrhoea or malaria) and how they can prevent them;
- promotion of food supply and proper nutrition: HSAs are charged with teaching people on the importance of home gardens for vegetables, proper sanitary practices during food preparation and advantages of dietary diversification teaching people on safe water acquisition and treatment;
- promotion of basic sanitation through working with village health committees and volunteers;
- teaching and promoting the adoption of safer maternal and child Health (MCH) care practices including family planning: HSAs distribute an array of FP methods and also supervise community based distributors of other FP methods such as condoms;
- providing immunisation to children and mothers against major diseases both at the health facilities and in the communities through outreach clinics;
- treatment of common diseases and injuries at the community level;
- promotion of mental health (through community talks); and,
- provision of essential drugs (for example, antimalarial drugs) at the community level.

Source: (GOM, 1997)

HSAs started being actively involved in PHC activities in 1984. Before that, HSAs were only involved in selected immunisation and cholera control activities and working with village health committees (VHC) in promoting the health of their communities (Msukwa, 1987). Over the years, HSAs have become central to community-based health service delivery and their job description has evolved considerably. HSAs are also used by the TB Control programme to facilitate tracing TB treatment defaulters (Kalanda et al, 2008). Some HSAs have also been trained to provide HTC services and almost all HSAs are running village clinics where they

treat minor childhood illnesses in a programme being called community case management (CCM) (Gilroy K.E. et al, 2012).

2.10.2 Previous Research on the Performance of HSAs

Previous assessments that have been conducted on the performance of HSAs in Malawi have generally raised questions on the over-reliance of HSAs as the core deliverers of health and health-related interventions at the community and health centre levels considering their levels of training, general knowledge of health issues, supervision, workload, crowded job description and low remuneration packages (Chitimbe, 1998; Kadzandira & Chilowa, 2001). In 1998, a study that was conducted to assess the knowledge, attitudes and practices of the PHC approach among HSAs, the findings revealed that HSAs lacked comprehensive knowledge of the approach as only 15% of the 74 HSAs who were interviewed were able to comprehensively define and explain how the approach works (Chitimbe, 1998). This study also reported that most HSAs had no basic training and very few had attended refresher courses. Similar observations were also made in another study which was led by the PhD researcher in 2001 in three districts of Malawi where 19% of the HSAs reported not having received pre-service HSA orientation training (Textbox 2-2)

Textbox 2-2: Study on the roles of HSAs in the delivery of health services and immunisation in Malawi (Kadzandira & Chilowa, 2001).

Findings from the Malawi Demographic and Health Survey that was conducted in 2000 and from other studies that were conducted between 1997 and 2001 by the University of Malawi showed declining EPI performance of about 10% from an average of 80% reported in the early 1990's. This prompted the government of Malawi to commission a study to explore and examine the factors that would be contributing to the observed trends. At this time, HSAs had been assigned to deliver other health services besides being surveillance of disease outbreaks and providers of immunisations. The principal research question was:

'*Could the decline in immunisation coverage be as a result of the changing roles of HSAs from that of full support to immunisation to that of 'super health worker' capable of doing everything at community level?'*

Among others, the study examined the historical roles and contributions of the HSAs such as immunisation and child growth monitoring; their working conditions and constraints to their work. Furthermore the study also assessed the community's response to the work of HSAs. A total of 121 HSAs and 325 mothers/caretakers of children aged 3-59 months drawn from four districts in Central Malawi were interviewed in addition to interviewing district health officers and environmental health officers.

The study identified several challenges that were affecting the work of HSAs including long distances from their residences to their furthest communities (~8-15km on average), large populations (>1,000 households), limited transport options, long-travels without allowances for lunch, accommodation and incidentals, low salaries compared to other health workers and poor relations with their superiors at the health centres.

The findings also showed that some HSAs had started implementing their activities selectively, choosing simple ones and activities where they thought they could get

more benefits through trainings and allowances. The analysis of immunisation data from health passports of 423 children drawn from the communities served by the HSAs in the study showed that over 70% of the children received their vaccines very late mainly due to vaccine shortages and the fact that the HSAs were busy conducting other village tasks at the expense of immunisations.

Interviews with community men and women also revealed great animosity between HSAs and members of the community arising from alleged misbehaviours of the HSAs and perceived incompetency.

A study that was conducted in rural areas of Zomba in 2014 found that HSAs were performing a variety of tasks in addition to those outlined in their job description leading to overload, specialisation and competing demands existing in the context of task shifting and prioritisation (Smith et al, 2014). Although not all the HSAs who were interviewed showed resistance to the increased tasks, the majority complained about inadequate training, remuneration, supervision and that the increased workload was making completing their primary duties challenging.

Some studies on the performance of HSAs have reported poor performance by the HSAs. For example, a study involving HSAs and PLHIVs in five rural areas of Zomba reported great misgivings that PLHIVs had about HSAs concerning how they allegedly mistreated them and diverted drugs and commodities meant for PLHIV support (Chirwa et al, 2005). Some of the PLHIVs also acknowledged that HSAs were being overburdened with a variety of tasks but without any additional remuneration, a thing that makes some of them to steal the commodities.

3 OVERVIEW OF MALAWI AND THE COUNTRY'S HEALTH SYSTEM

3.1 Overview of Malawi

3.1.1 Geographic and population characteristics

Malawi is a landlocked country in Southern Africa bordered to the north by Tanzania, to the south and south-east by Mozambique and on the central and northern western borders by Zambia (Figure 3-1). The total area is 118,000 square kilometres of which 20% is under water Lake Malawi is the largest lake in the country and the third longest freshwater lake in the world.

The terrain for most parts of the central and southern regions is generally flat but most parts of the northern region, along the lake shore and in the lower Shire catchment areas are hilly and mountainous rendering these areas almost impassable during the rainy season (GoM, 2012). Even though most parts of the central and southern regions are flat, the poor road networks and the clay soils make the roads in these areas difficult to access during the rainy season. Of the total 15,451 kilometres road network in Malawi, only 26% (4,038 Km) was paved by mid-2012 while the rest – 11,413 Km representing 74% of the network – was either earth or gravel (MRFA, 2012).

The inaccessibility of the rural areas, coupled with poor social infrastructure such as poor telecommunication facilities, unavailability of electricity and potable water, irregular public transport system and unavailability of banks and other financial institutions all combine to make these rural areas unattractive to qualified health workers to go and work in these areas thereby making access to health service difficult for the people living in those areas (MoH, 2007).

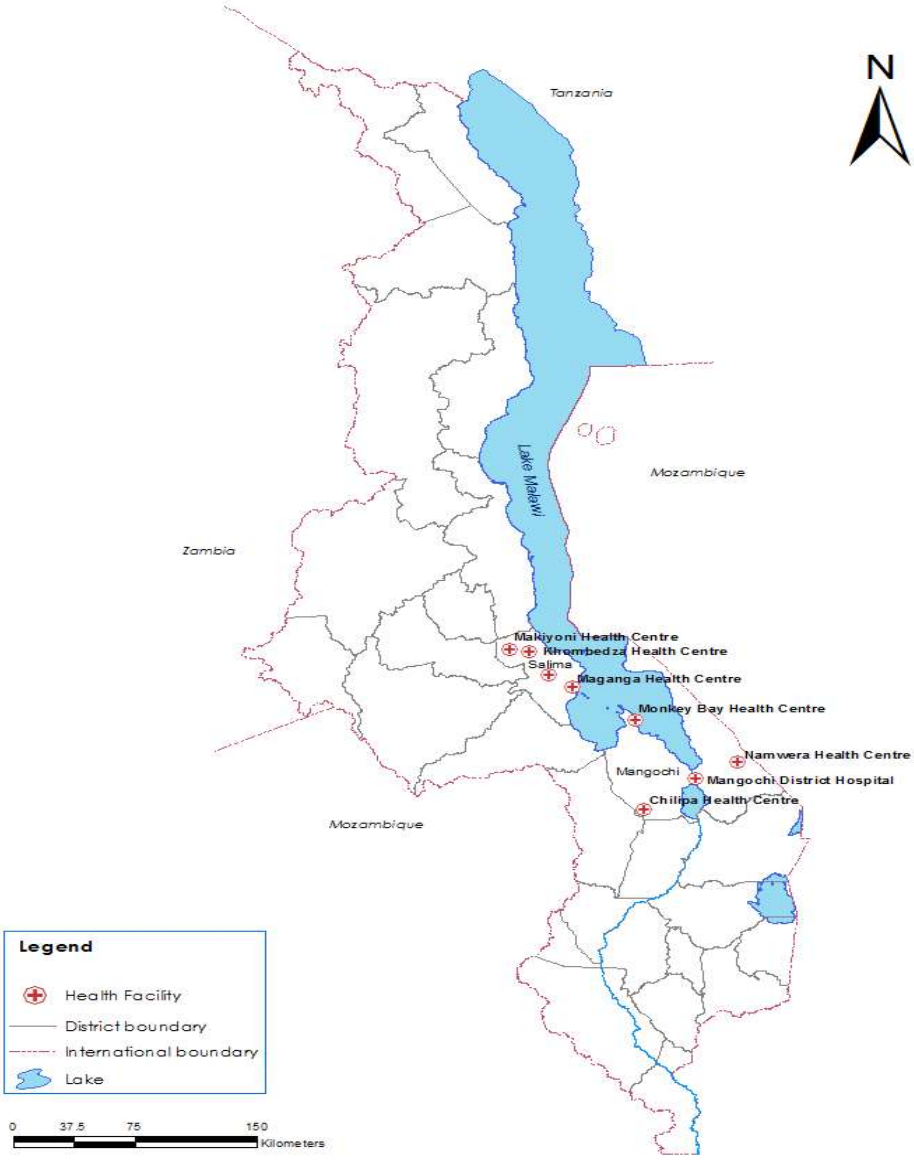

Figure 3-1: Map of Malawi showing location of study districts and health facilities[17]

[17] Map obtained from the National Statistical Office (NSO) produced on request by the PhD researcher.

3.1.2 Political situation

Malawi became independent from the British colonial rule in 1964 and attained a full republican state in 1966. From 1964 to 1993, Malawi was under one party system of government led by Malawi Congress Party under the leadership of Dr. Hastings Kamuzu Banda until a general revolution led by Catholic Bishops in 1992 which led to a referendum in June 1993[18].

Since 1994, Malawi has been a multiparty state. During the one-party period, many Malawian professionals (including doctors and nurses) fled the country to Europe, the United States and other African countries (especially South Africa) because of the autocratic leadership of the Malawi Congress Party. Generally, Malawi has been a stable nation since the 1993 referendum. As of 2015, Malawi has had four presidents in the multiparty period namely Bakili Muluzi (1994-2004), Bingu Wa Mutharika (2004-2012), Joyce Banda (2012-2014) and the incumbent Peter Mutharika. In the period after 1994, the retention of doctors and nurses has somehow improved with those leaving the country mainly being to economic reasons and of greener pastures outside the country.

3.1.3 The economic situation

Economically, Malawi is one of the poorest countries in the world ranking 174 out of 187 countries using the UNDP's Human Development Index[19] (UNDP 2014). In

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[18] See: (http://en.wikipedia.org/wiki/History_of_Malawi#Multi-party_democracy).

[19] The HDI is a summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable and have a decent standard of living and this index is used to compare the development of countries across years. Malawi, at number 174 is among the worst of the 187 countries assessed by the HDI while Norway is the best of all the countries

2004/05, 52.4% of the population of Malawi was considered poor i.e. living on less than US$1 per day (NSO, 2006). About 22% were considered ultra-poor as they could not afford the recommended daily food requirements. Malawi's per capita gross national product is approximately US$190, way below that of most countries in the world. From independence in 1964 to 1979, Malawi's economy performed very well in every sector of the economy, especially the agricultural sector with the economy growing at an average rate of 6% (measured in GDP terms) per annum against a population growth of only 2.9% (Chilowa et al, 2000). The favourable climatic conditions that prevailed at the time, the expansion of large scale estate agriculture and the high level of gross domestic investment constituted some of the factors that led to the impressive economic growth.

Malawi's economy started declining very sharply in the late 1970's and early 1980s such that in 1981 for the first time since independence the GDP was negative at -5.2%. Among others, the 1978-79 global oil shocks and the disruption of the trade route through Mozambique as a result of the Mozambican civil war including the influx of refugees from Mozambique, constituted some of the factors that led to the decline of Malawi's economy (Chilowa et al, 2000). Under the direction of the World Bank and the International Monetary Fund, Malawi started implementing the Structural Adjustment Programs in the early 1980s in order to improve economic performance. Despite implementing these programmes, their intended benefits never materialised as these programmes brought more economic challenges to most Malawians than envisaged. These economic challenges coupled with recurrent droughts, Malawi's economic recovery seemed far from being achieved because Malawi's economy relies heavily on rain-fed agriculture which contributes more than 30% of GDP and more than 90% of the export earnings (Chilowa et al, 2000). Nearly 90% of the labour population is engaged in agriculture growing crops such as maize, tobacco, tea, sugarcane among others.

Malawi's economic program is set out in the Malawi Growth and Development Strategy (MGDS) whose first plan for 2006/07 and 2010/11 (extended to 2012) was launched in October 2007 followed by a new plan for the period 2012/13 to 2016/17

(GoM, 2012). During the period 2004 to 2009, the macro economic situation remained stable when the country registered GDP growth rates of around 8.3% on average and the inflation rate was brought down from two-digits to single digits (around 7%). However, after 2009 the macroeconomic situation turned worse due to weak political and economic policies taken by the Government of Malawi[20]. These policies coupled with bad governance and non-respect for human rights led to sour relations with most of its traditional donors including Britain and America. Given low international crop prices for tobacco, tea, cotton and sugar (Malawi's major crop exports), Malawi's economy contracted, affecting all sectors of the economy including the delivery of health services. The change of leadership in 2012 following the death of Bingu Wa Mutharika led to changes in some political and economic decisions, reversing some of the policies and programmes that were propagated by previous government, attracting donor confidence and the confidence of the general public in Malawi (Particip, 2012).

3.1.4 Overview of health indicators

Table 3-1 presents a summary of selected health indicators in Malawi. In general, Malawi's health indicators show positive improvements between 2004 and 2010 when two comparable Demographic and Health Surveys (DHS) were conducted. However, even though Malawi has registered improvements in these health indicators, the rates still remain among the lowest/worst in the world and are a continued concern to the Government of Malawi. Infant mortality rate in 2010 was estimated at 66 per 1,000 live births down from 76 per 1,000 live births in 2004 whereas underfive mortality had also declined to 112 per 1,000 live births down from 133 per live births in the same period. Maternal mortality rate had also declined to 675 per 100,000 live births in 2010 down from 984 per 100,000 live births in 2004 (NSO, 2011).

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[20] See: www.oecd.org/dataoecd/61/3/47083490.pdf .

Table 3-1: Summary of selected health indicators in Malawi (2004-2010)

		Year of Survey	
	Indicator	2004	2010
Mortality indicators	Infant mortality rate (IMR)	76	66
	Underfive mortality rate (U5MR)	133	112
	Child mortality rate (CMR)	62	50
	Maternal mortality rate (MMR)	984	675
	Adult mortality rate (AMR)	10.5	8.8
Nutritional indicators among children aged 6-59 months	% Stunted (low height for age)	53.0	47.1
	% Wasted (low weight for height)	6.0	4.0
	% Underweight	17.0	12.8
HIV prevalence	% adults 15-49 HIV+ve	11.8	10.6
Other indicators	Life expectancy at birth (years)	~36	
	Total fertility rate (TFR)	5.7	6.0
Staff : population ratio (2007)	Doctor : population ratio	1 : 53,176	
	Nurse : population ration	1 : 2964	
	Clinician : population ratio	1 : 7959	

Source: MDHS 2010 and Census of Health Workers (2007)

In the last 20-30 years, Malawi's immunisation programme has been considered one of the best programmes in sub-Saharan Africa achieving coverage rates in excess of 70% in the period between 1985 and 2000. The 2010 Malawi DHS reported full immunisation coverage rates of BCG, Pentavalent vaccine, polio and measles of 81% among children aged 12-23 months old, an increase in coverage of 26% on average since the 2004 MDHS (MoH, 2011). Among others, the high achievement

rates in the immunisation programme is attributed to the strong inter-linkages between health facility and communities in the PHC programme through the network of HSAs and community health volunteers which have provided the strong back bone for primary health care interventions in Malawi (GoM 2004; 2012). As such, the role of HSAs in the delivery of PHC is very critical to its success and the HSAs have continued to perform most of the interventions at the community level (MoH 2013). As stated above, this study was conducted to critically examine the effects of shifting additional HIV services to the HSAs on their community PHC work with the hypothesis that the introduction of HIV service delivery by the HSAs was affecting the delivery of community PHC work, their workload, motivation and job satisfaction.

The strategy and programme on the Integrated Management of Childhood Illness (IMCI) in Malawi has placed strong emphasis on the prevention and management of pneumonia, malaria and diarrhoeal diseases as these are among the main causes of childhood morbidity and mortality in the country. This is evidenced with the introduction of the community clinics under the community case management (CCM) of common childhood illnesses and HSAs are the key providers of the treatment services at the community clinics (Nsona H. et al, 2012). The IMCI-CCM programme re-emphasizes the critical role that HSAs play in the delivery of health services at the community level.

The introduction of HIV services (in clinics and through door-to-door) is in addition to the community PHC work that the HSAs are required to perform. In 2010, Malawi had some outbreaks of measles in some parts of the country which resulted in an estimated 43,000 children requiring treatment (MoH, 2011). It may be argued that overburdening of the HSAs may be leading to deterioration in some of the services being provided - a proposition explored in this thesis. As stated above, the research outlined in this Thesis was aimed at assessing how the provision of HIV services by HSAs is affecting the delivery of PHC services in the communities.

3.2 The Malawi Health System

3.2.1 Defining a health system

This Section provides an overview of Malawi's health system, its objectives, its structural and organizational elements and functions i.e. the manner in which health care is organized, financed, delivered and monitored. The discussion uses World Health Organisation's (WHO) 2007 definition of health system but is cognisant of the fact that health systems are defined in many different ways depending on the country objectives or programmes in question (Ergo A. et al, 2011; Shakarishvili G. et al, 2010). Ergo et al (2011) also caution that "…*at the country level defining health system in terms of discrete building blocks might be extremely misleading….it could promote isolated initiatives aimed at addressing challenges within one particular block, with no consideration for the influence and from the impact on the other parts of the system…*" (Ergo A. et al, 2011). As such the discussion below aims at providing an overview of the Malawi health sector, how health care services are delivered and the roles of the various actors in the system.

The World Health Organisation (WHO) defines a health system as consisting "….of all the organizations, institutions, resources and people whose primary purpose is to improve health….." including all efforts to influence determinants of health as well as more direct health-improvement activities (WHO, 2007). In most cases, health systems aim to deliver preventive, promotive, curative and rehabilitative interventions through a combination of public health actions and the pyramid of health care facilities that deliver personal health care by both State and non-State actors. The WHO stipulates the six fundamental building blocks of a health system as comprising (Figure 3-2): (i) service delivery, (ii) health workforce, (iii) health information systems, (iv). access to essential medicines, (v) financing, and (vi) leadership/governance.

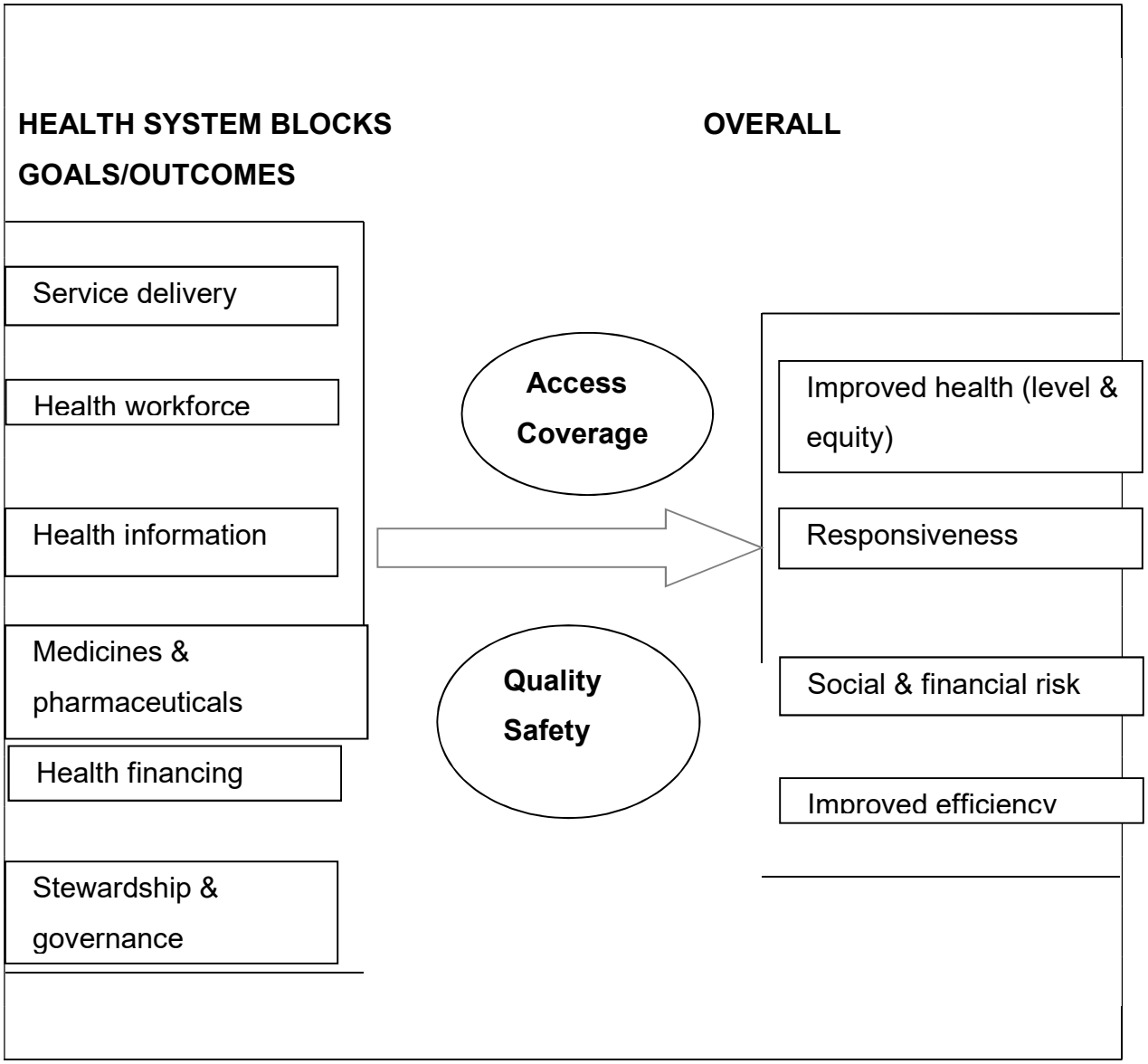

Figure 3-2: WHO health system building blocks and overall goals and outcomes
Source: (WHO, 2006)

All the six building blocks of a health system presented in Figure 3-2 contribute to the strengthening of health systems in different ways. Two of the building blocks: stewardship/governance and health information systems are cross-cutting to the system because they provide the basis for the overall policy and regulation of all the other health system blocks whereas the blocks comprising the medical products and pharmaceuticals and service delivery all reflect the immediate outputs of the health

system including the availability and distribution of care. Therefore, the key input components to the health system are financing and the health workforce (WHO, 2006).

The discussion of the Malawi health system below is centred on the six health system building blocks highlighted above. For purposes of order and to better understand how the health system is organized in Malawi, the discussion starts with stewardship and governance, then service delivery, health financing and health management information systems. The discussion concludes with health workforce (human resources for health) and the key challenges facing the health system.

3.2.2 Stewardship and governance: national level

Annex 1 shows the governance structures of the Malawi health sector at the national level whereas Annex 2 shows the operational structure of the Ministry of Health (MoH) from the national to the district levels. The MoH provides the stewardship for the health sector including policy formulation, coordination, supervision, resource mobilisation (GoM, 2004c) and human resource planning, recruitment, deployment and remuneration (the latter part referring mainly to the staff working in the government hospitals and clinics). There is a cabinet committee and a parliamentary committee on health responsible for handling health issues at the cabinet and parliament levels, respectively. The mandate of the Ministry of Health is to provide overall health sector oversight and strategic health sector leadership (GoM 2015).

In the MoH headquarters, the political representation is through a Minister of Health (sometimes includes a Deputy Minister as well) and these are responsible for the day-to-day political decisions regarding health issues. From a civil service perspective, the MoH is headed by a Principal Secretary (assisted by several heads of departments) who reports to the Office of President and Cabinet through the Minister on political issues and also reports to Principal Secretaries Committee headed by the Chief Secretary to Government on technical issues (Chirwa, 2009).

A health sector working group is mandated by GoM as the overall coordinating body for the health sector. Its membership comprises of MoH and other GoM ministries and Departments, training institutions, local government, regulatory bodies, CSOs, the private sector (including CHAM) and Health Development Partners (HDPs). Among others, the health sector working group is responsible for endorsing the sector budget and the Annual Implementations Plans (AIP), overseeing the implementation of the AIP and the Health Sector Strategic Plan (HSSP) and recommending policy directions to the senior management committee of the ministry. Below the health sector working group are 10 technical working groups namely: Finance and Procurement, Hospital Reform, Human Resource, Health Promotion, Public Private Partnerships, Health Infrastructure, Drugs and Medical Supplies, Laboratories, Essential Health Package (EHP) and Monitoring, Evaluation and Research. Each of the technical working group advises the health sector working group on specific technical issues pertaining to its composition.

In line with the overall government policy on decentralisation, Malawi is divided into five health sector zones for ease of supervision and monitoring and each zone office is responsible for 5-7 districts grouped according to geographical and population characteristics (GoM, 2011a).

3.2.3 Governance at district level

The GoM drafted the National Decentralization Policy in 1997 which was subsequently approved in 1998. A Local Government Act was endorsed and 34 local government authorities (including district, town and city authorities) were established all vested with the power to run their own affairs (MoH, 1999). Although the decentralization was adopted in 1998, there was a slow pace to the actual implementation of the system and the health sector was one of the earliest to start the process of decentralization when in 2004, district health offices were given the authority to run their own affairs and central hospitals started running autonomously (GoM, 2011a).

With decentralisation trickling down to the districts, health services delivery and planning is done jointly with the Health Services Directorate and the Director of Planning and the Health and Environmental Committee of the District Assembly. There is joint planning at the district level involving all local stakeholders namely the DHO, CHAM, NGOs, communities, civil society groups and the private sectors within the decentralised environment. From the MoH perspective, the DHO reports to the Zone Office but it also reports to the Assembly as a decentralised structure. The Zonal Health Support Offices and the District Health Management Teams (DHMT) provide technical support to the District Assemblies. Figure 3-3 shows the governance structure of the health sector at the district level.

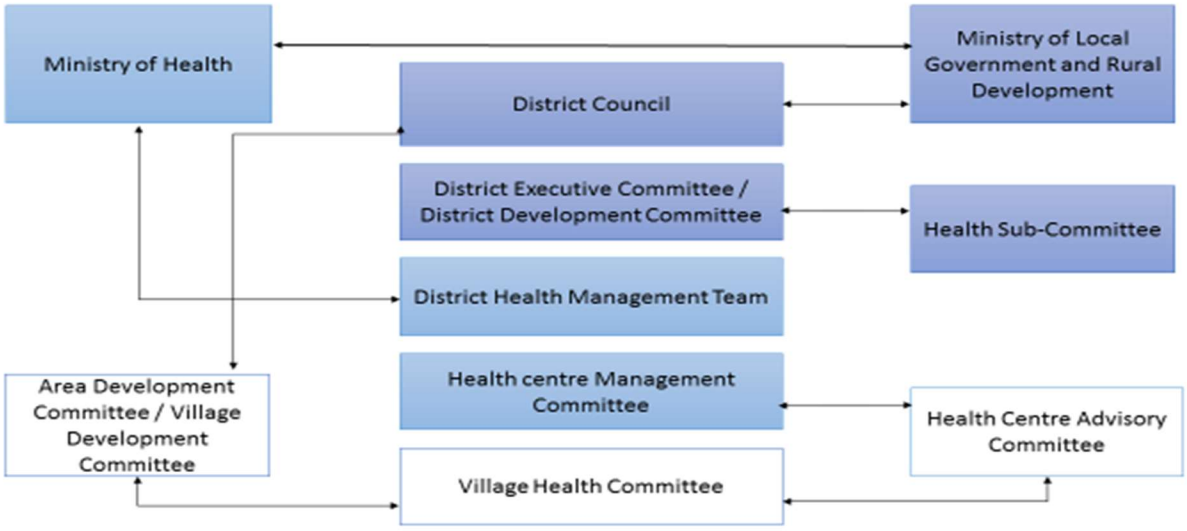

Figure 3-3: Governance structure of the health sector at the district level (HSSP 2011-2016)

Source: GoM (2015)

As stated above, MoH provides the stewardship for the health sector including policy formulation resource mobilisation and human resource planning, recruitment, deployment and remuneration. Replicating the national level where there are National Executive Committees (e.g. the health sector working group), there is a District Executive Committee (DEC) at the district level housed at the District Council

responsible for district-level coordination of all the sectors in the district including health. This committee is multi-sectoral. Funding for health service provision at the district levels comes from the Ministry of Finance (Treasury) to the District Health Office through the District Council just like other sectors in the district such as agriculture or social welfare. At the time of writing this thesis, recruitment and deployment of key staff (such as doctors, nurses, clinicians, technicians) was still being centrally by the Health Service Commission in the MoH headquarters.

Other structures at district level include the Area Development Committee (ADC) and the Village Development Committees (VDC) which are responsible for identifying development issues, including in the health sector, at area and village levels, respectively and take them to the DEC (Figure 3-4). At the health facility level there is a Health Centre Management Committee (HCMC) whose responsibility is to oversee planning and implementation of health services at the facility level. There is also a Health Centre Advisory Committee whose composition includes the health workers from the health centre and members of the community. Below the health centre advisory committee are Village Health Committees which are established and supervised by HSAs at village level and their role is mainly to promote PHC activities through community participation and promoting health preventive services such as hygiene and sanitation.

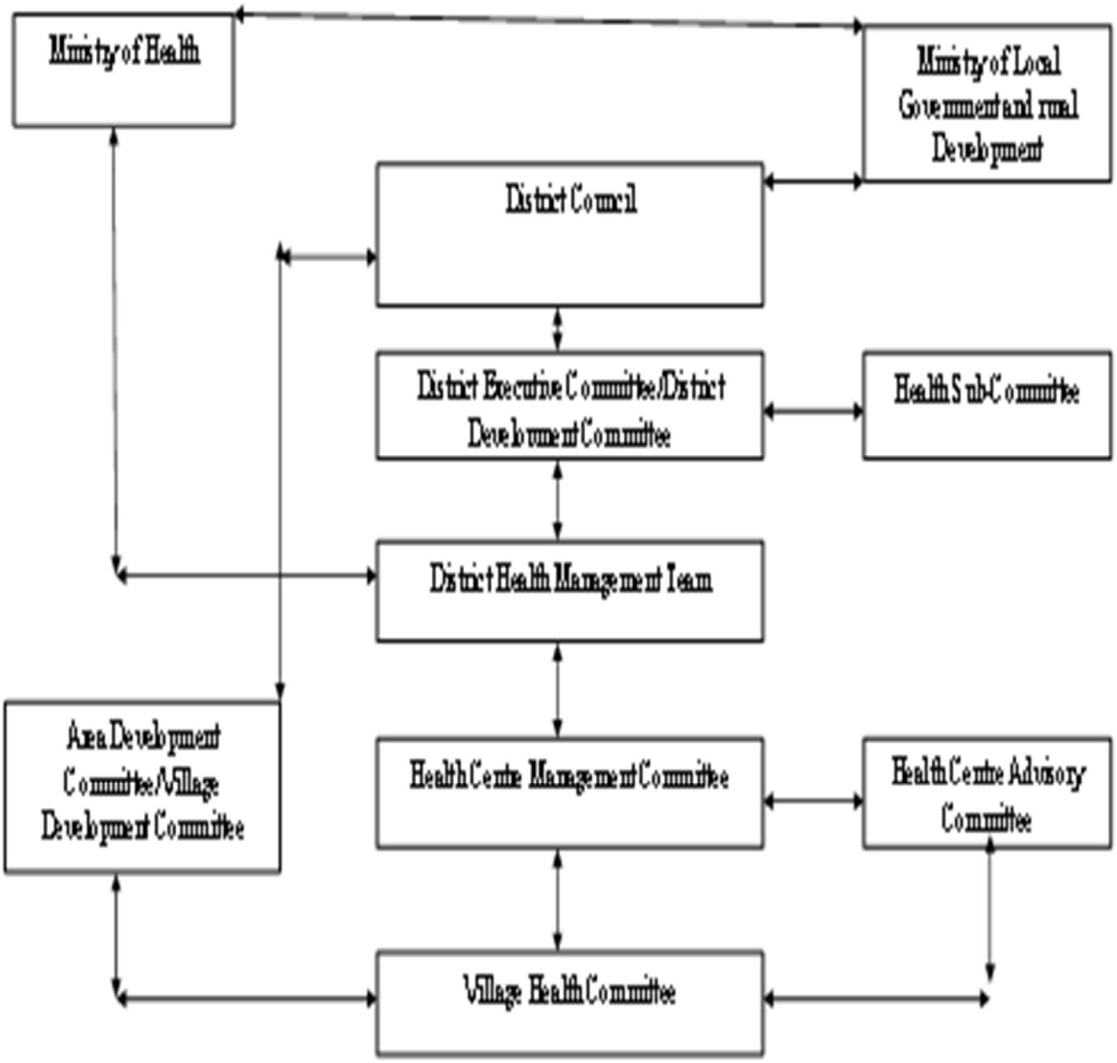

Figure 3-4*:* Governance structure of the health sector: District and Facility Levels (HSSP 2011-2016)

Source: (GoM 2015)

The other major player in the health sector in Malawi is the Christian Health Association of Malawi (CHAM), which is a grouping of mission hospitals (GoM, 2011a). While CHAM is the overall coordinator of the mission hospitals in Malawi, each Christian religious institution (Roman Catholic, Presbyterians, Seventh Day

Adventists, Anglican etc..) operates its own hospitals autonomously and its governance structure is independent of the MoH even though its members are in the TWGs in the MoH. There are also some health facilities operated by other religious faiths.

The private sector on the other hand is made of (1). private not-for-profit (PNFP) and (2) private for profit (PFP)[21]. The PNFP include clinics run by non-governmental organisations (NGOs), statutory organisations, company clinics targeting their staff and families and clinics run by the UN agencies and most of these facilities provide primary-level care. The PFP include individual practitioners or groups of practitioners mainly operating at primary care level and very few at the secondary care level (Kadzandira et al, 2008). In addition to these formal health services (public and private), there is also an array of traditional health providers including traditional birth attendants and traditional healers who operate in many parts of the country but they are not legally recognised by the Government.

District Health Offices (DHOs) are responsible for district level coordination, supervision and monitoring of both the public and private players in addition to running the district hospitals (MoH, 1999).The DHO offices report to the Zone offices which in turn report to the ministry headquarters. However, the ministry headquarters also visits all districts as the overall coordinator. There are five Central or major referral hospitals in Malawi and these are managed autonomously and four of these are general referral hospitals while one is specific for mental cases.

[21] In addition to the PNFP and PFP, there are also informal service providers operating their clinics across the country even though their existence is not legally recognized

3.2.4 Health financing

As stated above, there are three main financing mechanisms for health care in Malawi made up of public, private and external funding from donors. Public source of financing is the government which raises its funds through taxes, fees, donor grants, and loans whereas private funding sources include all sources of financing which do not belong to the government sector including private social insurance and private household out-of-pocket expenditure. The donors are divided into two groups comprising pooled donors (those who pool all their resources into a common funding basket) and discrete donors (those who finance specific activities in the annual work plans or fund NGOs and district health management teams). In the last two decades, the pooled donors have included Department for International Development (DfID) of the United Kingdom, Norway, Kreditanstalt für Wiederaufbau (KfW) Germany (a German government-owned development bank), World Bank, the African Development Bank, Flanders and the Global Fund (targeting HIV and AIDS, malaria and TB) whereas discrete donors included the United States Agency for International Development (USAID), Canadian International Development Agency (CIDA) and the Centres for Disease Control (CDC).

Between 2003 and 2004, the Government of Malawi together with the civil society and DPs developed an essential heath package (EHP) for the period 2004-2010 (extended to 2011) as a minimum package of health care services provided for free of charge in all public health facilities[22]. In order to finance the EHP, the government and its partners drafted a joint programme of work (POW) and named it 'health sector-wide approach (SWAp)' for 2004-2010 period and this became the major financing mechanism for the health sector. Under the SWAp arrangement, a common funding pool was encouraged where the government and all partners agreed to put all their resources into one basket and the government took a leading

[22]While health services are provided for free in all public facilities, there are also optional charged services in special wards of central and district hospitals for those who can afford to pay

role in allocating the funds to various programmes in line with the EHP and other programmes of the health sector (GoM, 2011a).

Table 3-2 shows the estimated cost of delivering the SWAp PoW in the period 2004-2010 that was agreed by the government of Malawi and development partners. Of the total US$735 million for the 6-year period, interventions directly targeting improvements in human resources accounted for 33.7% or US$247.7 million. Section 3.2.11 below provides a discussion of the Emergency Human Resource Programme (EHRP) which the government of Malawi and development partners developed as one of the stop gap measures to improve the human resource profile in the Malawi health sector.

Table 3-2 : Cost of delivering the SWAp Programme of Work (2004-2010)

	04/05	05/06	06/07	07/08	08/09	09/10	Total Pro. Cost USD (Mill)	% Total PoW
Human Resources	28.2	34.1	39.1	44.6	48.6	53.1	247.7	33.7
Pharmaceutical and Medical Supplies	15.3	29.7	19.9	22.2	24.9	27.9	139.9	19.0
Essential Basic Equipment	6.2	7.6	8.1	8.6	8.9	9.4	48.8	6.6
Facility Development	7.0	6.7	9.0	10.0	10.0	11.0	53.7	7.3
Routine Operations (Facilities)	24.0	27.3	30.1	30.0	32.0	33.0	176.4	24.0
Central Operations (MoH)	9.4	10.4	10.9	12.0	12.6	13.2	68.5	9.3
	90.1	115.8	117.1	127.4	137.0	147.6	735.0	100

Source: AFD 2005

The US$735 million that was budgeted for the period 2004-2010 included the cost of the implementing the EHP and non-EHP tertiary services (AFD 2005) and is was agreed that the majority of the finances would come from donors or development partners as shown in Table 3-3 below. The government of Malawi had committed to finance the PoW with US$210 million in the 6-year period representing nearly 29% of the US$735 million while the rest of the finances were to come from the donors or development partners the highest single contributor being DFID who had committed to finance the PoW with US$182 million or 25% of the budget.

Table 3-3 : Sources of financing the SWAp PoW 2004-2010 (Million USD)

Source	Total	%
ADF	21.85	3
World Bank	15.00	2
DFiD	182.00	25
NORAD	60.00	8
OPEC Fund	8.00	1
UNFPA	0.10	0.01
Government	210.00	29
Other development partners	238.00	32
TOTAL	734.95	100

In the first five years of the SWAp PoW, the total spent was just under US$700 million which was on track to exceed the US$735 million for the 6-year PoW (MSH report). Both absolute and per-capita spending increased over the first five years of the PoW. Financing levels from the government of Malawi and pooled donors increased over the period of the PoW although there was decline in government funding in 2008/09 – due mainly to other pressing priorities by the government[23] (Table 3-4).

[23] Budget pressures on fuel an fertiliser imports during 2008/09 were partly to blame for the reallocation of resources between sectors during the year (SWAp evaluation)

Table 3-4 : Support for the SWAp PoW 2004-2010: Expenditure trends

		2004/05	2005/06	2006/07	2007/08	2008/09	Total (2005/06 to 2008/09)
Government	Expected		39	39	39	112.8	
	Actual	46.3	63.8	50.5	115.8	102.5	378.9
Donor - pooled	Expected		25	29	32	94.1	
	Actual	9.6	49.9	64.6	53.6	103.2	280.9
Donor - discrete	Expected		75	71	68	21.4	
	Actual	11.7	2	3.7	0.8	16.3	34.5
Total	Expected		139	139	139	228.3	
	Actual	67.5	115.7	118.8	170.2	222	694.2
US$ per head		5.3	8.9	8.9	12.5	16.3	
Government share		68.6	55.1	42.5	68	46.2	54.6

A new health sector plan, the Health Sector Strategy Programme (HSSP) 2011-2016, was developed as a successor plan to the EHP to guide the provision of health services in Malawi for the period 2011-2016. Similar to the PoW 2004-2010, the HSSP aims at delivering essential health services, but the package has been extended based on the burden of disease studies and it also puts more emphasis on health promotion and disease prevention since these did not receive the necessary attention in the POW 2004-2010 (GoM, 2011a).

Malawi committed itself to the Abuja Declaration that 15% of its national annual budget should be allocated to the health sector. However, in the period between 2005-2006 and 2011-2012 the budgetary allocation to the health sector has on average been around 12-13% and the target was achieved only in the 2007-2008 financial year when budgetary allocation the health sector reached 15.4% (GoM, 2011a).

Besides various challenges encountered with external budgetary support (GoM, 2011a), the HDPs are a significant contributor to both the HIV budget and the overall health sector budget making >40% in the period 2004 to 2011. These challenges include non-fulfilment of pledges, delays in disbursements and politicization of donations (GoM, 2011a). For example, in the 2011-2012 financial year, Swap pooled donors had pledged a total of MK 5.2 billion (i.e. €24 million) towards the health sector funding basket. However, as of December 2010, donors decided to suspend their contribution (although committed) because of results of a forensic audit which revealed that there were insufficient guarantees with regard to the management of the resources made available through the SWAp. Although some of the donors (such as DFID, Norway and KfW Germany) made an offshore payment totalling MK 8.2 billion (i.e. €38 million) towards the humanitarian emergency medicines procurement through the United Nations Children's Fund (UNICEF), the African Development Bank (AfDB) made direct payment to contractors of basic emergency obstetric care facilities amounting to MK 200 million (i.e. about €925,000), great damage had already been done to the delivery of health care in Malawi (GoM, 2011a). The country had run out of basic curative drugs for nearly 6-9 months

affecting even the HIV/ART program, there were no intravenous supplements (IV fluids) for malnourished children and the training of nurses, clinicians and doctors using the SWAp funding was also greatly disrupted as students were withdrawn for non-payment of school fees (GoM, 2011a).

3.2.5 Service delivery

Formal health services in Malawi are provided at three levels namely: primary, secondary and tertiary (MoH, 1999). The majority (89.1%) of the health facilities in Malawi provide primary care and in 2007, there were only 98 facilities at secondary level of care (10.3%) and only six at tertiary level (<1%) (Kadzandira et al, 2008).

The distribution of health facilities in 2014 according to ownership status and level of care is shown in Table 3-5. The public health service providers comprise the government (through the Ministry of Health and Ministry of Local Government and other institutions such as the University, the military and the police) and the mission hospitals under the umbrella of the Christian Health Association of Malawi (CHAM). The government and CHAM have been the major providers of formal health services in Malawi providing 65% of the services in 2002 (MoHP, 2004). The situation has remained the same until the last census of health workers and health facilities in 2007. In 2007, there were 954 health facilities in Malawi (Kadzandira et al, 2008) and out of these, 650 or 69% were public (493 or 52% were run by government while 157 or 17% were run by CHAM), 201 (21.1%) were run by the private for profit, 41 (4.3%) were run by not-for-profit non-governmental organisations (NGOs) whereas 62 were run by statutory organisations (n=16 or 1.7%) or large companies (n=46 or 4.8%). In 2014, the government of Malawi reported that Malawi had a total 635 public health facilities, which suggests a stabilisation or flat-lining in terms of expansion in the numbers of facilities, and the government owned 71.3% of them (453/635)24.

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[24] Source: 2014 Mid-Term Review of HSSP 2011-2016

Table 3-5: Health facilities by ownership - 2014

Operating Agency	Unit type								Total
	Central Hospital	District Hospital	Mental hospital	Community / Rural	Health Centre	Dispensary	Maternity	Rehabilitation Centre	
CHAM	0	0	1	27	115	18	4	1	16
Islamic	0	0	0	1	0	1	0	0	2
Local	0	0	0	0	14	6	10	0	30
MoH	4	23	1	19	262	64	2	0	37
MoH/CHAM	0	0	0	0	3	1	0	0	4
MoH/ Local	0	0	0	1	40	1	0	0	42
Other	0	0	0	0	3	10	0	0	13
Private	0	0	0	0	1	0	0	0	1
Total	4	23	2	48	440	101	16	1	63

Source: 2014 Mid-Term Review of HSSP 2011-2016

3.2.5.1 Primary care level

Primary care level facilities consists of community initiatives, health posts, dispensaries, maternities, health centres and community and rural hospitals (GoM, 2004b; MoH & JICA, 2004). At the community level, the Ministry of Health has entrusted health service provisioning to the community-based cadres, the Health Surveillance Assistants (HSAs) and these work hand-in-hand with, community-based distributing agents (CBDAs), VHCs and other volunteers from NGOs mostly.

[25] According to the inventory of the Service Provision Assessment, the number of private facilities is much higher: 10 PfP hospitals, 15 health centres and 440 clinics (MoH SPA, 2014). The 2007 census recorded 201 private health facilities in Malawi Kadzandira, J. M., Chunga, C., Konyani, S. E. T., Munthali, A. C. & Chilimampunga, C. (2008) *Malawi Health Sector Employee Census 2007*Government of Malawi (GoM), M. o. H.

The role of HSAs (see Section 2.10.1) is to provide promotive and preventive health services including the provision of immunisation services at the community level (GoM, 2004b). Some HSAs have been trained and are involved in community case management of acute respiratory infections (ARIs), diarrhoea and pneumonia among under-five children in community clinics. The HSAs have also been trained to provide HTC services in addition to their PHC work and as stated above, this study set out to assess the effect of this arrangement on their community PHC work (see Textboxes 2-1 and 2-2), their workload, motivation and job satisfaction. Community health nurses and other health cadres also provide health services through outreach programs. At the community level, VHCs promote PHC activities through community participation and they work with HSAs to promote preventive and promotive health services such as hygiene and sanitation.

Health centres, rural and community hospitals are responsible for providing both curative and preventive EHP services. However, the rural and community hospitals are slightly higher than the health centres and they provide both primary and secondary care with admission facilities for 200-250 in-patients. In 2007, no government health centre or rural/ community hospital had a medical doctor and the highest qualified professionals were senior clinical officers or senior nurses (Kadzandira et al, 2008). This suggests that health service provision to the majority of the population in Malawi is through the network of clinical or medical officers and nurses at the health centres or rural hospitals and through the network of HSAs at the community level. HSAs therefore play very important roles at the community levels as they promote hygiene practices and treat minor ailments thereby reducing the number of patients that would be visiting health facilities.

3.2.5.2 Secondary level care

Secondary care facilities (District Hospitals) are referral facilities for both the health centres and rural hospitals and have an admission capacity of 200 to 300 beds and by being located at the town centres of each district, they also service the local town

population offering both in-patient and out-patient services. There are also some CHAM and private hospitals that provide secondary level health care.

3.2.5.3 Tertiary level care

The tertiary level comprises of the five central hospitals in the country and these provide specialist referral health services such as obstetrics and gynaecology for their respective regions (MoH 2004). The four general tertiary level facilities in Malawi are: Queen Elizabeth Central Hospital in Blantyre, Kamuzu Central Hospital in Lilongwe, Mzuzu Central Hospital in Mzimba and Zomba Central Hospital in Zomba with admission capacities of 1250, 1200, 300 and 450 beds, respectively. The fifth tertiary hospital is Zomba Mental Hospital, specifically to handle mental health patients. Queen Elizabeth and Kamuzu Central Hospitals are also teaching hospitals because of their proximity to College of Medicine and Kamuzu College of Nursing.

3.2.6 Health Information Management Systems

Health Management Information Systems (HMIS) serve to inform and guide decision making at various levels of the health system from policy development at the central level to the user level in the communities (WHO, 2006). In the Malawi health sector, the HMIS is located in the Ministry of Health Headquarters with offices in all the districts located at the District Heath Offices. At the district level, the HMIS collects and collates data relating to (among others) OPD attendance, admissions, drug use and human resources and channels this data to the ministry's headquarters on a monthly basis. Challenges with the Malawi HMIS include (MoH, 2007):

- Timeliness and completeness
- Networking constraints
- Financing
- Limited capacity at the district to analyse and make use of the data

- Multiple reporting systems by various agencies at the district and community levels
- Parallel reporting systems by disease programmes e.g. malaria, TB, HIV and AIDS etc.

Despite the various challenges with the HMIS, the government of Malawi is still signatory to the Principles of the Paris Declaration on Aid Effectiveness and the International Health partnerships (IHP+) which calls for the existence and use of one platform for monitoring and evaluation at the national level (GoM, 2011a) and in this regard the ministry has put in place mechanisms to harmonize all data reporting within the context of the HMIS. In addition to the routine HMIS data, the MoH also collects data from several national surveys including the 4-year demographic and health surveys, welfare monitoring surveys and health facility surveys.

3.2.7 Pharmaceuticals and medical equipment

The Central Medical Stores (CMS) with its regional offices in Mzuzu, Lilongwe and Blantyre is responsible for the procurement and distribution of all drugs and medical products in the country. With the decentralization of health services (discussed above), DHO offices have been given the mandate (starting 2004/05) to procure their own drugs from the CMS using their monthly budgetary allocation. Challenges with the CMS system of drug procurement are well documented and they include (GoM, 2011a; Singleton et al, 2007):

- inadequate space for storage of drugs and medical supplies,
- lengthy procurement processes,
- pilferage,
- a weak supply chain management with some health facilities running out of essential drugs for close to a month or more (GoM 2011), and;
- politicization of the procurement contracts.

3.2.8 Distribution of health workers in Malawi

The last national survey of health workers that was conducted in 2007 reported that Malawi had a total health workforce of 33,766 workers (Kadzandira et al, 2008). Clinicians (doctors, clinical officers and medical assistants) constituted 4.9% of the workforce, nurses 13.2%, technicians and other health staff including patient attendants (23.3%). HSAs, at 29.8%, were the single largest contributor to the total health workforce. The distribution of HSAs showed that 79.8% were posted in rural areas, 13.7% were in semi-urban areas while 6.6% were working in urban areas, illustrating the nature of their primary function which is to work with rural communities mainly performing preventive functions of the primary health care programme (Kadzandira et al, 2008). Approximately three quarters (73.8%) of the HSAs were working in primary care facilities (health centres and clinics) while a quarter (25%) were working in secondary care facilities and the rest were working in other institutions mainly NGOs.

HSAs made up approximately half (49.1%) of the staff in primary care facilities, only 18.9% in secondary facilities. On the other hand, the proportion of management and support staff was found higher in secondary facilities (32.0%) compared to tertiary and primary care facilities, 27.2% and 20.0%, respectively (Table 3-6).

Table 3-6: Proportion of service providers and management & support staff in the Malawi health sector workforce in December 2007

	Level of Care				
	Primary	**Secondary**	**Tertiary**	**Others**	**Total**
All workers	N=15089	N=13258	N=2953	N=2466	N=33766
Clinicians	5.0	4.6	5.5	5.4	4.9
Nurses	8.4	16.8	25.6	8.3	13.2
Other professionals	17.5	27.7	40.8	14.5	23.3
HSAs	49.1	18.9	1.0	4.0	29.8
Management & Support Staff	20.0	32.0	27.2	67.9	28.8
	Service Providers only				
Overall	N=12064	N=9021	N=2151	N=791	N=24027
Clinicians	6.3	6.7	7.5	16.7	6.9
Nurses	10.5	24.7	35.1	25.8	18.5
Other professionals	21.8	40.8	56.0	45.1	32.8
HSAs	61.4	27.8	1.4	12.4	41.8
Urban	N=1598	N=625	N=2151	N=540	N=4914
Clinicians	13.7	6.1	7.5	18.9	10.6
Nurses	26.2	41.0	35.1	25.0	31.8
Other professionals	27.7	40.6	56.0	49.6	44.1
HSAs	32.4	12.3	1.4	6.5	13.4
Rural	N=10247	N=3314		N=164	N=13725
Clinicians	4.8	6.2		12.2	5.2
Nurses	7.6	18.0		18.3	10.2
Other professionals	21.0	41.9		32.9	26.2
HSAs	66.6	34.0		36.6	58.4
Semi-urban	N=219	N=625		N=87	N=5388
Clinicians	21.5	7.2		11.5	7.9
Nurses	31.1	27.1		44.8	27.5
Other professionals	17.4	40.1		40.2	39.2
HSAs	30.1	25.6		3.4	25.5

Source: (Kadzandira et al, 2008)

The relative importance of HSAs in the delivery of health services in Malawi is illustrated further in Table 3-6. HSAs constituted 66.6% of health service providers (HSP) in primary care facilities in rural areas in December 2007, 34% in facilities providing secondary care. In urban areas, HSAs only constituted 32.4% of HSP in primary care facilities and 12.3% in secondary care facilities whereas in semi-urban areas, they constituted 30.1% and 25.6% in primary and secondary care facilities, respectively. HSAs have therefore been the backbone of health service delivery in rural areas. In the scale-up of services for HIV and AIDS, HSAs are being used to provide services such as HTC and to assist in the ART clinics mainly to assist with record keeping, working with support HIV groups and following up treatment defaulters (GoM & NAC, 2005; MoHP, 2004).

3.2.9 Health worker shortages

Malawi's human resource shortages have been comparable to other countries in the region although slightly more severe. As indicated in Table 3-7, at 0.02 physicians and 0.59 nurses per 1000 population, Malawi's HR situation was worse in 2004 than in Zambia, Kenya, Zimbabwe, Uganda and South Africa.

Table 3-7: Health worker densities in selected countries in sub-Saharan Africa

	Health workers per 1000 population	
	Physicians	Nurses
South Africa	0.77	4.08
Zimbabwe	0.16	0.72
Kenya	0.14	1.18
Zambia	0.12	1.56
Uganda	0.08	0.55
Mozambique	0.03	0.21
Malawi	**0.02**	**0.59**
Tanzania	0.02	0.30

Source: (Mills E.J et al, 2008)

There has been no proper human resource (HR) estimates in the Malawi health sector mainly arising from paucity of data and constraints with the monitoring and evaluation system (DfID, 2009). The 2010 evaluation of the EHRP, discussed in Section 3.2.11, also acknowledged challenges with data problems on human resources for health.

In 1992, vacancy rates for doctors and nurses were 49% and 22-32%, respectively and this had improved slightly to 36% and 18-47% in 1998 (UNDP, 2002). All these estimations took place before the essential healthcare package (EHP) was developed which was the first plan that took into account the objective of delivering the minimum package of interventions to the whole population. Table 3-8 provides estimates of vacancies according to cadres of staff in 2015 (GoM 2015). Vacancy rates for doctors and nurses in 2015 were 49% and 68%, respectively[26].

[26] Data on vacancy rates in the Malawi health sector for the period 2006-2012 were not available at the time of writing this thesis

Table 3-8: Summary of Established vs. Filled Posts (Ministry of Health, 2012 / 2015[27] data)

Description	Established Posts	Filled	Vacancy Rate (%)
Management & Administration (2012 MoH data)			
Planning & Policy Development	626	76	88
Internal audit services	16	7	56
Accounting services	421	315	25
Administration services	6,732	4,261	37
Subtotal Management & Administration	*7,795*	*4,659*	*40*
Professional & semi-skilled health cadres (2015 MoH – DHRM data)			
Preventive health services	7,553	9,409	-
Nursing	13,669	4,427	68
Pharmacy	545	178	67
Allied health technical services	1,143	546	52
Allied health services (COs and MAs)	4,491	3,002	33
Medical specialists	228	293[28]	49
Medical officers	344		
Subtotal Professional health cadres	*27,973*	*17,855*	*36*
Other cadres	6,541	4,640	29
Total for all service areas	42,309	27,154	36

Source: GoM (2015)

The process of developing the EHP in 2001/02 attempted to define HR requirements for an effective delivery of the plan but this was limited to scaling up community level health workers (doubling HSA numbers and introduction of a new cadre of nurses –

[27] Data on professional and semi-skilled cadres: December 2015

[28] This figure includes 55 Interns, i.e. holders of a Bachelor Degree in Medicine, i.e. not yet registered as MBBS

Auxiliary Nurses) and improving remuneration for those in post (GoM, 2004c; MoH, 2004a). This was partly because the EHP had a strong community component and the general lack of data on health worker numbers in Malawi also limited the basis on which to estimate HR requirements.

A 2007 census of health workers in Malawi revealed serious shortfalls of human resources in the country as Table 3-9 illustrates. The population physician ratio using the 2007 mid-year population estimates was reported at 1:53,176; 1:2964 for nurses and 1:7,959 for all clinicians (Kadzandira et al, 2008). The World Health Organisation (WHO) recommends a health workforce (sum total of physician, non-physician clinicians and nurses) of 2.5 per 1,000 population but this was 5 times lower in 2007 at 0.5 nationally and was even worse in the rural areas (0.4) than in the urban areas (1.2). These differentials in the distribution of human resources have serious implications in the delivery of health services to the general public, but especially more in the rural areas.

Table 3-9: Average population per qualified health professional in the districts

	2007 Mid-Year Population	Physicians	All Clinicians*	Nurses	HSAs	Health Workforce
Malawi	13187632	53176	7959	2964	1313	0.5
Region						
North	1550966	62039	5539	2060	1208	0.7
Centre	5568238	53031	9025	3502	1389	0.4
South	6068428	51427	7985	2880	1277	0.5
Location						
Urban	1786434	10326	3429	1141	2711	1.2
Rural	11401198	152016	10036	3952	1215	0.4
Zone						
North	1550966	62039	5539	2060	1208	0.7
Central East	2037299	203730	9388	3837	1166	0.4
Central West	3530939	37168	8827	3334	1560	0.4
South East	3135134	136310	9953	3629	1212	0.4
South West	2933294	30877	6592	2360	1354	0.6

* All clinicians is the summation of physicians, clinical assistants and medical assistants

**Workforce was defined as a summation of Physicians, Nurses, Clinical Officers and Medical Assistants (adapted from WHO) and is computed per 10,000 population

Source: (Kadzandira et al, 2008)

3.2.10 Human Resource planning

Health worker shortages in Malawi are not new and have not emerged because of HIV/AIDS. The government started recognising the human resource crisis in mid to late 1990s when in 1997 the government started formal workforce planning (WHO & GHWA, 2008). This culminated in the development of the 1999-2004 Human

Resources Development Plan (HRDP) whose aims were to mobilise resources for training, staff deployment and information systems. At this time, comprehensive services for HIV and AIDS were just starting to be put in place and the impact of the epidemic on the workforce and staff workload had not been systematically assessed.

The first comprehensive study on the impact of the epidemic on the public sector was conducted between 2000 and 2002 (UNDP, 2002) and this showed high vacancy rates, mainly resulting from deaths, in the five public ministries and institutions that were studied. In the heath sector, HIV-related deaths accounted for 58% of the 2,492 cases of staff attritions that took place between 1990 and 2000. However, the 1999-2004 HRDP did not receive adequate donor attention due, as noted above, to the heavy dependence of the health sector on donor funds resulting in government only focussing on pre-service training implemented through a six-year emergency training plan which began in 2002 (WHO & GHWA, 2008).

In February 2004, the Director General of the United Nations AIDS (UNAIDS) Programme and the United Kingdoms' (UK) Department for International Development (DfID) Permanent Secretary visited Malawi. They noted that the human resource crisis in the public health sector was so severe that the situation would severely hamper the scale-up of Anti-Retroviral Therapy (ART) and other GF-supported activities in the country (WHO & GHWA, 2008). This resulted in a major turn-around among major donors in the country, who, for a long time had been reluctant to support human resource development and staff incentives due to concerns about long-term sustainability and national fiscal situation issues.

3.2.11 The Emergency Human Resources Programme

Following the visit by the UNAIDS Director General and the DfID's Permanent Secretary, there was a renewed enthusiasm on strengthening human resources for health. By the end of 2004, Malawi had developed the Emergency Human Resources Programme (EHRP) 2004-2010, supported jointly by the government

(through the Ministry of Finance), DfID and the Global Fund. The EHRP was extended to 2012 in line with the SWAp PoW which was also extended to 2012. As part ofh the new HSSP, the EHRP was also extended to 2015/16 focussing on 11 priority cadres of health workers, namely: doctors, nurses, clinical officers, medical assistants, pharmacists, laboratory technicians, radiographers, physiotherapists, dentists, environmental health officers and medical engineers (WHO & GHWA, 2008). A major and key cadre of staff in the health sector that the EHRP had omitted in the 2004-2010 EHRP was the Health Surveillance Assistant (HSA). Subsequently, government made a special request to the GF to allow Malawi to use its GF grant to support their recruitment, training, deployment and salary support until 2011 when government would take over their funding.

The EHRP provided a platform for addressing human resource shortfalls using the following strategies:

1. incentive systems to improve staff recruitment and retention;
2. strengthening capacity of local training institutions;
3. hiring and deployment of expatriate personnel especially to underserved areas as a stop-gap measure while the country is training its own health workers; and,
4. strengthening the capacity within the Ministry of the Health for HR planning and monitoring and evaluation (MoH, 2004b).

Table 3-10 shows the cost of implementing the 52% salary top-ups for the 11 cadres of staff working for the MoH and CHAM, the 26% top-up received by the HSAs (both HSAs in established positions and those in non-established positions, recruited with GF funding); and the expenditures for two recruitment galas[29]. Top-up salaries for HSAs who were already in the system only started in October 2008, thus they only received the top-ups for three months; whereas the HSAs who were recruited with GF support started receiving their salaries in 2007. Overall, therefore, the additional

[29] Including cost of recruiting health workers who had retired from the service.

HSAs who were recruited in 2007 added ~US$2.9 million to the overall budget of the MoH in the period 2007-2009.

Table 3-10 below shows the additional funding for both categories of HSAs between 2007 and 2009. This was not because the GF continued increasing salaries for HSAs but was, firstly, because additional HSAs were recruited by the government over the same period, including some who had retired. Secondly, annual government salary increment increases were given to all civil servants, which utilised some of the 26% additional funds provided by the GF, as the base salary increased. The MoH top-ups for the 11 cadres resulted in some fluctuations during the EHRP period because of a Functional Review which was conducted in 2007, whereby salary and grade structures were revised (O'Neil M. et al, 2010).

Table 3-10 : Total cost of the EHRP 2004-2009 (US$)

Activity	2004	2005	2006	2007	2008	2009	Total
MoH Top-ups (11 cadres)	-	2,424,530	4,832,833	4,377,856	4,273,838	5,817,572	21,726,629
CHAM Top-ups (11 cadres)	-	429,393	1,386,515	1,433,845	2,266,615	2,756,918	8,273,286
HSA Top-ups Established	-	-	-	-	252,543	825,478	1,078,021
HSA Top-ups Non-established[30]	-	-	-	886,552	982,098	987,185	2,855,835
Recruitment Galas	-	-	71,644	-	97,425	-	169,069
TOTAL	-	2,853,923	6,290,992	6,698,253	7,872,519	10,387,153	34,102,840

Source: MoH and CHAM in (O'Neil M. et al, 2010)

[30] Refers to HSAs recruited with GF support

A midterm evaluation of the EHRP was commissioned in 2009 by DfID so as to provide lessons regarding its implementation and lessons regarding its effects. The findings showed that overall, the EHRP successfully accomplished its primary goal of increasing the number of professional health workers in Malawi's public health facilities operated by MoH and CHAM institutions. Across the 11 priority cadres targeted by the EHRP, the total number of professional health workers increased by 53%, from 5,453 in 2004 to 8,369 in 2009 even though only 4 of the 11 cadres met or exceeded their targets, as set out in the original EHRP design document (O'Neil M. et al, 2010). The findings of the evaluation also showed that total graduates from Malawi's four main training institutions increased by 39%, from 917 in 2004 to 1,277 in 2009. Physicians from the College of Medicine increased by 72%, from 18 graduates in 2004 to 31 graduates in 2009. Nurses increased by 22%, from 575 graduates in 2004 to 699 graduates in 2009.

Table 3-11 : Health worker trends in the Malawi Health Sector (2004 vs. 2009)

	2004		2009		2004-09
Cadre	Total staff	Ratio to population	Total staff	Ratio to population	% increase
Physician	43	0.36	265	2.03	516
Clinical officer	594	5	958	7.33	61
Medical Assistant	535	4.5	925	7.08	73
Nurse	3456	29.09	4812	36.83	39
Total 11 cadres	5453	45.89	8369	64.05	53
HSAs (established and non-established	4886	41.12	10507	80.41	115
Total 11 cadres + HSA	10339	87.01	18.876	144.46	83

Among others, the EHRP evaluation team also noted that *"..accelerating the production of traditional cadres, i.e., physicians, nurses, may not meet all the needs of a government's health plan or be the most cost effective. .....the focus on the*

implementation of the Essential Health Plan calls for skills of other cadres, i.e., HSAs, pharmacists, lab technicians....". As the foregoing statement argues, Malawi needs to continue the production and engagement of community health workers and thereby continue task shifting if it is to successfully achieve goals and targets of the EHP and now, the HSSP.

3.2.12 Major Health Systems Challenges in Malawi

The main challenges facing the Malawi health sector are (MoH, 2011):

1. **Drugs, medical supplies and procurement systems**: arising mainly from weaknesses of the central medical stores and lengthy procurement processes, poor specifications, weak logistical information systems, inadequate and unpredictable funding for medicines and inadequate infrastructure which contribute to shortage of drugs in health facilities. In the period of PoW 2004-2010 (extended to 2011), there was also a major set-back to the SWAp when donors withheld their support to the sector and this led to massive drug stock-outs in Malawi's hospitals.
2. **Laboratory and radiology services:** mainly arising from the shortage of human resources due to low outputs from training institutions and high attrition of personnel, inadequate funding, inadequate and inappropriate equipment, lack of capacity in terms of infrastructure
3. **Infrastructure and equipment:** Malawi's health facilities are usually overcrowded and there is little physical space in most health centres and clinics. The state of equipment is also poor. A 2010 study of equipment and infrastructure for the emergency obstetric and neonatal care survey conducted in 309 facilities showed that all instrument kits were incomplete and there were no resuscitation equipment for babies and that some basic diagnostic equipment and supplies were in short supply, for example, only 29% of the hospitals and 7% of health centres had blood sugar testing sticks; uristix for measuring protein was found in 52% of hospitals and 13% of health centres (GoM, 2011c).

4. **Health financing and financial management:** Although significant amounts of resources have been invested in the health sector during the PoW 2004-2010/11, health financing still remains a challenge for Malawi. In addition, disbursement of funds from donors has usually been untimely forcing GoM to borrow from the domestic market while a significant amount of donor funds remain off budget. The over-reliance on donors was illustrated in the period 2009-2012 when donors withheld their SWAp contribution and this led to massive drug stock-outs and the eventual suspension of training of some health cadres in Malawi's training institutions.
5. **Human resources for health:** Although the HR situation is reported to have improved after the implementation of a 6-year EHRP (Section 3.2.11), there are still challenges with regard to human resources in Malawi. The EHRP evaluation however noted that the EHRP experience gives hope that with significant investments in human resources, Malawi can achieve a fully-staffed health system.

4 LITERATURE REVIEW

4.1 The process of literature review

The literature review was a continuous and iterative process from the time of preparing the research proposal in June 2009, during the period of data collection, analysis and write up (2012-15) to the point of finalising the thesis in 2016. Both published and grey literature were used.

4.1.1 Grey literature

Grey literature included all reports and policy documents that were not published in any academic or refereed journals. The PhD researcher has worked in the area of human resources for health in Malawi for 18 years and was familiar with much of the local literature and reports on the topic. Often documents specific to Malawi had to be obtained directly from the Ministry of Health, Centre for Social Research (University of Malawi), National AIDS Commission (NAC), National Statistical Office (NSO) or the relevant International Non-Governmental Organisations, such as Management Sciences for Health. Furthermore, through interviews and attending conferences, workshops and lectures some further relevant literature was obtained.

4.1.2 Published literature from databases

4.1.2.1 Databases

The main databases that were searched for articles were: PubMed, Web of Knowledge and Google (both Google Scholar and general Google). Additionally, websites such as those belonging to WHO, United Nations Children's Fund (UNICEF), the World Bank, PEPFAR and the GF were also searched to obtain relevant articles. These sources provided the original lists of documents that were

used in the literature review. Additional references were obtained from (i) the reference lists at the end of the journal articles (in the bibliography) and (ii) by reviewing articles that had cited the relevant articles.

4.1.2.2 Search Strategy and search terms

In line with the focus of the research i.e. 'to assess the effects task shifting on the delivery of health services (HIV and PHC services)', the following key search terms were initially used to search for documents from online databases

- 'Task shifting',
- Task sharing'
- 'Community health worker'
- 'Health Surveillance Assistants (HSAs)',
- 'Workload',
- 'Primary health care services', and
- 'HIV services'.

Using the search terms above, the general literature on task shifting was explored but as the analysis of the findings from the reviews progressed, the theme 'motivation' also emerged as crucial to understanding task shifting in Malawi, and in particular, in relation to HSAs (Figure 4-1). Thus the literature review was expanded to include literature on motivation and task shifting, in particular in relation to HSA's.

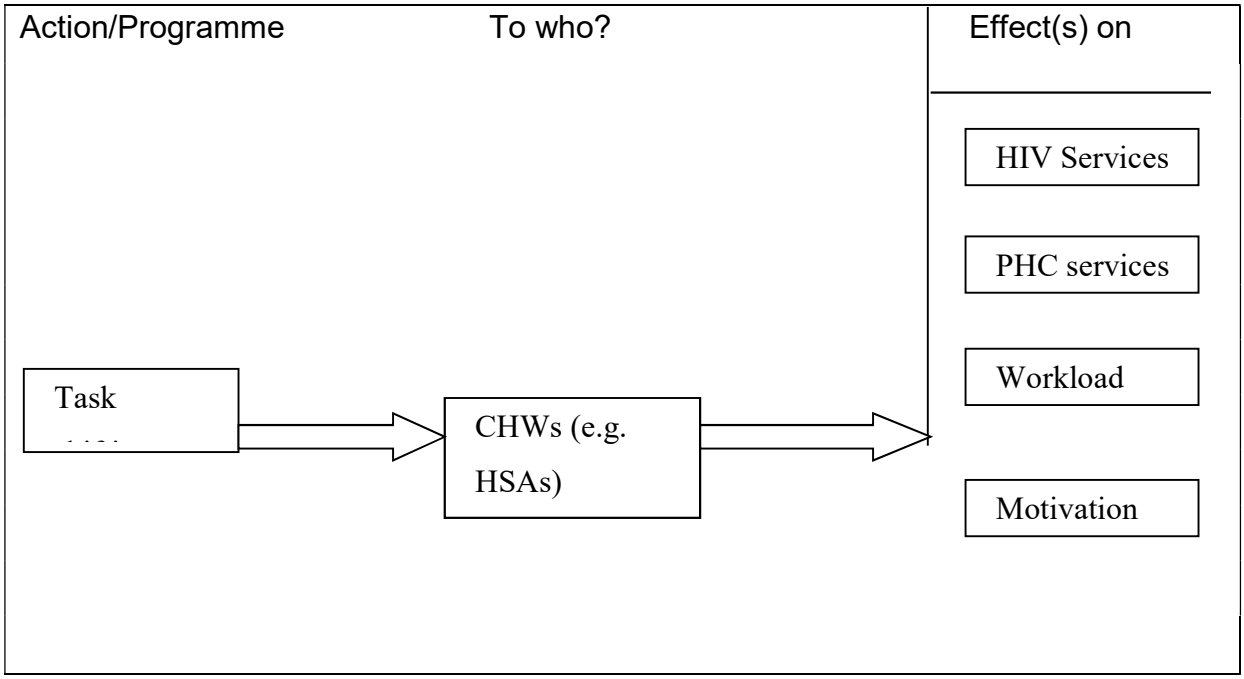

Figure 4-1: Relationship between terms used in literature review

Preliminary reading of the relevant literature indicated that there was no common terminology or nomenclature for most of the search terms listed above so synonyms and alternatives for the focus search terms were used. These terms are detailed in Table 4-1. These terms were derived from the PubMed MESH terms, keywords used in relevant literature and related cited articles. The composite term is used herein to refer to the complete search string. For example, task shifting refers to task shifting or task sharing or task delegation and similarly HSAs cover all terms used for a similar level of cadre in different countries and contexts.

Table 4-1: List of major terms and/or their synonyms that were used to search documents

Term	**Synonyms**
Task shifting	Task shifting OR Task sharing OR Task delegation or Skills-mix
Health Surveillance Assistants (HSAs)	HSAs OR Community health workers OR Alternative cadres OR CHW OR Community care workers OR Lay health workers OR Treatment buddies OR Field officers OR Peer educators OR Peer counsellors OR Adherence supporters OR Lay workers OR Barefoot doctors
HIV services	HIV OR HTC OR ART OR TB OR DOTS OR Home-based care
PHC services	Primary Health Care OR PHC OR Community work OR Immunisation OR Family planning OR Community visits OR Sanitation work OR
Workload	Workload OR Working hours OR work volume OR work burden
Motivation	Motivation OR incentives OR Job satisfaction OR aspirations
Service coverage	Coverage OR Scale-up OR Uptake OR Service utilisation

A number of search strings (Table 4-2) were used to explore contemporary literature on:

i. the debates of task shifting in general, that is not specific to HSAs. The aim here was to explore whether there were the same issues described in the literature in terms of HSAs and,
ii. the specific debates on HSAs in relation to task shifting, workload and
iii. the specific debates about task shifting and service coverage/PHC services and HIV services

Table 4-2: Examples of search strings that were used

Search	**Purpose**	**Primary Search string used***	**Secondary Search String (Primary string AND)**
1	Literature on task shifting in general and in relation to (i) workload, (ii) motivation, and:(iii) service coverage	Task Shifting	• workload
			• motivation
			• service coverage
	OVERLAP	Task Shifting AND HSAs	• workload • motivation • service coverage
2	Literature on HSAs in relation to (i) task shifting, (ii) workload, and (iii) motivation	HSAs	• workload
			• motivation
			• service coverage

**These are the composite terms – all synonyms and alternates were used*

4.1.2.3 Search results

Annex 5 at the end of this Thesis shows results at each stage of the search process using the key search terms. For example, the search for: ‘Task shifting OR Task sharing OR Task delegation’ alone yielded a total of 5,324 documents in PubMed (in 2009) while the search using the key terms: ‘HSAs’ OR ‘community health workers’ OR ‘CHW’ OR ‘community care workers’ OR ‘lay health workers’ OR ‘treatment buddies’ OR ‘field officers’ OR ‘peer educators’ OR ‘Peer counsellors’ OR ‘adherence supporters’ OR ‘lay workers’ OR ‘barefoot doctors’ yielded 2,274 documents (in 2009). The search using combined terms ‘Task shifting’ and ‘HSAs’ together with their synonyms yielded 896 documents in PubMed (in 2009). At the secondary and tertiary levels, the key search terms were used together with other terms such as ‘workload’, ‘HIV services’, ‘motivation’ and ‘job satisfaction’.

After the initial search strings had been refined a weekly e-mail alert system was sent by PubMed. The numbers of documents recorded in the Bibliography include both those in the initial search of the database but also the documents sent through the updated emails until 2016.

4.1.3 Screening, inclusion and exclusion of documents

The initial search only included documents whose abstracts and/or body of journals were in English and documents whose research was on human subjects addressing the themes relevant to the study. The search resulted in some documents being returned in more than one of the databases. All the duplicate documents were removed from the list of documents to be reviewed. Lastly, documents that did not specifically focus on task shifting or task sharing or task delegation i.e. where task shifting was only mentioned or was not core to the document were removed. This narrowed the total number of documents to 211.

4.1.4 Final list of documents

The final list of documents obtained through the search strategy described above and from the local sources discussed in Section 4.1.1 contained a total of 244 articles/documents (211 from databases and 33 from local sources). These articles/documents were read in full paying particular attention to the objectives of the study, the analytical frameworks and methods that were used, key findings, key conclusions and recommendations and all the relevant bibliography that the articles had cited. The relevant bibliography at the end of each document were searched in Google database using the titles and names of authors as search strings.

4.1.5 Summary of major outcomes from the articles

An analysis of the various documents and articles that were reviewed as part of the literature review showed that:

- 9 articles were systematic or synthetic reviews of other studies or were policy commentaries
- 13 articles discussed randomized trials of task shifting and its effects on a range of outcomes including workload, motivation, patient outcomes etc.
- 7 articles discussed in detail the analytical frameworks that were used in the respective studies.
- More than 150 articles just provided data collection methods, analysis patterns and results without elaborating any analytical methods that were used.
- 4 articles provided historical overview of task shifting

The documents were read, summarized and synthesised thematically in relation to:

i. the concept of task shifting and its evolution
ii. the debate for and against task shifting – preconditions for successful task shifting
iii. task shifting in relation to motivation and job satisfaction
iv. task shifting in relation to workload

4.2 The concept of task shifting and its evolution

The World Medical Association describes “Task Shifting” as a situation where a task normally performed by a physician is transferred to a health professional with a different or lower level of education and training, or to a person specifically trained to perform a limited task only, without having a formal health education (WMA, 2009). The World Health Organisation (WHO) and others have also defined task shifting as ‘delegation of tasks to health workers with lower qualifications’ (Philips et al, 2008; WHO, 2008). Common in the two definitions is that specific tasks are moved, where appropriate, from highly qualified health workers to health workers with shorter training and fewer qualifications in order to make more efficient use of the available human resources for health (WMA, 2009).

Task shifting is generally not a new concept or strategy in the health sector of both developing and developed countries but ‘the increasing care needs generated by the HIV and AIDS epidemic and the accelerating human resource crises in many African countries have given the concept and practice of task shifting new prominence and urgency’(Lehmann et al, 2009). There are historical overviews of the *Officiers de Santé* who were officially recognised and commonly used as a class of non-physician health workers in France and of the barefoot doctors who were widely deployed in many parts of China in the period before 1970’s, respectively (Heller, 1978; Mullan & Frehywot, 2007; Sidel, 1972) cited in (Callaghan et al, 2010).

As mentioned in Section 2.10.1, there was an outbreak of smallpox in Malawi in the 1960/70’s and realising the health worker shortfalls, the government responded by quickly training a temporary cadre of staff specifically to deal with the outbreak and called them ‘smallpox vaccinators’ and a few years later changed their title to ‘cholera assistants’ to deal with another outbreak of cholera and currently ‘health surveillance assistants (HSA)’ to help in conducting disease surveillance in the communities. Currently HSAs are providing a wide range of interventions in rural areas of Malawi including HIV related services (see Section 2.10).

Task shifting as a concept has been used in almost all sectors (including agriculture) but the degree to which the shedding of tasks has been managed has tended to vary from scenario to scenario. Task shifting from physicians to non-physician clinicians in Malawi can be traced back to the 1970's when the government decided to start training non-physician clinicians (clinical officers and medical assistants) after noticing the slow pace with training medical doctors who at that time were only being trained outside the country (WHO & GHWA, 2008). The first medical college for training doctors in Malawi was only opened in 1991/92 (the College of Medicine, Blantyre) and since then, training of medical doctors has been going on in-country as well as outside.

While task shifting has become common because of the need to scale-up HIV services, the practice has also been used in non-HIV settings and successful outcomes have been demonstrated including reduced maternal and child deaths especially in countries worst hit by human resource crises (El-Sadr W.F. et al, 2012; Nabudere H. et al, 2011; Prata et al, 2011; Prata N. et al, 2012). In the delivery of family planning services, task shifting programmes involving community health workers (CHWs) have resulted in good service uptake. In addition to pills and condoms, CHWs can safely and effectively provide emergency contraception (EC), injectables, the Standard Days Method and the Lactational Amenorrhea Method, and they can refer clients for long-acting and permanent methods (USAID, 2011). Task shifting has also led to scaling up of male medical circumcision using nurses and clinicians instead of medical doctors in a number of countries (Ford et al, 2012). Textbox 4-1 provides summaries of some programmes where task shifting has been successfully implemented for non-HIV services in sub-Sahara Africa.

Textbox 4-1: Examples of task shifting in non-HIV settings in sub-Saharan Africa

Description of programmes/studies and results	**Country (Researchers & year of publishing)**
A task shifting programme involved non-physician assistant medical officers to provide comprehensive emergency obstetrical care in some Tanzanian hospitals. An evaluation of the programmed showed: • successful results with the medical officers providing 278 major obstetric surgeries, 141 manual removal of placenta and evacuation of incomplete and septic abortions and 1161 anaesthetic procedures during their training • eight months after their training the non-physician assistant medical officers had performed 179 caesarean sections which was 300% increase in facility-based deliveries • cases of fresh stillbirths and obstetric referral were reported to have also reduced.	Tanzania (Nyamtema et al, 2011)
In Tanzania, out of 38,758 caesarean deliveries that occurred in 16 hospitals drawn from Kigoma and Mwanza regions in 2003, Assistant Medical Officers performed 85% of the deliveries, 94% of repairs of ruptured uterus cases, 86% of removals of ectopic pregnancy and 70% of obstetric hysterectomies. • The clinical outcomes compared well with deliveries performed by doctors. Case fatality was only at 2% in the Mwanza hospitals and 1.2% in Kigoma. • These findings were supported by another study in 2009 which reported comparable clinical outcomes from	Tanzania (Pereira, 2010; Pereira C. et al, 2007) (McCord C. et al, 2009; WHO, 2008)

Description of programmes/studies and results	Country (Researchers & year of publishing)
surgical procedures conducted by Assistant Medical Officers and doctors in all Tanzanian hospitals	
• In South Africa, task shifting using community health providers and community nurses has also been successfully implemented to increase service availability for mental patients and has been found cheaper	South Africa (Petersen et al, 2012; Petersen I. et al, 2011a; Petersen I. & C., 2011; Petersen I. et al, 2014; Petersen I. et al, 2012; Petersen I. et al, 2011b)
• In Mozambique, Assistant Medical Officers have been reported to produce no clinically significant differences in post-operative complications (maternal deaths, duration of post-operative hospital stay, total wound rapture, superficial wound separation and condition of the new born) when compared with trained specialists in obstetrics and gynaecology. • In 2002 non-physicians had become major providers of surgical procedures, providing 57% of all the 12,178 operations in the year and in district hospitals, they conducted 92% of the 3,246 operations that were registered in the year	Mozambique (Cumbi A., Pereira C. et al. 2007; (Pereira C. et al, 2007)
In Malawi, HSAs have been tasked with treating minor childhood illnesses at the village levels through village clinics.	Malawi

Description of programmes/studies and results	Country (Researchers & year of publishing)
• Preliminary results from this programme have shown positive outcomes in patient management and correct diagnosis, and in some cases 60-62% of children with confirmed fever, cough with fast breathing and/or diarrhoea treated correctly	(Callaghan-Koru J.A. et al, 2012; Gilroy K.E. et al, 2013)

4.2.1 Task shifting in HIV service delivery

Task shifting for delivering HIV services has been disaggregated into four types as presented in Figure 4-2. Type I task shifting involves shifting of tasks formerly done by physicians/doctors to non-physician clinicians such as clinical officers, medical assistants, physician assistants and nurse-practitioners (Van Damme et al, 2008; WHO, 2008). When these non-physician clinicians take up new tasks, they shed-off their former tasks to nurses and midwives (Type II) who also in turn shed off some of their tasks to nursing assistants, lay providers (including counsellors) and community health workers (Type III). Type IV task shifting involves self-management by people living with HIV and AIDS (PLHIVs) as expert patients to support their colleagues. At times, community members and families take active roles in Type IV task shifting as is the case in the DOTS programme on TB.

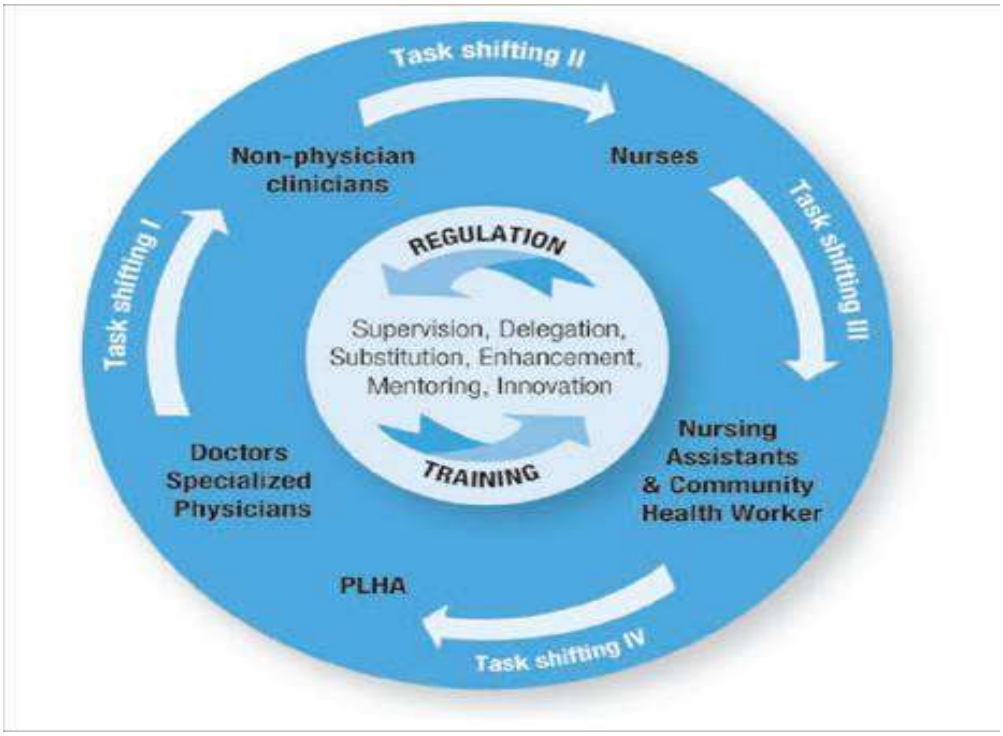

Figure 4-2: Types of task shifting for HIV service delivery

Source: (Van Damme, Colebunders et al. 2008)

Realising that task shifting is one of the most feasible and viable solutions for scaling up HIV services in the short to medium term and that a number of countries in sub-Saharan Africa were already implementing the initiative, the WHO and the Office of US Government AIDS Coordinator (OGAC) organised a consultation meeting of stakeholders in February 2007 on the need for a regulatory framework in support of the practice (WHO & OGAC, 2007b). The 2007 WHO/OGAC meeting produced 22 recommendations on institutionalising task shifting which countries are expected to adapt when starting to implement task shifting (see Annex 6). Task shifting is therefore seen as one of the major contributions of the WHO/OGAC to the 'train' component of the 'Treat, Train and Retain - TTR plan' launched by the WHO in 2006.

Among others, the recommendations from WHO/OGAC call for countries to implement task shifting arrangements alongside other efforts to increase the number of skilled health workers, the use of harmonised frameworks and regulatory systems, conducting human resource analyses to generate information on the availability of skills-mix of various cadres, setting expected competency levels among the new

cadres and instituting harmonised mechanisms for supervision and mentoring. Recommendation number 20 is more specific to community health workers (CHW) which recognises and recommends that CHWs can provide safe and effective specific HIV services both in a health clinic setting and in the communities …. *"...in the context of service delivery according to the task shifting approach….."*.

This recommendation proposes that the success of task shifting is dependent on the prevailing service delivery systems and that issues raised in the first 18 recommendations are critical in determining how the CHWs can successfully and effectively take up the new tasks. This study, while examining the consequences of shifting some HIV services to HSAs on their PHC service delivery levels, was also conducted to explore the incentive structures and the general implementation systems for the task shifting arrangements in Malawi. The study also set out to assess and examine the effect of task-shifting HIV services to HSAs on their workload, motivation and job satisfaction.

As stated above, Malawi's immunisation programme has been successful, reaching coverage rates in excess of 80% in the 1990s largely through the network of HSAs who provide immunisations in the villages. HSAs have also been the backbone of health promotion and prevention activities in the communities across the country. A 2001 study found that HSAs felt overburdened by the multiple tasks that were added to their job description (Kadzandira & Chilowa, 2001) and during the same period, immunisation coverage rates started declining (Chilowa W., 2000; NSO, 2000). This PhD research was therefore conducted to assess the effects of adding HIV services to the work of the HSAs on their PHC work. The proposition being explored was that by task-shifting HIV services to the HSAs, their workload had increased and that this might be affecting the delivery of PHC services including immunisations. In addition, the HSAs might be providing all these services selectively depending on time availability and where they think they would get more incentives.

Some commentators have argued that the crisis that most developing countries are facing with regard to health workers "is not the time to stagnate into the status quo,

but to be bold and imaginative in introducing innovations for universal social protection" thus supporting innovations that include task shifting to the community based health workers (Frenk, 2009). As discussed above, task shifting has been viewed as the fastest and cheapest way of scaling up service delivery to most rural areas. In addition to being faster and cheaper, task shifting is also builds bridges between the community and health facilities and that it creates local jobs and new opportunities for people living with HIV and AIDS (WHO & OGAC, 2007b).

Task shifting has also been considered a better approach because these cadres (such as HSAs and expert patients in Malawi) are already community based and therefore have strong links and networks with their communities, a precondition deemed to enhance their ability to mobilise many clients to access the HIV services. It has also been argued that because of their lower academic training background, HSAs and other community-based workers have a lower chance of migration outside their working environment compared to nurses and doctors (WHO & OGAC, 2007b). This therefore justifies greater investment in such cadres of staff as a means to ensuring long-term availability of services.

4.2.2 Economic benefits of Task shifting

Task shifting proponents have argued that the use of lower cadres in the delivery of some of the services results in reduced costs of service delivery because of the lower training needs of these new cadres but also lower maintenance costs relating to salaries, allowances and job benefits and yet the patient outcomes are almost the same. It has also been proposed that these cadres are more likely to remain in their countries than are the highly trained doctors and nurses. In Mozambique for example, 88% of the 22 non-physicians that were trained between 1987 and 1988 remained in service 7 years later while none of the 28 doctors trained in the same period was available (Pereira C. et al, 2007).

A systematic review of the effectiveness and cost implications of task shifting in the delivery of ART in sub-Saharan Africa which identified six eligible studies involving 19,767 patients reported non-inferior patient outcomes with task-shifting from doctors to nurses, or from health care professionals to mid-level workers or lay health workers but that task-shifting resulted in substantial cost and physician time savings (Mdege N.D. et al, 2012). Similar findings were also reported in a study that analysed the cost of running mental services in South Africa between 2000 and 2010 (Petersen & Lund, 2011). The use of non-physicians such as Assistant Medical Officers in Mozambique to treat patients in the communities is also considered cheap because it reduces the need for patient referrals and saves considerable time and costs for the patients and their families of travelling to seek care at distant health facilities (Cumbi A. et al, 2007; Pereira C. et al, 2007). These findings demonstrate that task shifting, when properly implemented can result in substantial financial savings in HIV programmes which could be channelled to other health system needs. In a low-resource country where health funding is largely donor-dependent, task shifting could potentially reduce the strain on the country's budgets.

One model that has been used to demonstrate the economic benefits of task shifting is 'the cost maximisation model' which compares the cost of delivering a service to clients by different cadres by measuring costs of patient time, travel, and health workers costs (Babigumira et al, 2009). Others researchers have also used 'cost-utility and cost-effectiveness' analyses using the general linear models to demonstrate that task shifting some health care services from doctors to lay health workers saves costs but produces the same results in patients with depressive and anxiety disorders (Buttorff C. et al, 2012). Textbox 4-2 presents some examples of studies that have used economic modelling to assess and measure the economic benefits of task shifting in health care delivery.

Textbox 4-2: Examples of studies reporting economic benefits of task shifting

- A study using the cost-maximisation model in Uganda found that annual mean cost of patient follow-ups dropped 26% and 69.2% when patient follow-up was shifted from physicians to nurses and to technicians, respectively (Babigumira et al, 2009).
- In Mozambique, an economic evaluation of costs and productivity of surgically trained Assistant Medical Officers and doctors using retrospective data showed that the 30-year cost per major obstetric surgery was US$38.9 for the Assistant Medical Officers compared to US$144.1 for the doctors (Kruk M.M. et al, 2007).
- In another cost-effectiveness study that was conducted at an HIV/AIDS clinic in Uganda comparing 578 patients on a Pharmacy-only Refill Program, a form of task-shifting, to the Standard of Care on 251 patients, after 12 months of follow-up for the pharmacy group and 15.1 months for the standard or care group the researchers found that there was a non-significant 9% decrease in the odds of having a favourable immune response for pharmacy group compared to the standard of care group after adjusting for other variables (OR 0.93, 95% CI 0.55-1.58) and the pharmacy group was less costly at US$ 520 than the standard of care group at US$ 655 annually (Babigumira et al, 2011).
- In Malawi, a study that assessed the likely impact of task shifting ART and HTC services to expert patients showed that these cadres carried out 368 hours of nurse tasks each month, saving two and a half full-time nurse equivalents per month (Tenthani et al, 2012).

4.3 The debate for and against task shifting – preconditions for successful task shifting

While task shifting is been commended for enabling HIV service scale-up, it has also been argued that task shifting could easily be translated into imbalanced ‘power (load) shedding’ if not properly planned where the lower cadres of staff are overloaded with tasks and because of their voiceless status, they could be suffering

in silence (De Vvan Niekerk, 2008). He also argues that "...the losers will be the community in terms of service quality...". Other commentators have also argued that task shifting should not undermine the primary objective of improving patient benefits and public health outcomes. Assigning lower cadres to rural communities sometimes compromises quality of care and patient safety. There is also the need to address professional and institutional resistance (Zachariaha et al, 2008). Overall there are four main concerns being raised in the health literature with regard to task shifting for HIV service delivery involving community health workers such as HSAs in Malawi (Philips et al, 2008):

i. Quality of care
ii. Acceptance by community/service users
iii. Impact on staff relations, and,
iv. Motive behind the task shifting strategy

4.3.1 Task shifting and quality of care

The first concern is about whether the new cadres in a task shifting arrangement would be in a position to maintain the quality of services provided to the recipients and these concerns are being raised mainly because of the lower training status (academic and induction) among the community-based cadres, lower level of supervision and the lower knowledge levels of health issues. While countries are reporting high numerical achievements on ART and HTC scale-up, there have been very few assessments on the quality of the services that are being provided. Some researchers debate whether these new cadres now implementing services such as ART (nurses for example) are able to detect treatment failure with similar precision and make appropriate referrals on time as the clinical staff (Zachariaha et al, 2008). Annex 7 shows some of the studies that have demonstrated that task shifting has not always worked. Among others, the failure to achieve the intended purposes was due to hasty decisions or hasty implementation (Alamo et al, 2012a), failures to define roles, limits and regulations.

The programmes presented in Annex 7 support the opponents of task shifting who are cautioning the over reliance on the lower cadres in service delivery. However, several studies have also reported how task shifting has led to increases in HIV service delivery in underserved communities and with good clinical outcomes. Annex 8 presents some programmes and studies where task shifting has resulted in successful outcomes.

A Cochrane review of five studies of task shifting in sub-Saharan Africa also found no appreciable differences between doctors and nurses in health outcomes for patients, process of care, resource utilisation or cost (Laurant et al, 2009). In the five studies the nurse assumed responsibility for first contact care for patients wanting urgent consultations during office hours or out-of-hours. Patient health outcomes were similar for nurses and doctors but patient satisfaction was higher with nurse-led care as the nurses tended to provide longer consultations, give more information to patients and recall patients more frequently than did doctors.

A systematic review of six effectiveness studies involving 19,767 patients in sub-Saharan Africa also reported similar findings that nurse-led care had similar outcomes as that provided by medical doctors (Mdege N.D. et al, 2012). Non-inferior patient outcomes were achieved with task-shifting from doctors to nurses, or from health care professionals to mid-level workers or community health workers. Another review of 84 studies in sub-Saharan Africa showed increased access to ART through expanded clinical capacity because of task shifting and that task shifting was cost effective and there were no differences in quality of care between doctors and the lower cadres (Callaghan et al, 2010).

Another review of 30 studies conducted in sub-Saharan Africa, describing the effect of task shifting to community health workers, also reported a wholly positive impact of community support on a wide range of aspects, including access, coverage, adherence, virological and immunological outcomes, patient retention and survival (Wouters et al, 2012). This review also pointed out that task shifting ART to the community has the potential to mitigate the effects of five often cited challenges to

ART scale-up, “namely (1) the lack of integration of ART services into the general health system; (2) the growing need for comprehensive care, (3) patient empowerment, (4) and defaulter tracing; and (5) the crippling shortage in human resources for health”. As such, there is great potential in the use of community level service providers in the fight against HIV and AIDS and TB programmes, whose demands on care and support are long term and often devastating.

4.3.2 Community/service user perspectives on HSAs and task shifting

The second concern with task shifting is on the general acceptance of the communities towards the new cadres of staff and of the service itself. For some time, HTC services were provided by clinical staff whose status is well-above that of community members (clinicians, medical assistants and nurses). With task shifting, these same services are now provided by fellow community-based members. There have been few systematic studies on how the communities are viewing this shift of responsibilities and what level of trust exists among the community members on the quality of services being provided. Another issue with regard to ‘trust and perceptions of quality’ concerns the issue of confidentiality. HIV/AIDS is a condition that is still highly associated with high levels of stigma and discrimination. It is argued that some people would not want their health information to be known by people they live with, in their communities such as HSAs (or lay counsellors) (Zachariaha et al, 2008). This would act as a deterrent factor for taking up the services.

Research conducted in Malawi has also shown low levels of trust scores given to community-based health workers on issues of trust and confidentiality in community based health workers. There were reports of community based health workers demanding that the communities should be ‘thanking them’ for the drugs they were receiving in the form of bribes or informal payments (Kadzandira & Chilowa, 2001; Kadzandira & Mvula, 2002). Similar observations were also reported from a qualitative study involving PLHIVs from Malawi, Kenya, Uganda, South Africa Tanzania and Zambia where expert patients were accused of demanding bribes from

new clients in order to be enlisted faster and diverting food stuffs meant for distribution to patients for their own use (Patterson et al, 2007).

4.3.3 Impact on staff relations

A third concern with task shifting is on the relations of the new staff (in this case, HSAs) with their supervisors (nurses and clinical officers). There have been reports of great animosity between nurses and PLHIV when the PLHIVs and other lower cadres take up tasks that nurses have been delivering before (Patterson et al, 2007). The Patterson et al study reported that nurses ill-treat PLHIVs and shout at them in front of clients; nurses refuse to respond to questions from PLHIVs on issues not clear to them and nurses wanting PLHIVs to be thankful that they had been considered for a job. Others describe situations in Uganda and Kenya where the creation of lower cadres of staff met resistance from health staff who regarded the move as a threat to their professionalism and international competition (Kober & Van Damme, 2004).

4.3.4 Motive behind the task shifting strategy

A fourth concern with task shifting is on the motive behind implementing the strategy. The question being asked is whether task shifting is being used as a short-term measure or a strategy to provide cheaper health care i.e. is the motive on cost saving while increasing services or bridging the gap while strengthening systems. Some commentators have argued that task shifting should not be used to provide health care to the rural areas at a low cost by using lowly trained cadres. From a human rights point of view, this would be treating rural people as ‘second class citizens’ (Zachariaha et al, 2008).

The second part of the argument on cost saving raises a very important message for national health systems. By delegating tasks to lower cadres, the staff leaving these tasks need to possess the necessary skills to monitor what the new providers are doing and most importantly, to have the time to achieve this function. This implies

further training on how to conduct effective supervision for the nurses and clinicians who are leaving HTC tasks. At the same time, it also implies that they have to create enough time to be able to monitor what the HSAs and lay counsellors are doing. The question there is whether these new demands will eventually lead to reduced costs and workload among the nurses and clinicians or it may mean setting up completely new supervisory structures. Globally, it is also being discussed whether producing lowly trained doctors and nurses suiting the context in Africa and other source countries would lead to reduced health worker migration to the West thereby improving their availability in those countries (Lynch & Lynch, 2008), an initiative being hotly contested by African countries as this would erode the quality of health professions in those countries.

4.4 Frameworks for designing and implementing task shifting

Given the above debates, any programme on task shifting would need proper regulation, coordination and consultation among different stakeholders in order to enhance the buy-in and participation of the various agents. Some studies have reported task shifting programmes which have led to confusion and role conflicts in the delivery of health services eventually leading to frustration among the health workers (Yakam & Gruénais, 2009). Team work is very important when involving new cadres in a CHW programme. In order to achieve a sustainable CHW programme, adequate planning, investment and strengthening of the health system including human resources, infrastructure and ensuring uninterrupted supplies of medicines are essential (Njozing B.N. et al, 2011; Uebel et al, 2011). It is therefore important that “when involving new staff members (particularly when they do not belong to internationally recognized health professionals such as nurses, doctors and pharmacists), to redefine roles and build precise task-shifting procedures so that everyone may still have a place in the whole system and feel useful” (Yakam & Gruénais, 2009). Presented in Textbox 4-3 is an illustration of how the lack of proper regulation, supervision and monitoring and role redefinition led to conflicts in the Indonesian task shifting programme.

Textbox 4-3: Task delegation versus task shifting in the Indonesian Health Service

To solve the doctor shortage crisis which the Indonesian government was facing, in 2001 the government decided to delegate nurses/midwives to provide treatment services to patients in government health facilities using a Clinical Algorithm, a step-by-step problem-solving procedure for clinical services that guides health workers to arrive at a diagnosis and treatment. Whereas as this programme worked well for the first five years (2001-05), it became a contentious issue thereafter because the nurses and midwives stopped following the clinical algorithm. Some of the nurses opened their own clinics and campaigned against doctors trying to convince communities that they can run health facilities on their own. The doctors launched a formal protest to the government which subsequently cancelled the programme. However, noting the continued absence of doctors in rural areas, the government decided to redesign the programme.

In a new arrangement, the Indonesian Medical Association (IMA) recommended that doctors delegate medical authority to nurses/midwives in remote areas with the following terms and conditions: “the delegation mechanism includes accountability measures; the criteria of service is very clear; the time frame is restricted; only selected doctors in the area can delegate authority to nurses/midwives; medical authority to be delegated is clear; there is a limited list of drugs that can be dispensed by nurses/midwives; and nurses/midwives can perform these tasks in government health facilities only”.

A letter of agreement was issued by the IMA to allow nurses/midwives to provide the services but limited scope, only in government health centres during working hours. In this redesigned arrangement, task shifting worked well and one of the reasons was the active stakeholder participation at the regional and district levels through a decentralised health care management system.

Source: (Fachmi I., 2011)

Using the experiences of nurses in the Medical/Oncology Department of a 750-bed Academic Medical Centre in Chicago, USA, researchers have also described five key components for effectively working with unlicensed assistive personnel which include management support, role competency, appropriate delegation, teamwork, and effective communication (VanCura B.J. & Gunchick D., 1997). A 2007 study on community health workers in Kwazulu Natal, RSA also emphasized the need for substantial improvements in supervision and collaboration in order to sustain CHW programmes because of the shortfalls that were identified all of which bordered on lack of supervision and effective communication between the CHWs, nurses, clinicians and management staff (Suri A. et al, 2007). It has also been argued that successful delegation depends on the quality of working relationships between various health workers, timely on-going communication, initiative, a willingness to collaborate, clinical mentoring, quality of training and supervision (Green A. et al, 2014; Monyatsi G. et al, 2012b; Potter P. et al, 2010). Other researchers have also pointed out the need to make substantial efforts to ensure that appropriate support structures are in place for task shifting to succeed and 'chief among these are: sustainable stipends for volunteers and commitment from community leaders' (Campbell C. & R., 2012; Kironde S. & Klaasen S., 2002). All these issues are captured in the eight fundamental issues in introducing and maintaining task shifting as described by Hermann et al (2009) as shown in Textbox 4-4.

Textbox 4-4: Eight parameters to consider in introducing and maintaining task shifting suggested by Hermann et al (2009)

1. **Selection and motivation:** The success of a task shifting programme will to some extent depend how community health workers on task shifting were selected and what their motivations are;
2. **Initial training:** Initial training is important for the community health workers if they to perform the new functions properly;
3. **Simple guidelines and standardised protocols:** there has to be simple guidelines and protocols that can be used by the CHWs in a language they can easily understand;
4. **Supervision,** support and relationship with the formal health services;
5. **Remuneration and career structure**;
6. **Political support** and regulatory framework;
7. **Alignment** with broader health system strengthening
8. **Flexibility** and dynamism

Source: (Hermann et al, 2009); explanatory notes by the PhD Researcher

4.5 Task shifting, motivation and job satisfaction

Motivation can be defined as the 'psychological feature that arouses an individual to action toward a desired goal and elicits, controls, and sustains certain goal directed behaviours' (MaslowA.H., 1943). In health service delivery, theories and research studies on staff motivation provide useful insights into human resource management including recruitment and the design and implementation of staff retention schemes. There are numerous theories on human motivation but most of these theories tend to centre around Maslow's Theory of Basic Needs (McClelland D., 1965). According to Maslow (1943), needs drive human beings to take certain actions and the needs are hierarchical in nature, where 'basic needs' dominate the priority drivers of human intent and behaviours and satisfaction of these lead to generation of the other layers of needs (MaslowA.H., 1943). David McClelland (1965) identified three basic types of needs that are present in most people even though the weight attached to each can vary across individuals and these needs are: the need for achievement (when people

have the desire to succeed or have fears of failure), the need for affiliation and the need for power to control and influence (McClelland D., 1965).

There are both intrinsic and extrinsic factors that affect human motivation to deliver health services and these are summarized in Figure 4-3. Extrinsic factors (of which money is the strongest factor) include factors and conditions operating at the community and institutional levels which in turn affect how health workers get motivated to deliver health services or to decide to take up jobs in rural and underserved communities (Jacobi, 2010; Kironde S. & Bajunirwe F., 2002). Reporting on the successes of an ART programme in Thyolo District in Malawi, MSF (2007) pointed out that task shifting needs to be accompanied by appropriate salaries, access to training and career advancement opportunities (MSF, 2007).

At the individual level, altruism, empathy and religious convictions have greater influence on health worker motivation. This is also supported through findings from qualitative interviews with 30 nurses and counsellors in four centres providing comprehensive TB and HIV services in the Northwest region of Cameroon where the respondents regarded their counselling job as a call to serve humanity (Njozing B.N. et al, 2011). This was in addition to the counselling training and supervision which they received, and the skills acquired which were said to have altogether contributed to build patients' trust in the healthcare system.

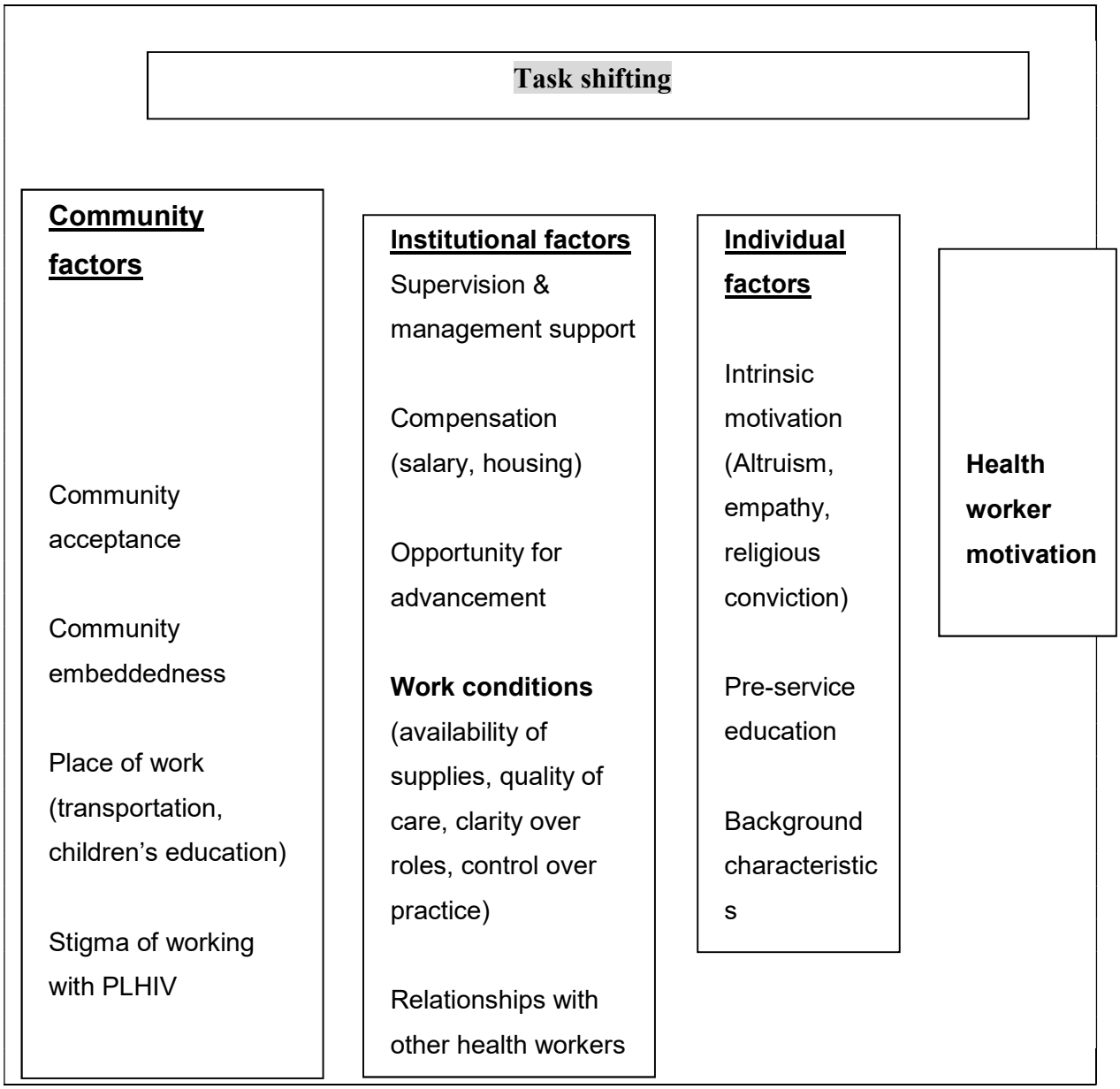

Figure 4-3: Conceptual framework of factors affecting health worker motivation in task shifting

Source: (Jacobi, 2010)

On the other hand, job satisfaction, the degree of positive affect toward the overall job or its components (Weisman C.S. et al, Year: Not cited) is also affected by both intrinsic and extrinsic factors. From a measurement perspective, job satisfaction may

be treated as an overall rating of the job as an entity or the sum of evaluative ratings of several job characteristics or "facets.

Research has also shown various reasons why some health workers and community volunteers take up certain jobs. For example, in a TB programmes involving non-paid community volunteers and youths in Uganda and in Northern Cape Province (South Africa), respectively, the main source of motivation among the volunteers was the high level of unemployment as the volunteers had high hopes that through the TB programme, they would eventually get employed and get remunerated (Kironde S. & Bajunirwe F., 2002; Kironde S. & Klaasen S., 2002). The volunteers kept mentioning ‘having spare time’, ‘a need to gain experience’ and ‘the desire to serve others or altruism’ as some of the reasons why they decided to join the programme. Three quarters (75%) of the youths who were enrolled in the TB programme in the Northern Cape (South Africa) but had stopped working gave loss of interest and a desire for paid work as the reasons for leaving the TB programme. Other motivating factors identified in the study included altruism, a need to find something to do with one’s spare time, gaining work experience, and the novelty of the community-based TB programme (Kironde S. & Klaasen S., 2002).

In Ethiopia, a study assessing motivation among HTC counsellors reported diminished motivation among the counsellors due to lack of additional training and opportunities for promotion, limited scope of practice, particularly with regard to the provision of injectable contraceptives and low salaries (Jacobi, 2010). According to the findings of this research, supervision structures such as performance targets were not significant motivators but perceived lack of management support was a source of frustration among the counsellors. The study concluded that the long-term success of task shifting requires adequate management support, compensation, and training and advancement opportunities (Jacobi, 2010).

In 1998 in Senegal, the government and the Dakar University Obstetric Department trained district teams consisting of an anaesthetist, general practitioner and surgical assistant in emergency obstetric surgery to solve the unmet needs of obstetric care.

Although the communities felt the programme was very valuable and that they liked it, the programme met challenges from the newly trained doctors (De Brouwere et al, 2009). Out of the 11 teams trained between 2001 and 2006, only six were still functioning. The doctors complained about lack of career progression, low additional pay and not being replaced during training. Kironde & Klaasen (2002) also point out the need for proper incentives (including monetary incentives) in order to sustain programmes that rely on CHWs through task shifting, for example community based TB programmes (Kironde S. & Klaasen S., 2002). These findings are also supported by a study on middle-level practitioners providing obstetric care in Malawi where the health workers complained about the difficult conditions they were working in including limited opportunities for career advancement and further education, insufficient remuneration and lack of performance based rewards and recognition (Bradley & McAuliffe, 2009).

In trying to cope with daily tasks, some health workers work beyond normal working hours so as to complete their tasks. Ferrinho et al (2012) report that in both the Republic of Mozambique and the Republic of Zambia, “health workers have to practice beyond the traditional scope of their professional practice to cope with their daily tasks. They do so to ensure that their patients receive the level of care that they, the health workers, deem due to them, even in the absence of written instructions. The out of professional scope activities consume a significant amount of working time”. However, despite these stressing jobs, job titles and rewards do not change, and career progression is unheard of (Ferrinho et al, 2012). These are cited as demotivating factors among most health workers. In Malawi, nurses and clinicians working beyond working hours are paid an allowance called ‘locum’, which is based on additional hours worked and there has been reports of these cadres refusing to continue working on locum when the payments have been delayed (GoM, 2011a).

Research evidence from Malawi is also emerging suggesting that HSAs on task shifting feel motivated to provide the new services because it is seen as professional achievement to them. In a study evaluating the use of HSAs to treat common childhood illnesses through the community case management (CCM) in six districts

of Malawi, HSAs reported being highly motivated by the new clinical roles they were providing and some wanted to be assigned additional other clinical duties (Callaghan-Koru et al, 2012). According to the HSAs who were interviewed, their new role of operating village health clinics changed how they view their own position in the Malawi health system and that at the community level, people recognized them as 'village doctors', a situation which makes them feel at par with Medical Assistants, the primary clinicians in Malawi's health centres. Among others, the HSAs considered the new CCM tasks to have provided them with an opportunity to develop new skills and that they also felt motivated by altruism (the desire to help their community), increased recognition/appreciation from the community caused by the curative role, assistance from the community when operating village clinics and allowances received during CCM trainings (Callaghan-Koru et al, 2012).

There are however other situations where efforts made by the governments or NGOs to motivate health workers does not really result in good results. For example, in 2011 training seminars and workshops related to HIV in Mbeya, Tanzania, were reported to contribute to the shortage of health workers in the facilities. These seminars/workshops and trainings tend to exclude the lower status workers and they are left to continue working in the facilities, by implication being affected by the high workload created because their colleagues have gone to training or seminars. In such situations, the excluded health workers report high levels of dissatisfaction with their jobs (Mbilinyi D. et al, 2011).

4.6 Task shifting and workload

4.6.1 Workload measurement

Workload can be defined as "the total time required to provide all health care services for a certain patient load in a defined period of time (Needham J., 1997; Van den Hof S. et al, 2012). The WHO's Workload Indicators of Staffing Need (WISN) considers workload as 'service activity performed by a number of health care workers over a period of time' (WHO 2010). The WISN approach calculates HR

estimations by appraising the tasks that are needed to provide the services followed by estimation of the time required per task and this is slightly different from the Quantity Task Productivity Model which emphasizes more on productivity (Van den Hof S. et al, 2012). The relationship between staff workload and performance is complex and usually difficult to understand. As Nachreiner (1995) argues,*"…it is not always the case that as workload increases performance decreases….performance can be affected by workload being too high or too low. Sustained low workload (underload) can lead to boredom, loss of situation awareness and reduced alertness. Also as workload increases performance may not decrease as the operator may have a strategy for handling task demands*…" (Nachreiner F. et al, 1995).

There are five generic approaches to estimating staff workload which have been in use in the health sector (Ridoutt & Wise, 2005) and (Walsh A. et al, 2010). These are:

i. personnel-to-population ratios method: - estimating workload by dividing total catchment population by total number of health care workers or estimating number of health care workers per set population denominator, usually set at 10,000 population;
ii. health-needs method, also called the 'epidemiological or needs driven' or 'needs and demand-based'): - estimating workload on the basis of estimated episodes in a population;
iii. utilisation-based method – workload is calculated based on actual records of clients served in a health facility divided by numbers of staff. This is similar to the definition by WHO presented above;
iv. service-demands method – usually used to estimate future workload needs from the consumer perspective (client perspective); and,
v. service targets method- usually used to plan workload needs from a health service planning perspective.

Ridoutt et al (2005) go further to suggest that the five workload measurement approaches above can be grounded into four:

- Ratio-based methodology (e.g. beds or activity to staff ratio)

- Procedure-based methodology (workload estimated based on medical procedures and the skills involved)
- Categories of care based methodology (workload measured on basis of time that each level of care takes and number of cases under observation)
- Diagnostic or case mix based methodology (where workload measures are categorised by diagnostic sub-groups)

Another approach to measuring staff workload that has been used is using hours of work that doctors, nurses, clinicians and other workers spend in a typical week providing HIV and non-HIV services either through physical observation of health workers providing the services on a daily basis or through questionnaire-based surveys (Ridoutt & Wise, 2005). For example, in a study exploring task-shifting practices in antiretroviral treatment facilities in the Free State Province of South Africa, the researchers used total hours per day spent providing ART and other activities in their respective health facilities in order to estimate workload among nurses who had just been introduced to provide ART services, a task that was previously handled by physicians (de Wet K. et al, 2011). In using this approach, the effect of task shifting on nurse workload was determined by calculating the overall hours of work that nurses devoted to ART and non-ART work in a typical week and compared to the situation before taking up ART work or hours spent by other nurses not delivering ART. This approach takes into consideration of time spent on both professional and administrative tasks that health workers perform in their respective health facilities.

In a study that was conducted to assess the effect of HIV and AIDS service delivery on facility-level trends in health worker numbers, distribution and workload in Zambia between 2005 and 2007, Walsh et al (2010) used the ratio-based service utilization and the personnel to population methods to demonstrate that the introduction of HIV and AIDS services had placed increased burden on the health workers especially in rural areas where staffing numbers remained marginally stable amid service increases for both HIV and non-HIV services (Walsh et al, 2010b). The study findings suggested that task sharing – adding new work to existing duties by taking on ART

and PMTCT service delivery alongside (but not in place of) other services – rather than task-shifting, was the principle strategy for scaling up service delivery.

In addition to the quantitative and objective workload measurement approaches described above, some studies have relied on subjective assessments by healthcare workers and managers to describe the effect of task shifting or task sharing on the workload of staff (Kruse et al, 2009; Mavhandu-Mudzusi et al, 2007). In this, in-depth interviews with healthcare managers or focus group discussions or one-on-one open ended interviews with health care providers are conducted to describe their experiences regarding workload trends and changes that can be attributed to changing roles in their health facilities. Arguably, this is considered the easiest and fastest way of assessing the effect of service delivery on staff workload as it gets the voice from the ground but it is considered of low value with regard to vigour. Other researchers have reported that in health planning circles, the use of more than one approach to estimating workload has been found to be useful although using different approaches does not usually result in getting the same workload estimates even in the same situations (Ridoutt & Wise, 2005).

Other studies measuring workload have used observations and clocking of specific tasks, compilation of standardised data from client registers and reports, structured interviews with patients and health staff and semi-structured interviews (Van den Hof S. et al, 2012). For example, in a TB treatment programme, workload data are compiled for the pre-diagnosis period, for the intensive treatment phase and for the continuation treatment phase and calculated separately for the clinical service providers and the laboratory staff.

In this study, the PhD researcher used both the personnel to population and the service utilisation methods to assess the likely effect of task shifting on the workload of nurses, clinicians and HSAs. The personnel to population method was preferred because it gives an estimate of workload for the health workers based on the numbers of existing health workers against the population being served and can be used to estimate human resource shortfalls and future estimates while the utilisation

method approach enables the calculation of the actual workload over a given period of time.

4.6.2 Effects of task shifting on staff workload

As stated above, the introduction of GHI-supported HIV and AIDS, TB and malaria programmes in the mid-2000s did not match service availability and scale-up with HR availability such that even when task shifting was introduced, volumes of clients accessing HTC, ART, PMTCT and TB services outstripped the effect of the additional community health care workers that were introduced in the system (Brugha et al, 2010; McCoy et al, 2008a; MSF, 2007; Mwapasa & Kadzandira, 2009). As stigma started reducing and more people became mobilized, client volumes for HTC, ART and PMTCT rose and this subsequently increased workload for nurses and clinicians. In Thyolo and Chiradzulu Districts of Malawi where MSF had introduced a comprehensive ART programme even before the government started its own programme, the demand for the services outstripped HR availability introduced by the programme (MSF, 2007). Among others, staff absences due to illness, funerals, family commitments, or trainings introduced a heavy strain on the remaining staff. Fatigue and burn-out were common, as existing staff often had to do double shifts or forego holidays to replace colleagues (MSF, 2007).

Comparing trends in HIV versus non-HIV service utilisation across the three districts in Zambia, a research conducted between 2006 and 2010 reported that while clinical staff (doctors, nurses and nurse-midwives, and clinical officers) numbers and staff population densities fell slightly or remained stable, workload increased especially in the rural facilities and HIV services (HTC, ART and PMTCT) continued to be provided by the same health workers as no additional or very few were added into the system to deliver the new services (Walsh et al, 2010b). These findings mirror those reported in a study assessing the system-wide effects of GHIs in Malawi (Mwapasa & Kadzandira, 2009).

4.7 Conclusion

Studies and programmes that were reviewed have reported the effect of task shifting on the scale-up of HIV services and non-HIV services, quality of care and on the quality of non-HIV services focussing on non-physician clinicians. However, these studies have not adequately discussed task shifting models (arrangements) taking place at the facility level including decision making processes, government policies and guidelines around task shifting and the consequences of task shifting on the community health workers (such as the HSA cadre in Malawi). In the case of Malawi, the HSAs are primarily responsible for delivering preventive and health behaviour promotion interventions at the community level. Past studies have not adequately described the effect of shifting HIV services to CHWs especially if these new cadres had other mainstream activities. The research presented in this Thesis was therefore conducted to fill these gaps in knowledge so as to contribute to the general debate around task shifting and also to provide information that could be used in the management and implementation of task shifting in Malawi and elsewhere.

In this study the PhD researcher explored the effects of adding HIV services to the job description of HSAs on their mainstream community PHC work, their job satisfaction and motivation and on their workload. As stated below, the PhD researcher explored the propositions that shifting HIV services to HSAs resulted in increased HIV service coverage at the expense of community PHC work because of time constraints, difficulties in scheduling tasks and increased workload. The PhD researcher also wanted to explore and assess the various motivating elements that the delivery of HIV services may have introduced among the HSAs and whether the task shifting arrangement in the Malawi health sector was aligned to the 22 recommendations of the WHO on institutionalising task shifting discussed above (presented in Section 4.2.1).

Drawing on the findings from the SWEF study that was conducted in Malawi (as described above) which showed that the increased funding that was made available by the GHIs in the early 2000's had exposed weaknesses of the health system

regarding human resources and absorptive capacity, the PhD researcher explored further whether the shifting of HTC to HSAs had any effect on their core community work and on the overall human resource management practices. As Malawi has continued to face acute human resource shortfalls, task shifting some services to HSAs has appeared to be the most viable option in the short to the medium term. It is therefore envisaged that findings from this study would contribute to the understanding of the consequences of task shifting on the original tasks that the HSAs are supposed to be delivering. The findings would therefore be used to assist in human resource planning, task allocation, facility skills-mix and the general institutionalisation of task shifting programmes in Malawi and beyond.

5 RESEARCH DESIGN AND METHODS

This Chapter presents the research design and the research methods that were used in this study. Research objectives and research questions are presented first followed by a detailed description of the various methods that were used and the different phases of data collection, analysis, reflection and the writing of this thesis.

5.1 Research objectives

5.1.1 Main objective

The main objective of this study was to assess the consequences of task shifting HTC services on the Health Surveillance Assistants and their main stream community work.

5.1.2 Specific objectives

The specific objectives were:

(i) explore and describe the HIV task shifting models taking place in the Malawi's hospitals and health centres;

(ii) assess and describe client trends for HTC services and some selected PHC services and health worker (HSAs, nurses and clinicians) numbers between 2006 and 2010;

(iii) assess the consequences of shifting HTC services to HSAs on their mainstream community PHC services, their motivation and job satisfaction; and,

(iv) assess and describe workload trends for HTC and PHC services among the HSAs

5.2 Research Design

The PhD researcher adopted an exploratory parallel mixed methods research design. Mixed methods research is defined as the "collection or analysis of both quantitative and qualitative data in a single study in which the data may be collected concurrently/parallel or sequentially and involve the integration of the data at one or more stages in the process of research" (Creswell J.W. et al, 2003). Mixed methods research (also known as the third research paradigm) mixes quantitative purists philosophy (positivitism) with qualitative purists philosophy (constuctivitism or interpretivism), learning from the strengths and weaknesses underpinning each school of thought (Johnson & Onwuegbuzie 2004). The PhD researcher therefore decided to use this design in order to complement and triangulate findings from different sources (qualitative as in the client records discussed below) and from interviews with facility managers and the HSAs) so as to better understand how task shifting is being implemented in Malawi.

The use of both quantitative and qualitative data helps researchers to use the findings from each set of data "to elaborate on results from the other method (complementation), to use results from one method to help develop or inform the other method (development), and extend the breadth or range of inquiry by using different methods for different inquiry components (expansion) (Hanson W.E. et al, 2004). The use of different methods of data collection in research has also been used " to better understand a research problem by converging numeric trends from quantitative data and specific details from qualitative data; to identify variables/constructs that may be measured subsequently through the use of existing instruments or the development of new ones; to obtain statistical, quantitative data and results from a sample of a population and use them to identify individuals who may expand on the results through qualitative data and results; and to convey the needs of individuals or groups of individuals who are marginalized or underrepresented" (Mertens D.M., 2003). As stated above, the PhD researcher adopted the mixed methods approach to data collection and analysis so as to complement, triangulate and validate findings from the different methods in order to

better understand how task shifting was being implemented in the Malawi health sector and its consequences on the Health Surveillance Assistants. The next sections describe how the data were collected and integrated. A discussion of the analytical frameworks which guided the design of the study and the analysis of the data is presented first.

5.3 Conceptual framework

As stated above, the main aim of this study was to assess the consequences of task shifting HTC services on the HSAs and their mainstream community PHC work and to explore the task shifting models taking place in the health facilities in Malawi. The PhD researcher primarily adapted the 8-point parameters for implementing task shifting proposed by Hermann and Van Damme et al (2009) and some selected principles for institutionalising task shifting as recommended by the WHO (see Section 4.2.1) to derive the conceptual framework that was used to analyse the status of task shifting in Malawi.

As stated in Section 4.2.1, the WHO has proposed a set of 22 guiding principles when institutionalising task programmes including there being a shared and common recognition of the need for such a programme among the various stakeholders; the availability of political support and regulatory framework' and a clear definition of how the various models of service delivery will be aligned within the broader health system. When these first three principles are considered, planers and implementers of task shifting should also define the types and levels of staff who will be involved in the task shifting programme, their roles and motivation, work conditions and environment (including defining the remuneration and career structure for the new cadres) and should put in place mechanisms of monitoring and evaluating the effects of the various changes.

Hermann and Van Damme et al (2009) further propose considering drafting and making available simple guidelines and standardised protocols, the provision of initial training and instituting well defined measures of supervision, mentoring and support

for the new cadres. The PhD researcher adapted some of these principles in the conceptual framework so as to understand how and whether the task shifting taking place in the Malawi Health Sector is in alignment to the said principles or not and how this may be affecting the delivery of both HIV and PHC services by the HSAs (Figure 5-1).

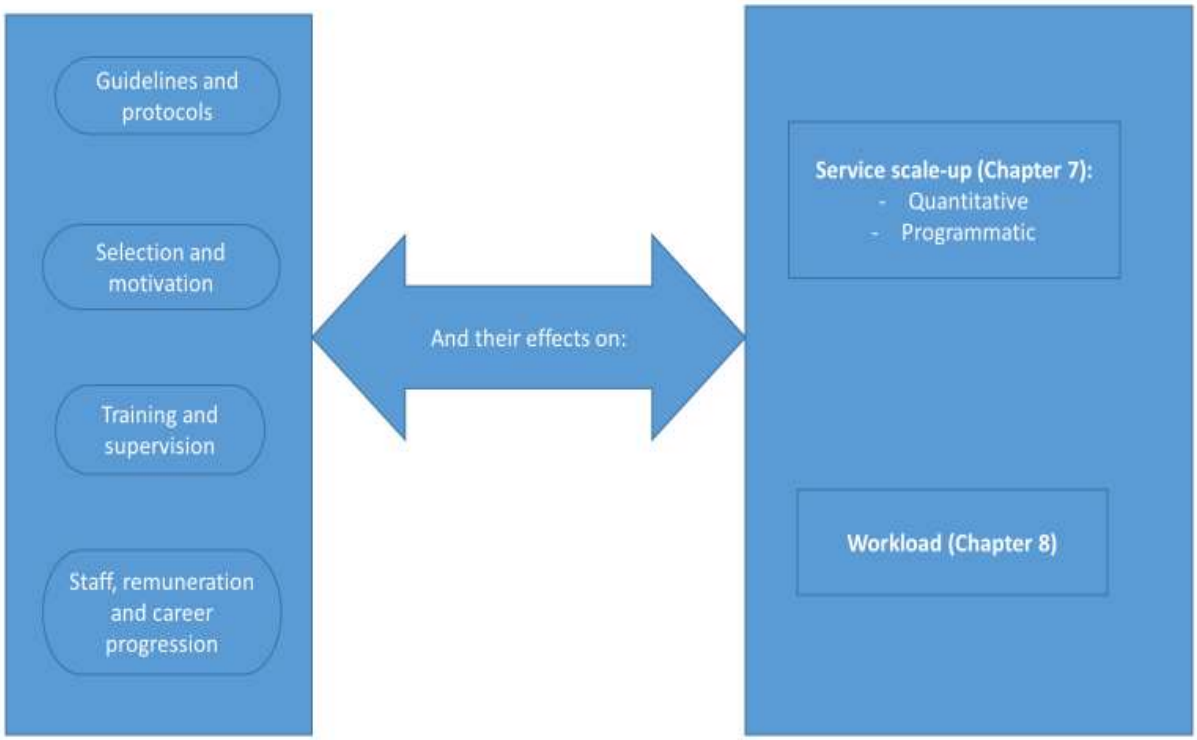

Figure 5-1: Conceptual model for the PhD research

The PhD Researcher selected themes/principles that were common to both the WHO guidelines and the 8-point framework suggested by Hermann and Van Damme et al (2009) in order to understand task shifting models taking place in the health facilities and how these were affecting service scale-up and workload among the HSAs, nurses and clinicians. The availability of guidelines and protocols provides guidance to the management of task shifting programmes and helps all stakeholders to have common understanding regarding programme delivery (WHO 2008). The selection and motivation of staff on task shifting ensures sustainability of task shifting programmes especially the programme planners also consider issues around

remuneration, incentives and career progression. The parameters on the left side of Figure 5-1 guided the design of the study and the data collection tools while on the right side were studied as the resulting effects of ask shifting.

In trying to understand the consequences of task shifting on service delivery among the HSAs and service scale-up, the PhD researcher further adapted five dimensions of scale-up proposed by Kadiyala (2004) namely.

1 **Programmatic scale-up:** assessing the availability services in some communities (or to some people) where the services would not be available in the absence of task shifting.
2 **Quantitative scale-up:** assessing whether task shifting has led to physical increases in client trends.
3 **Social scale-up:** assessing whether task shifting has led to an increase in the capacity of the health facilities to deliver more services that would have suffered;
4 **Organizational scale-up:** assessing whether task shifting has led to positive or negative changes in the internal management of health services; and,
5 **Political scale-up:** assessing whether task shifting has increased participation of various cadres in various layers of decision making and service delivery at the facilities

Further to this, the PhD researcher used the personnel to population and the service utilisation methods to assess workload changes among the HSAs which would be the likely effect of task shifting after some of the HSAs had taken up the delivery of HIV services.

5.4 Research Phases

The research was conducted in three phases: (i). Re-analysis of service client data for selected HIV and PHC services for the period 2006-2010 from eight health facilities that were part of the SWEF study referenced in Section 1.4; (ii). collection of primary data through in-depth interviews with national, district and facility health managers and interviews with health surveillance assistants, which were undertaken

between 2010 and 2012; and, (iii). analysis and triangulation of results from the various data collection methods (Figure 5-2). The following sections provide more details regarding what the PhD researcher did in each phase. The study was conducted in a phased approach so that subsequent phases are informed by the previous phases as the review of literature suggested that studies on task shifting and its effects on service delivery were not available at the time of designing this PhD study. It was therefore imperative to start with some exploration on service delivery trends, health worker numbers and how task shifting had affected these issues from the managers at the national and district levels so as to get data to assist with the design of data collection tools from the facility managers and the HSAs themselves.

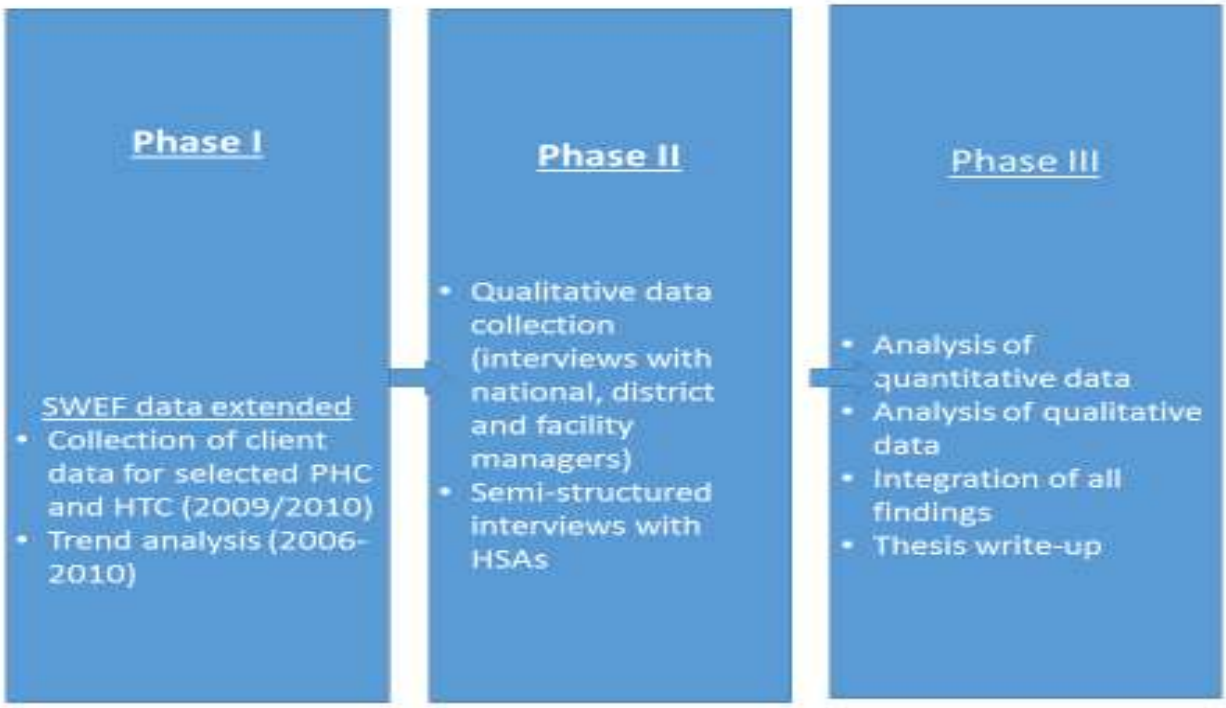

Figure 5-2: Research phases

5.4.1 Quantitative Phase: Re-analysis of the SWEF data

The starting point to data collection and analysis for this PhD study was the review of the results of the SWEF study. As stated above, the SWEF study (see Section 1.4) collected service client data pertaining to HTC, Family Planning (FP), Pentavalent, facility catchment populations and health worker numbers (nurses, clinicians and HSAs) at the facility level for the period 2005 to 2008 in 39 health facilities from nine districts in Malawi. In Phase I of this research, the PhD researcher collected additional data on the same services from the eight health facilities in two districts for the period 2009 to 2010 in order to perform further analysis. The SWEF study tool on service statistics was adapted in full because the PhD researcher wanted to collect data on the same services that the SWEF study collected in order to perform the following analyses:

- Trend and correlation analyses for HTC, FP and Pentavalent service clients for the period 2006 to 2010 to explore the relationship between HTC services and PHC services. While crowding-out by HIV of non-HIV services has been suggested (Mwapasa & Kadzandira 2008), Brugha et al (2010) reported the opposite effect in Zambia, where increases in HIV service trends were associated with increases in other services.
- Trend and correlation analyses for health worker numbers (nurses, clinicians and HSAs)
- Trends in health worker workload for the period 2006 to 2010 to assess if HTC and other services had contributed to health worker workload and whether service scale-up was matched with health worker numbers

The contribution of this PhD study was to the understanding as to whether the trends and correlation results observed between 2006 and 2008 in the SWEF study when task shifting had just started had continued beyond 2008 as this would help inform policy makers on the likely effects of task shifting on the delivery of PHC services.

5.4.2 Collection of qualitative data

5.4.2.1 National and district interviews

After analysing the service client trend data (as described in Section 5.4.1), the PhD researcher drafted an interview guide for national and district informants (see Annex 12). The guide by the PhD researcher using experience in drafting qualitative research guides for similar studies since 1998 at the Centre for Social Research of the University of Malawi (where he works in the Public Health Programme) and the guide topics covered the main themes and objectives of the study:

- task shifting (the concept, policies governing task shifting, implementation procedures, effect on service coverage and staff workload);
- Supervision and health worker motivation;
- Views on the service clients and workload trends (using results of the SWEF data analyses).

The draft guide was shared with the supervisory team for their advice and then revised. Following this, the PhD researcher submitted the revised guide to the National Health Sciences Research Committee for ethical review in December 2010. Following approval by the Committee, the PhD researcher pilot-tested the tool in Zomba District where four health facility managers and six HSAs were interviewed and thereafter the final tool was produced. The PhD researcher then went to Salima, Mangochi and Lilongwe for interviews with the Health Managers at the District and National levels. In total, the PhD researcher interviewed four managers, two at the District level and two at the National level.

5.4.2.2 Interviews with facility managers

Following the interviews with the national and district health managers, the PhD researcher performed a preliminary analysis of the data in order to isolate recurring and new themes from the data in line with the objectives of the study. A new guide

which incorporated all questions that were asked to the national and district managers was then drafted. The national and district managers raised issues that needed to be explored further with the health facility managers including:

- The presence of non-governmental organisations (NGOs) in their catchment areas and how they engage HSAs in their work, how HSAs contribute to their work, their management of time and competing tasks and if they were getting additional remuneration from the NGOs;
- Comparative advantages of using HSAs in service delivery in the rural areas;
- Challenges and constraints to the work of HSAs; and,
- Observed weaknesses (by the facility managers) in how HSAs deliver their services especially in the context of task shifting

The interview guide for managers of health facilities also contained questions on their understanding of task shifting and issues around health workers (see Annex 12 for a copy of the guide). Open-ended interviews were held with managers of eight facilities to get their views and perceptions on task shifting, workload and service delivery. The interviews were recorded except in two sessions where the informants refused to be recorded. In these cases detailed notes of the responses and some verbatim quotes were taken. During the in-depth interviews, the discussions also centred around:

- The Malawi Governments' HR policies in the health sector in relation to task shifting and how the facility managers understand them;
- Types of task shifting implemented in facilities
- Systems in place for monitoring and evaluating of task shifting
- Views and perceptions on the effect of task shifting in general, but specifically on service coverage and workload.

The interview guide for facility managers which was used in this PhD study had 14 questions or themes eight of which were not asked during the 2001 study on the work of HSAs which had nine questions in total (Table 5-1). The eight questions in the PhD study were specific to task shifting.

5.4.2.3 Mixed data: Interviews with HSAs

5.4.2.3.1 Development of the questionnaire for HSAs

Following the interviews with the facility managers, the PhD researcher then drafted a semi questionnaire for interviews with HSAs. As part of the process, the questionnaire, which was used in a 2001 study on the "Role of Health Surveillance Assistants in the delivery of health care in Malawi" that was conducted by the Government of Malawi and UNICEF through the Centre for Social Research of the University of Malawi (Kadzandira and Chilowa 2001), was adapted for this study because it captured most aspects surrounding the job description of HSAs. The questionnaire for the HSAs was re-designed to capture information on task shifting and the major themes that emerged during the interviews with the national, district and facility informants.

The 2001 questionnaire had 67 questions in total whereas the PhD study had 81 questions. The PhD study had 40 questions which were not asked in 2001 and these questions were specific on task shifting and its effects on their work. These questions were included after emerging as recurring themes during the interviews at the national, district and facility levels. The PhD study questionnaire (Annex 9) was shared with the PhD supervisory team at RCSI and with the national[31] and district managers who had shown high interest in the results of the study. Apart from the table which was adapted from the SWEF study to capture service and health worker data (Annex 11), no other tools were adapted from this study.

[31] One national manager suggested to conduct a national study on task shifting which was not possible in this PhD study because of logistical constraints

Table 5-1 : Number of questions adapted from the 2001 study on HSAs and number of new questions designed specifically for this PhD study

		PhD Study	2001 Study
Questionnaires	Total number of questions	81	67
	Number of unique questions/not found in the other tool	40	26
KII guide	Total number of key questions/themes	14	9
	Number of unique questions/not found in the other tool	8	3

Following the drafting of the questionnaire, it was pilot-tested in Zomba four health facilities where each data collector completed at least two interviews. Observations made during the piloting of the questionnaires were reviewed and the questionnaires were subsequently modified and shared with the PhD supervisory team for their final input.

5.4.2.3.2 Sample size for the HSAs

A sample size of 384 HSAs was calculated using a formula suggested by Fischer et al (1993) for use in cross-sectional studies which as follows:

$n= pqz^2/d^2$

Where;

n - is the required sample size;

p - the probability of prevalence of certain attribute(s) in the sample, for example, the proportion HSAs trained in HTC. In the absence of such a statistic, a proportion of 50% (0.5) was assumed so as to derive the maximum sample size;

q - 1-p

z - the standard normal deviate, usually set at 1.96 for the 95% confidence interval (CI)

d - Error margin, set at 0.05 (5%)

The 384 HSAs were to be sampled equally from the two districts (192 per district) at random using lists provided at the eight initial SWEF health facilities. During the fieldwork, however, it became clear that interviews with 384 HSAs would not be possible in the eight facilities because of insufficient numbers. On consultation with the supervisory team and with District Heath Offices (DHOs) and the National Health Sciences Research Committee, the number of health facilities was increased to 21. However, even after expanding to 21 health facilities in the two districts, only 243 HSAs were interviewed. These 243 health workers were almost a census of the HSAs in those 21 health facilities[32]. As such, the results would be considered representative of the facilities and districts from which the HSAs were interviewed and not representative of the districts or the national situation.

The HSAs were interviewed on their experiences, views and perceptions regarding service delivery, task shifting, and workload. The HSAs were also asked about their residential status, catchment characteristics and other information in line with their job description (a copy of the job description of HSAs is in Annex 4). The interviews with HSAs were conducted one-on-one mainly by four data collectors under the direct supervision of the PhD researcher. The PhD researcher also conducted some of the interviews with the HSAs. Annex 9 is a copy of the questionnaire that was used.

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[32] The PhD researcher could not extend data collection beyond the 21 health facilities because of logistical challenges as well as the need to obtain another clearance from the National Health Sciences Research Committee, the national research ethics review board in Malawi. However, since the 243 HSAs were a census of all the HSAs in the two districts, issues of bias and accuracy were considerably taken care of.

Table 5-2: Data collection methods, types of respondents and research objectives that the data were addressing

Data collection method	Whom	Number	Purpose (including which research question/objective it is used for)
Semi-structured - interviews	District managers National managers	2 2	• To get policy direction regarding human resources and task shifting in particular (objective 1) • To obtain their views and perceptions on task shifting, workload and service delivery (all objectives)
Semi-structured interview	Facility Managers	11	• To obtain their views, perceptions and experiences on task shifting, workload and service delivery (all objectives)
Structured questionnaire	HSAs	243	• Information on time scheduling, workload, incentives (Objectives 1, 3-5)

5.5 Characteristics of the respondents in this study

5.5.1 Respondents to in-depth interviews

Eight informants were interviewed at the health facility level, six of whom were clinical officers (one of them a senior clinical officer) while two were nurses. Five of the eight respondents were holding the position of facility managers while three were representing the facility managers who were out of the facility for a longer period either on training/workshop or had been sick for some time. The age range among these informants was 26-52 years and had been in the health sector for up to 27 years with most of them having worked for 5-13 years. Given the small numbers of

clinicians and nurses at the health facilities especially at health centres which had one or two clinician or nurse, there was no sampling of the respondents. However, in the facilities which had more staff (Monkey bay rural hospital and the two district hospitals), the PhD researcher interviewed persons in charge of the health prevention department who are primarily responsible for the HSAs.

At the national level, two informants were interviewed who had worked in the health sector for over 20 years including work in health facilities and at policy making levels both at the district and national levels. At the district level, the two informants had between 5 and 10 years of work experience in the health sector. They either had clinical/nursing background or were directly involved in the work of HSAs.

5.5.2 Characteristics of the HSAs

A total of 243 Health Surveillance Assistants (HSAs) were interviewed in this study, 54.7% (133/243) HSAs in Salima district and 45.3% (110/243) HSAs in Mangochi district. Table 5-3 shows the distribution of the HSAs by gender, length of service in the health sector and district of work. Of the 243 HSAs who were interviewed, 54.3% (132/243) were males whereas 111 45.7% (111/243) were females. In Salima, 60.2% (80/133) of the 133 HSAs who were interviewed were males and females made up 39.8% (n=53). The corresponding proportions for male and female HSAs who were interviewed in Mangochi were 47.3% (52/110) and 52.7% (58/110), respectively.

Regarding length of service in the health sector, 57.6% (140/243) of the HSAs had worked for 0-5 years, which meant they included HSAs whose basic training had been funded by a reallocation of Malawi's Round 1 Global Fund grant; 42.4% (103/243) had worked for more than five years. In Salima, 44 (55%) of the 80 male HSAs had worked for 0-5 years whereas 36 (45%) had worked for more than 5 years. The corresponding proportions for the female HSAs in Salima and for the male and female HSAs in Mangochi were as shown in Table 5-3.

Table 5-3: The distribution of the HSAs by gender, length of service in the health sector and district of work

		Length of service		
District	Sex of respondent	0-5 years n (%)	>5 years n (%)	TOTAL n (%)
Salima	Males	44 (55.0)	36 (45.0)	80 (60.2)
	Females	36 (67.9)	17 (32.1)	53 (39.8)
	Total	80 (60.2)	53 (39.8)	133 (100.0)
Mangochi	Males	25 (48.1)	27 (51.9)	52 (47.3)
	Females	35 (60.3)	23 (39.7)	58 (52.7)
	Total	60 (54.5)	50 (45.5)	110 (100.0)
All HSAs	Males	69 (52.3)	63 (47.7)	132 (54.3)
	Females	71 (64.0)	40 (36.0)	111 (45.7)
	Total	140 (57.6)	103 (42.4)	243 (100.0)

5.6 Recruitment and training of data collectors

The PhD researcher recruited four data collectors (two males and two females) to assist with health worker interviews from a pool of data collectors that is maintained at the Centre for Social Research (CSR) of the University of Malawi, where the PhD researcher is employed. All four data collectors had worked on more than 10 research studies at the CSR and at the National Statistical Offices in Zomba. They had extensive experience in both qualitative and quantitative data collection methods. The data collectors were trained for one week placing emphasis on interviewing and probing techniques, research ethics and note-taking. On the fifth day, a pilot study was conducted in two health facilities within Zomba district where the CSR is located.

5.7 Selection of study districts and facilities

As stated in Sections 1.4, this study was built on the GHIN research on the sector wide effects (SWEF) of Global Health Initiatives (GHIs) which was conducted in 22 countries (see: www.ghinet.org). The Malawi SWEF research was funded by the Alliance for Health Policy and Systems Research (APHSR) of the World Health Organisation (WHO) and was conducted nine districts which were selected taking into consideration of regions and the rural-urban strata. For this present research, two districts, Salima and Mangochi, were selected from the nine districts representing districts that either scaled-up HIV or non-HIV services (Mangochi) and districts that either scaled down or remained stable (Salima). Only facilities that were part of the SWEF study were included for the record reviews and key informant interviews (four in Mangochi and four facilities in Salima). However, as stated above interviews with HSAs were extended to other health facilities because of the low numbers of HSAs in the eight SWEF health facilities.

5.8 Description of the study districts and health facilities

This section provides an overview of the two districts in terms of population characteristics, health services (including HIV and AIDS services) and human resources for health. The section also provides overviews of the eight health facilities where client trend data were collected and where interviews with HSAs were primarily conducted. The information used in this section is primarily based on information collected from health facility reports and from interviews with the district health managers and managers of the eight health facilities. Official population and HIV related data used in this section were collected from the Ministry of Health, the National AIDS Commission and from the National Statistics Office.

5.8.1 Salima district

Salima district is in the Central East Health Zone as classified by the Ministry of Health and in the Central Region of the country using geographic classification. The district is 110 kilometres east of Lilongwe, the Capital of Malawi and is one of the lakeshore districts. In 2008, Salima had 24 health facilities (MoH 2008), 23 providing primary health care while one (the District Hospital) was providing secondary level of care and these were serving a population of 340,327 people or 2.6% of the national population as reported from the 2008 national housing and population census (NSO 2010). On average, one health facility in Salima was serving a population of approximately 14,290 people. With an average intercensal population growth rate of 3.2% (NSO 2010), the population of Salima in 2010 when facility trend data were last collected was estimated at 362,948.

At the start of 2008, the whole district of Salima had two Doctors, 16 Clinical Officers, 23 Medical Assistants, 117 Nurses and a total of 325 HSAs (MoH 2008). This gave a doctor/population ratio of 1:170164, a nurse/population ration of 1:2909, a clinician/population ratio of 1:6673 and an HSA/population ratio of 1:1047. Service delivery in Salima is therefore dependent on the few nurses, Medical Assistants and an array of HSAs and task shifting is the main approach to service delivery (Table 5-4).

Table 5-4: Population and health worker statistics for Salima and Mangochi Districts (2010)

Staff category	District	
	Salima	**Mangochi**
Doctors	2	6
Clinical Officers	16	25
Medical Assistants	23	40
Nurses (all categories)	117	151
Technicians (all categories)	25	53
HSAs	325	560
Hospital attendants	175	255
Public health workers	10	12
Others	235	351
2008 population	340,327	803,602
Doctor/population ratio	1:170,164	1:133,934
Nurse/population ratio	1:2,909	1:5,322
Clinician/population ratio	1:6,673	1:11,318
HSA/population ratio	1:1,047	1:1,435
Number of all health facilities (2008)	24	49

Salima district has one of the highest HIV prevalence rates in Malawi currently estimated at 12.5% against the national average of 10.6%. Among others, the high HIV prevalence is attributed to the high tourism and leisure activities that take place in the district along the lake and the several cultural rituals that predispose the residents to HIV infection including sexual cleansing for young girls and widows and wife inheritance (GoM 2010a) HTC uptake in Salima was estimated to have surpassed a cumulative 116,450 people in 2011 up from <5000 in 2006 in the >45 number of HTC sites in the district.

5.8.2 Mangochi district

Mangochi district is in the South East Zone as classified by the Ministry of Health and in the Southern Region of the country using geographic classification. In 2008 Mangochi district had a population of 803,602 people (or 6.2% of the national population) and with an average intercensal population growth rate of 2.8%, the population in 2010 was approximately 849,234. At the start of 2008, the whole district had six Doctors, 25 Clinical Officers, 40 Medical Assistants, 151 Nurses and 560 HSAs. This gave a doctor/population ratio of 1:133934, a clinician/population ratio of 1:11318; a nurse/population ratio of 1:5322 and an HSA/population ratio of 1:1435. Just like in Salima, service delivery in the rural areas is heavily dependent on the few nurses, Medical Assistants and an array of HSAs.

Mangochi district has one of the highest HIV prevalence rates in Malawi currently estimated at 13.1% against the national average of 10.6%. Among others, tourism and leisure activities that take place in the district along the lake, high levels of polygamy and other cultural rituals predispose the residents to HIV infection. HTC uptake in Mangochi is estimated to have surpassed 231,300 clients in 2011 in the >95 HTC sites in the district since HTC started in 2004/05.

5.8.3 About the health facilities

With the exception of the district hospitals and Monkey Bay Community Hospital, all the five target health centres where the study took place are rural health centres. At the time of data collection, Maganga Health Centre had one Clinical Officer, two Nurses, 20 HSAs, five hospital attendants and five other staff including gardeners and watchmen. Table 5-5 summarises the staffing levels in the health facilities. With the exception of the district hospitals and Monkey Bay Community Hospital, all the health centres had no Medical Doctor but they had either one or two Clinical Officers and/or Medical Assistants and 1-4 nurses.

Table 5-5: Staffing levels in the eight health facilities, estimated catchment populations and health worker/population ratios at the end of 2010

Staff category	Khombedza	Maganga	Makioni	Salima DH**	Chilipa	Monkey Bay	Namwera	Mangochi DH**
Doctors	0	0	0	2	0	1	0	2
Clinical Officers	1	1	1	10	0	4	0	8
Medical Assistants	1	0	0	3	1	5	1	2
Nurses	4	2	1	78	2	15	2	74
HSAs	39	20	19	55	17	22	10	63
Hospital Attendants	5	1	3	87	4	19	2	66
Other staff	5	4	3	100	2	23	4	91
2010 catchment population	49,400	1:11,080	17,140	333,000	29,590	31,704	13,827	847,541
Nurse/population ratio	1:12 350	1:11 080	1:17 140	1:4,2 70	1:14 795	1:21 14	1:6,9 14	1:11 454
Clinician/population ratio	1:24 700	1:22 160	1:17 140	1:22 000	1:29 590	1:31 71	1:13 827	1:70 629
HSA/population ratio	1:12 67	1:11 08	1::90 3	1:60 55	1:17 41	1:13 83	1:33 83	1:13 454

**Salima and Mangochi district hospitals do not have specific catchment populations because they serve the entire district

With nurse/population ratios ranging from 1:2,114 at Monkey Bay Community Hospital to 1:17,140 at Makioni HC and clinician/population rations ranging from 1:3,171 at Monkey Bay Community Hospital to 1:29,590 at Chilipa HC, service delivery in the six health facilities (excluding district hospitals) relies heavily on task sharing and task shifting mainly using the network of HSAs and hospital attendants.

5.9 Research clearance

5.9.1 Formal ethical clearance

Following the drafting of the research proposal and reviews by the Supervisors, the proposal was submitted to the National Health Sciences Research Committee (NHSRC) in Malawi which is responsible for approving all research studies involving human subjects and studies that have a national interest. This submission was made in October 2010, but the revisions and reformatting requirements of the NHSRC only made it possible for the granting of ethical clearance in mid-2011.The main delay in obtaining the clearance was the requirement by the NHSRC that all research proposals submitted for ethical review should be accompanied by the final version of the study instruments in English and in the local language(s). Therefore, final submission could only be done once modifications made to the tools during training and pilot surveys had been incorporated. In addition, the NHSRC requires 10% of the research budget to be paid to the committee to support national research capacity building purposes. This caused some delays as the PhD researcher did not have adequate funding. However, the NHSRC decided to waive this provision in 2011 because the research had limited funding and was also a capacity building initiative on the part of the PhD researcher.

5.9.2 Entering the district and the facilities

Before commencing any data collection, it was important to observe traditional protocols for entering a district. In each district, the first point of entry was the office of the District Health Officer (DHO) who was referring the PhD researcher and the data collectors to the District Research Coordinator. Following introductions, the Research Coordinator was granting permission to visit the selected health facilities.

At the facility level, the PhD researcher and the data collectors first contacted the manager of the facility before embarking on the interviews with the HSAs and record reviews. Most of the HSAs (77.8%, 189/243) were interviewed at the health facility because they were found working at the facility on the date of the field visit while 54 HSAs (22.2%) were followed-up in their catchment communities.

5.9.3 Obtaining consent from the respondents

All HSAs and the health managers at the national, district and health facility levels were asked to consent to their participation in the research. A consent form was read out to each respondent in verbatim and the content of the form included objectives of the survey, the importance of their participation, the voluntariness of their participation and how the data would be kept confidential at the facility, during transportation and during data entry and analysis in Zomba and in Dublin. The respondents were also assured of their confidentiality and that their names will not be quoted anywhere in the thesis. They were also assured that the audio records and questionnaire papers will be kept in secure lockers at the Centre for Social Research until the final thesis is approved and submitted. A copy of the consent form is in Annex 9.

The PhD researcher trained the data collectors on research ethics and how to keep confidential. They were mainly discouraged against discussing with any staff or an outsider what they had learnt from interviewing somebody whether an HSA or a health facility manager as this would easily reveal the respondents in question given the small numbers of health workers in the facilities especially health centres.

5.10 Data management

SWEF data from 2006 to 2008 was obtained from the College of Medicine while additional data for the period 2009 -2010 was collected by the PhD researcher with the help of the District Health Management Information System Officers. This data

was password-protected on the PhD researcher's computer. For the primary data, once each interview was completed, the data collectors gave the completed questionnaires to PhD researcher for reviewing. The PhD researcher checked the completeness of each questionnaire so as to identify missing data and to identify any inconsistencies before the data collectors left the health facility. Once satisfied with the content of the questionnaire, the PhD researcher placed the questionnaires in sealed envelopes which were properly labelled with the names of the facilities and districts.

All the questionnaires were taken to the CSR offices in Zomba where data entry was done by the PhD researcher and one data entry clerk from the CSR) using different computers each entering all the questionnaires (double entry). Data entry was done using a template that was created in CS-Pro software. [33] The two datasets were then exported to Epi Info statistical package for data validation. All data entry errors were corrected manually by referring to the questionnaires. After the data were entered and cleaned, all the questionnaires were kept in a locked safe for security reasons.

The qualitative interviews which were recorded were transcribed in verbatim and then translated into English. This was the case because the respondents were allowed to mix English and Chichewa languages during the discussions. These transcripts were then typed in Microsoft Word for analysis. Interviews which were not recorded, the PhD researcher wrote detailed notes of the discussions and these were also typed in Microsoft Word.

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[33] CS-Pro can be downloaded for free at: (http://www.census.gov/population/international/software/cspro/).

5.11 Analysis of the data

5.11.1 Analysis of quantitative data

The quantitative data from interviews with HSAs and all the facility-level trend data were analysed using SPSS v.21 and Stata v.10 software packages to generate both descriptive and analytical results. Analysis of the service client trends, health worker-catchment population ratios, workload trends and correlations between various services were done using 'R' Statistical software with the additional support from the Supervisors.

Multiple logistic regression analyses (MLRA) were also performed to examine if the provision of selected PHC services (see Section 7.2) depended on some characteristics of the HSAs. As such, the MLRA analyses were modelled on HTC provision status of the HSAs (HTC providers versus non-HTC providers), type of health facility (health centre versus district hospital), sex of the HSA, category of the HSAs (HSAs recruited with GF funding versus old HSAs) and residential status of the HSAs (HSAs living in catchment area versus HSAs living outside their catchment areas). MLRA was applied so as to show which of the five characteristics of the HSAs had a statistically significant association with the provision of PHC services.

However, the PhD researcher was aware of the limitations of relying on the MLR analyses alone as: (i). they assume that the modelled predictor variables are independent of each other, which is questionable, given that dependence structures could exist. For example, HSAs of the same age, training cohort, cultural/ethnic group, or who are geographically close, may be similar to each other, affecting the p-values when the models are run; (ii). they assume that the measured predictor variables are normally distributed in the population being studied, which may not be the case; and (iii) the selection of the predictor variables (in this case the five characteristics of HSAs described above) may have omitted other important confounding variables – the predictor variables that were selected were based on the study objectives.

5.11.2 Analysis of qualitative data

The qualitative transcripts from the in-depth interviews were imported into QDA Miner software for coding and analysis[34]. Thematic (framework) approach to qualitative data coding and analysis (Braun V. & V., 2006) was used. The data were coded using the key themes derived from the research objectives described in Section 5.1.2. The themes and sub-themes from the objectives of this study were used as primary codes during the coding of the qualitative data. However, during the actual coding of the transcripts, new themes (such as 'quality of care') emerged and these were also added to the list of codes. A code-book embedded within the QDA Miner software programme was used to keep records of the codes and themes. The PhD researcher also shared the original transcripts with one of the supervisors who verified the coding scheme.

Table 5-6 shows three examples that illustrate how the qualitative data were coded. In the first example, the text comes from the interview which was conducted at Chinguluwe Health Centre in Salima district and the respondent was discussing how task shifting HIV services has affected the work of HSAs. This text was coded to two themes: (ii). 'Effects of the task shifting' and (ii). 'challenges' that HSAs encounter in their work. At the second level, the effect was reduced workload (for the first theme) and workload increase for the effect the second theme (as challenge).
After conducting interviews at the national and district levels, the PhD researcher reviewed the transcripts to identify major issues that were coming out to be used when drafting the questionnaire for the HSAs.

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[34]An explanation of QDA Miner can be found at:
http://provalisresearch.com/products/qualitative-data-analysis-software/

Table 5-6: Examples of how the qualitative transcripts were coded using QDA miner

	Text as in transcript	**Main theme(s)**	**Sub-theme (s) 1**	**Sub-theme(s) 2**
CASE: Chinguluwe HC	"…..because HSAs have been heaped or loaded with lots of other activities, their PHC work has been affected to some extent "these numerous activities they are carrying now have caused them to have less time spent per activity as compared to the past...."	Effects of TS HSA challenges	Reduced PHC time Workload increase	
CASE: Monkey Bay Hospital	Meanwhile the nurses/medical assistants are relieved as they are delegating these duties to the HSAs unlike the HSAs who have much workload as they have new tasks on top of their old ones.	Effects of TS	Workload	• Nurse/ clinician workload • HSA workload
CASE: Chilipa HC	the other greatest challenge is that of transportation. Transportation is a	HSA Challenges	Transport	

	Text as in transcript	Main theme(s)	Sub-theme (s) 1	Sub-theme(s) 2
	challenge because some areas are far away			
CASE: Mchoka HC	'… these workers get low payments; that is their salaries and allowances are very little. The other challenge is that of poor accommodation. The HSAs are supposed to live in their catchment areas, but not all of them are based in their areas because the government does not provide good houses for them. Others run away from their areas and prefer to be at the trading centre because they want to have access to information for some opportunities.	Challenges	• No incentives •Poor work conditions •Poor access to amenities	•Salaries & allowances •Housing • No housing • No career path • No access to information

5.11.3 Triangulating the Quantitative and Qualitative Results

Results from the quantitative analyses of the SWEF trend data and health worker interviews and results from the qualitative in-depth interviews were compared and all data around common themes were brought together for triangulation (i.e. to check for commonality or inconsistencies). Results that appeared in one set of findings and not in the other were kept separately (Table 5-7). This is a normal practice in mixed methods research designs (Creswell J.W. & Clark V.L.P., 2007).

Table 5-7: Common themes explored in both quantitative and qualitative data collection methods

Theme	In Analytical framework or research objectives?	HSA Data	In-depth Interviews data	SWEF client data
Definition & understanding of task shifting	Yes (Objective 1)	Not asked	Yes	N/A
Task shifting models	Yes (Objective 1)	Not asked	Yes	N/A
Decision making (to shift tasks)	Yes (Objective 1)	Yes	Yes	N/A
Motivation	Yes (Objective 5 & point 1 in framework)	Yes	Yes	N/A
Supervision	Yes (Objective 5 & point 5 in framework)	Yes	Yes	N/A
Effects of task shifting	Yes (Objective 5)	Yes (workload, incentives, work scheduling, quality of services)	Yes (workload, incentives, work scheduling, quality of services)	Service clients trends & workload

Theme	In Analytical framework or research objectives?	HSA Data	In-depth Interviews data	SWEF client data
Pre-requisites (in task shifting)	WHO Recommendations 3-13	Training & orientation	Yes	N/A
Managing task shifting (competing tasks)	Yes (Objective 1)	Time allocation	Yes	N/A
HSA Challenges	Yes (Objective 5)	Yes	Yes	N/A
Solutions to HSA challenges	Yes (Objective 5)	Yes	Yes	N/A

The final step in the implementation of this research was the interpretation of the results and the writing up of this thesis. This was an iterative process which involved testing results from the field with results from other research which also used similar or different methods but exploring similar issues. The PhD Supervisors were engaged throughout the process of interpreting the results so as to draw on their experiences in conducting research on global health initiatives (GHIs) and/or sub-Saharan African health systems. During the process of triangulating the data from different datasets, the PhD researcher did not find many cases where findings from different datasets contested each other but mostly where they confirmed each other.

6 TASK SHIFTING MODELS IN THE HEALTH FACILITIES

This Chapter presents findings on the understanding and implementation status of task shifting in the health facilities that were included in the study and the views and perceptions of task shifting among the health managers who were interviewed at the national, district and health facility levels. The aim of collecting this information was to explore and examine if there was a common understanding and shared vision on task shifting and whether the HTC task shifting programme in Malawi was aligned to the recommendations made by the WHO on institutionalising task shifting.

6.1 Availability of guidelines and protocols on task shifting

Guidelines and basic principles are mostly required when institutionalising and implementing task shifting and other health programmes (Hermann et al, 2009, WHO 2008). As stated above (Sections 1.2 and 5.1.2), one of the primary objectives of this PhD research was to explore and describe task shifting models taking place in Malawi's health facilities.

During the in-depth interviews with the facility managers, the managers were asked if they had any documents specific on task shifting whether for HIV services or any other disease programmes. None of the informants in the two districts was able to mention a document specifically on task shifting. However, the informants stated that when HSAs and other staff are being introduced to new services, they are oriented or trained on those new tasks and they are given manuals regarding how they should deliver the new services. None of the managers mentioned a document that spells out how the new trainees should be handled, how relations in the facility should be managed and on the roles of the old and new providers of the services. The informants kept saying they were only told by the higher authorities that the newly trained staff were now ready to take up the new services:

> *"……there is no document which explains how we should deal with the changing roles…we were just told by the DHO that HTC services will now be provided by HSAs both at the health facilities and in the communities…"* (**Facility manager 1, Salima District**)

The findings above were also corroborated at the national and district levels. According to the informants both at the national and district levels, the speed at which HIV services were planned to be scaled-up could not allow for time to draft, debate and agree on the task shifting policies and guidelines:

> *"…everybody was talking about scaling up and there was no time to sit down and write policies or clear guidelines on this…"* **(National Informant, MoH)**

As the tradition of shifting tasks to lower cadres had been in existence before it was felt that providing HTC training to the lower cadres including HSAs would suffice and that facility managers and nurses/clinicians at the facility level would take up the role of supervising the HSAs as has been the case before. One national informant also said plans were underway to draft the policy guidelines using examples of some NGOs which had clear procedures and guidelines on using HSAs and expert patients in the HIV service delivery. The informant gave examples of Dignitas International and MSF projects in Southern Malawi as cases where there were such guidelines.

The findings presented above report the situation in Malawi at the time of data collection for this PhD research in 2010-2012 as the first guidelines on the management of HSAs in task shifting programmes were drafted and operationalised in 2014 (GoM, 2014)[35]. These guidelines provide directions regarding the types of

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[35] The PhD researcher participated in several meetings and shared some of his findings with the other participants where possible but was conscious of declaring that these were only preliminary findings

tasks that can be shifted to HSAs and upon the approval and recommendation of the EHP Technical Working Group. The guidelines also provide guidance on the need for training, support supervision, performance appraisal and the need for proper remuneration commensurate with performance and prospects for career progression. The guidelines prepared in 2014 are in tune with the WHO recommendations on implementing task shifting guidelines presented in Section 4.2.1 above.

The 8-point framework on instituting task shifting programmes presented in Section 4.4 above also suggests that all players need to have a clear understanding of the need for task shifting for the programme to be successful in achieving the intended purposes. This is also supported by Recommendation number 3 by WHO (presented in Section 4.2.1) on institutionalising task shifting programmes which states that "…*countries deciding to adopt the task shifting approach should define a nationally endorsed framework that can ensure harmonization and provide stability for the HIV services that are provided throughout the public and non-state sectors. Countries should also explore a framework for the exploration of task shifting to meet other critical public health needs…".* Thus countries implementing task shifting programmes have to define a nationally endorsed framework that can ensure harmonisation and stability of services. This implies that all actors in the system should have an understanding of the concepts, guidelines and processes that need to be followed when implementing task shifting programmes.

In this study, the PhD researcher also sought to explore what the health managers at the facility, district and national levels understood by task shifting in general, and task shifting for HIV services in particular, and how task shifting was being implemented in their respective districts or facilities. From the face-to-face interviews with the facility managers it was apparent there was lack of clarity on task-shifting with divergent views on what it meant and that some of the managers had no knowledge at all about 'task shifting' as a concept. However, even those who did not explicitly mention the concept of task shifting, they provided examples of how some tasks had been re-organised at their facilities because of human resource shortages. Some

managers referred to the practice of allocating tasks to other cadres as 'task sharing'. From what the various informants also said, task shifting has been in existence for a long time and was being used not only for HIV services but in all the other services at the facilities. As such the lack of clarity on the concept of 'task shifting' could just be a terminology issue because the practice of transferring tasks across cadres had been in existence even before the formal task shifting programme for HIV and AIDS was introduced. Some of the definitions and explanations that the informants cited or said about task shifting are presented below:

> *".....giving away some of your tasks to other people with lesser training so that you can do the difficult tasks.....or helping one another to perform tasks..."* - **(Facility Manager 1, Mangochi district)**

> *"..task shifting is the delegation of duties between health workers mainly when there is shortage of staff or when the one delegating the tasks is required to take on other duties*- **(Facility Manager 2, Mangochi district**).

At the national level, one of the informants seemed to have a clear understanding of the concept and its evolution as he even referred to the recommendations on task shifting by the WHO:

> *"…..we call it task shifting…even the WHO says where we don't have adequate human resources, we should train others to take up some simple tasks…..for example, in the preventive department we never used to do HIV testing and counselling work, but things have now changed…."*- **(National Informant, Ministry of Health Headquarters)**

The same question on the knowledge and understanding of task shifting as a concept was also asked to the district health managers in the two districts (Salima and Mangochi). The two district managers knew the concept and were able to define it. One district manager continued to say:

"…*without delegating some of the tasks, we could not reach out to the people because we are thin on the ground…we do not have enough clinicians, nurses and doctors*…" (District Health Manager[36])

There was common acknowledgement that task shifting existed in the health facilities and was said to be the cornerstone of service provision mainly because of health worker shortages. While the concept 'task shifting' refers to shifting or delegation of tasks to cadres with lower skills and/or professional training (WHO 2008), the facility managers also said it is also common in the health facilities to shift tasks across cadres of the same level:

"...I understand task shifting as carrying duties which are not on one's original job description...at this health centre, task shifting is happening both vertically and horizontally....it is vertical when nurses or medical assistants shift tasks like pharmacy work to lower staff such as HSAs…...it is horizontal when other tasks within a category of staff are being shifted across, for example, HSAs help each other with managing village clinics...." - **(Facility Manager 1, Salima district)**

Some of the managers also stated that task shifting may be temporally in nature and this could be both horizontal and vertical and the tasks would be shifted either upwards or downwards:

"……...for example, nurses or clinicians shift task such as nutritional assessments to HSAs and sometimes lower level staff may delegate to high level qualified staff, for example, a medical assistant may delegate to a clinical officer some patients he has failed to assist …..." **(Facility Manager 3, Mangochi district).**

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[36] The name of the district has been withheld for confidentiality purposes

In temporary task shifting, some staff decide, or are requested by a colleague, to take on tasks that are not theirs because they have noted the 'legitimate need' to do so either because the person who was supposed to do the tasks is sick or has gone away or is just too busy at that time. In such cases, some personal and cultural aspects to 'help and serve' (*umunthu* in Malawi, *ubunthu* in South Africa) make the person(s) concerned to take up the tasks:

> *"… like today the Medical Assistant is sick and I am doing the work of the Medical Assistant….that means I am the one who is prescribing for all the patients who are coming today. I am the one who is supposed to attend to all the visitors such as you who may need the Medical Assistant….we just see that our colleague has gone away….."* **(Facility Manager 3, Salima District)**

As stated above, some of the managers cited examples of what happens at their facilities which relate to task sharing and team work and they argued that these were examples of task shifting:

> *"……..I also understand task shifting as team work whereby different categories of staff work together….not necessarily being attached to their original tasks as per job description…."* **(Facility Manager 4, Salima District)**

In general, the verbs and definitions around task shifting varied among the managers. Some of the verbs that were used to describe task shifting included the following:

- '*changing* responsibilities or *swapping* work' **(Facility Manager 1, Mangochi District)**
- '*delegation* of duties between workers **(Facility Manager 4, Mangochi District)**
- '*giving away* of tasks to other people or *helping out* one another to perform tasks.." **(Facility Manager 3, Mangochi District)**

- '*moving* a task that was being done by someone to another person…" **(Facility Manager 1, Salima District)**

As would be noted from the verbs that were used to describe task shifting cited above, it would appear that there are different degrees of transferral of tasks – from the formal allocation, 'delegation' to more informal 'swapping' and 'helping out'. This further suggests the divergent views and practices around task shifting taking in the health facilities.

Figure 6-1 illustrates examples of tasks which were reported by the facility managers to have been shifted across different cadres in their facilities. According to the facility managers, nurses are sometimes assigned OPD work (examining patients and prescribing drugs) tasks which are meant to be done by clinicians (Doctors, Clinical Officers or Medical Assistants). In some facilities, clinicians were reported have taken up some tasks from nurses in the antenatal clinics (ANC) or maternity wards. It was also reported that sometimes HSAs delegate their tasks to fellow HSAs or they invite each other to work together in the catchment areas especially during village clinics. Other non-health staff are also involved in some form of task shifting and these include hospital maids (or ward attendants), cleaners and watchmen:

> *"…wound dressing has been shifted to a ground labourer… "*
> **(Facility Manager 3, Mangochi District)**

Task shifting was also reported to be vertical, upwards or downwards, in that those targeted to perform certain tasks may not be available or could be busy themselves. In that situation, other lower cadres are considered for the tasks:

> *"..there is only one clerk responsible for registering all patients….and it becomes hard for him to do all the required work alone from the first day of the month to the last…..as a result, a ground labourer helps in performing the task….when ground labourer is not present then guards help* **…"(Facility Manager 3, Mangochi District)**

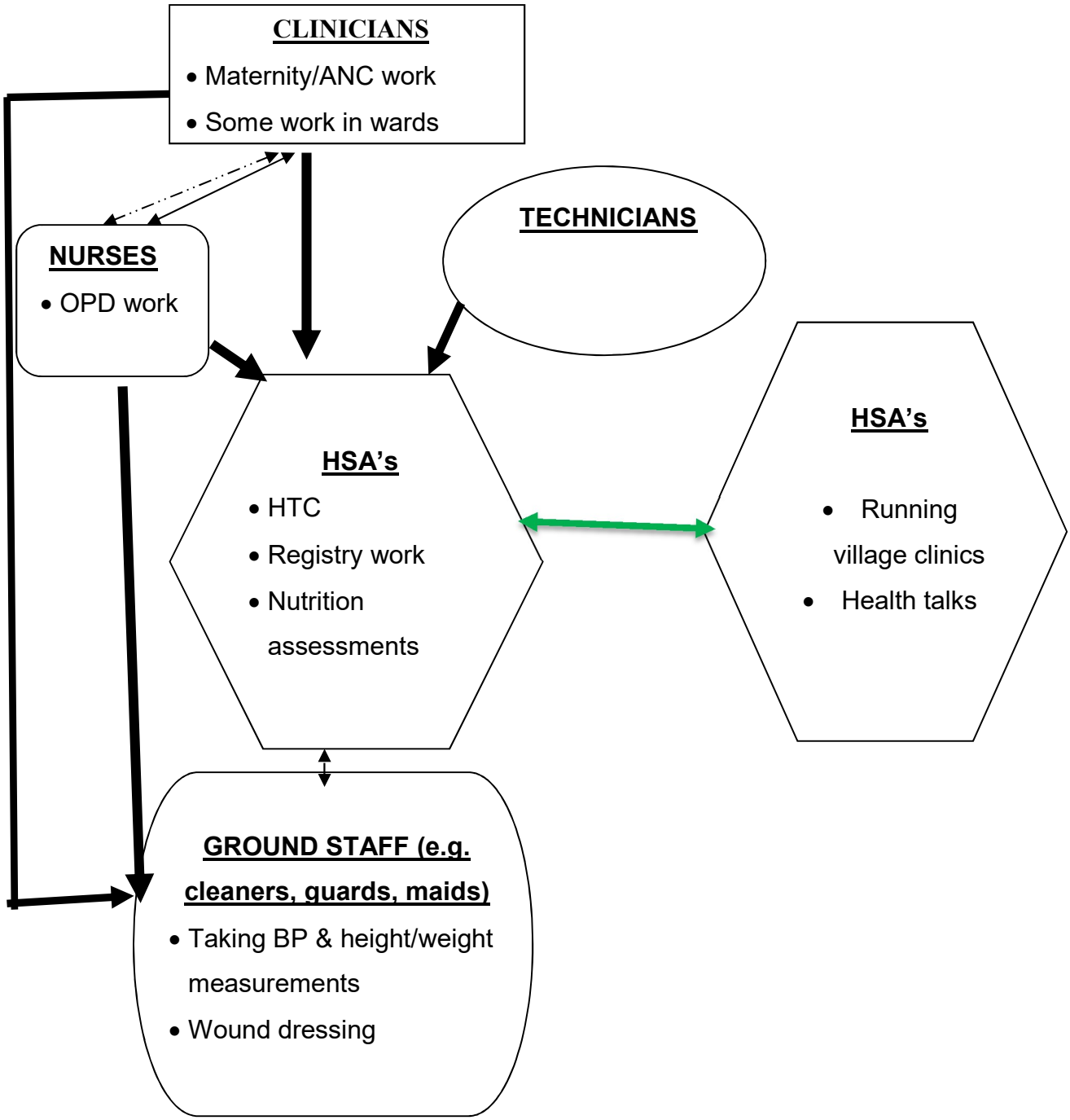

Figure 6-1: Examples of task shifting and task sharing taking place in the health facilities

Note: ***The black arrows show common types of task shifting***

Green horizontal arrow shows common horizontal task shifting and task sharing

As indicated above, some of the facility managers acknowledged that they had never heard about task shifting as a concept (or perhaps the term) even though the practice also existed at their health facilities. One manager stated:

> *"...As for me I should not lie, I have heard about this task shifting issue for the first time from you... I have heard about it when you people came....*" - **(Facility Manager 1, Salima)**

In some cases, task shifting was also confused with opinion seeking among the health workers as was described by the informant at one health centre in Mangochi district:

> *"….task shifting also takes place when there is a case which needs second opinion ……we work together and help one another….or when there is any emergency which needs immediate attention may be referral to Mangochi District Hospital…we consult one another…."* **(Facility Manager 2, Mangochi District)**

From the foregoing discussion, at the time of data collection for this PhD research, there were no protocols or guidelines on task shifting, as these were only drafted and operationalised in 2014. However, it would appear that task shifting was a common practice in the health facilities and was taking various forms. While the official or formal task shifting is defined where some tasks are moved from highly trained professional to those with lesser training or skills, some informal task shifting or task sharing takes place across cadres of the same category and this is more temporally in nature and does not seem to meet many of the 22 recommendations of the WHO for implementing task shifting programmes (see Section 4.2.1 above). For example, in informal task shifting the new cadres are not formally trained in the new tasks, there is no agreed framework to ensure harmonisation of the services and there are no mechanisms to assess the quality of services provided by the new cadres as recommended by the WHO and in the 8-point framework on institutionalising task shifting by Herman et al 2009 (see Section 4.4).

Specific to task shifting for HIV and AIDS services, the findings suggested that some of the formal procedures were followed while some were not. For example, the HSAs delivering HIV services received HTC training before they started delivering the service and were being supervised by the nurses and clinicians in the early stages. However, even where the shifting of the tasks was done formally, the facility managers had no documents or guidelines that explained task shifting, hence the lack of knowledge of the concept among all the facility managers. The next Section presents findings on how the HSAs for HTC were selected and how tasks were delegated to start providing the new services.

6.2 Selection and motivation of HSAs on task shifting

One of the 8-point framework criteria on institutionalising task shifting (Hermann et al 2009) recommends that staff to take up new tasks should be assessed on their motivation to deliver the new services as this has impact on the sustainability of the services. In this study, the PhD researcher firstly asked the district and health facility managers on why the HSA cadre was chosen for the HIV task shifting. The findings on this are presented below.

6.2.1 Comparative advantage of HSAs

As discussed in Chapter 4 above, globally there is increasing recognition of community health workers, based and living in communities, as being part and parcel of the health system. In this study, the health facility managers stated about the advantages and disadvantages of having HSAs deliver almost all health services in the communities including HIV services. Advantages included:

1. **Closeness to people**: since the HSAs work and are supposed to live in the same communities with the people, they have higher chances of interacting with the people on a regular basis and they also understand the local situations. Over time, they acclimatize themselves with the local cultures (if they are not from the same

communities) and they get respect from the people. Because of their closeness to the community, HSAs are able to see health problems in the community quickly and can identify changing health lifestyles quickly than the nurses and clinicians who are based at the health facilities. This finding corroborates what other studies on HSAs also found in Mwanza (Kok & Muula, 2013) and Zomba (Smith et al, 2014) that by living close to people, HSAs have the advantage of bringing the services close and they understand the environment in which people live. HSAs tend to have strong interpersonal relationships with traditional leaders and volunteers (Kok, Namakhoma et al 2016) because of which they are able to work with the communities with ease.

According to one health facility manager in Mangochi, some HSAs are respected more than clinicians and nurses because of their close proximity with the communities. Past studies have strongly demonstrated that culture is among the strong determinants of health seeking behaviour (Abubakar A. et al, 2013; Chibwana A.I. et al, 2009) and as such HSAs can be utilised to change health seeking behaviours in the communities because they understand and live with the local cultures:

> *"….HSAs are most of the times in touch with people in the communities….people in the villages ask them questions and they are the ones who give them information….most of the times people in the village love HSAs than us….they fear us, but they feel free to talk to them because they stay with them in the communities…"* **(Facility Manager 1, Mangochi district)**
>
> *"…HSAs are based in the community and so they are able to know and get to the root of the problem….they are also able to reach out to people in the hard to reach areas…..."* **(Facility Manager 4, Mangochi district)**

2. **HSAs are respected in their communities -** According to the respondents to the in-depth interviews both at the facility and national levels, the work that HSAs do

in their communities is well commended by their clients and because of this some of the HSAs have earned themselves great respect among their people such that they are considered community doctors:

> *" …you know in their communities…… they are small doctors at that level…*" (**National Informant, MoH**)

3. **The initial HSA training:** the facility managers also pointed out that the initial training that HSAs receive has a strong emphasis on community work and life and this enables them to work with their community better than other cadres.

> *"the first strength of HSAs is that they went to school for ten weeks and got well trained on their community work ……"* **(Facility Manager 1, Salima district)**

> *"….the training that an HSA receives makes him or her feel empowered…"* ***(Facility manager 3, Salima district)***

4. **Adherence to protocols:** The managers also hinted that HSAs, unlike nurses and clinicians, follow their protocols strictly and they would only use short-cuts when pressurized with work

> "*sometimes they are much better than myself when it comes to administering new vaccines…and this is because they follow the guidelines closely…* **(Facility Manager 4, Mangochi district)**

5. **Multitask:** The fact that HSAs are taught to deliver various services using various channels makes the HSAs to be multitasked i.e. their training prepares them to be multi-skilled.

> *"….when they go to their communities they don't just go there for one thing….. They go there to tell people about sanitation, family planning,*

safe motherhood many things….they are trained in many issues…"
(Facility Manager 2, Salima district)

The findings above suggest that by being close to the people and being multi-tasked and with good adherence to protocols the HSAs have good attributes to quickly deliver services in rural communities including HIV services. At the same time, their increased skills from the delivery of various services have also enabled the delivery of non-HIV services in their catchment communities. The next Section looks at other forms of task shifting besides task shifting for HIV services.

6.2.2 Task shifting for non-HIV services

Overall, 45% (110/243) of the HSAs reported ever been assigned 'other non-HIV' tasks that were not part of their original job description, 50% (67/133) in Salima district and 39% (43/110) in Mangochi district. However, the differences in these proportions were not statistically significant (p=0.08), suggesting that similar levels of task shifting were taking place in the two districts. Similar non-statistically significant differences were also found when the results were disaggregated by gender of the HSAs and by whether the HSAs were delivering HTC services or not. Some of the 110 HSAs who reported to have ever been assigned other tasks, cited four new tasks (10%, 11/110), three new tasks (24%, 26/110) and two new tasks (16%, 18/110). The types of tasks are discussed below.

The proportion of HSAs reporting ever been assigned new tasks was however statistically significant higher (p=0.03) among HSAs who were interviewed in health centres (49%, 90/184) compared to HSAs who were interviewed at the two district hospitals (34%, 20/59) suggesting higher levels of task shifting taking place in health centres compared to the district hospitals. This is likely to be the case because most health centres in Malawi are generally understaffed (see Section 3.2.8 above) and the few health workers working in these facilities (including HSAs) have to continuously share and distribute responsibilities. As reported in the 2007 national

census of health workers in Malawi, only 9% of the 553 primary level facilities belonging to government and CHAM met the minimum staff norms according to the EHP requirements of at least two clinicians (doctors, clinical officers or medical assistants), two nurses/midwives and at least one environmental health officer or health assistant. In Salima and Mangochi districts, 21% and 9% of the facilities, respectively, met the criteria according to the results of the 2007 census (Kadzandira et al, 2008).

The findings presented in Table 6-1 have been separated to show tasks that were shifted to some HSAs (task shifting) and tasks that were assigned to some HSAs because they were new (not task shifting but 'new tasks'). This is in line with the definition of task shifting presented in Section 4.2 above. The common non-HIV tasks or services that were shifted to HSAs were dispensing drugs at the health centres (58/243 or 24% of the HSAs), recording patient details in the OPD (56/243 or 23%) and registry work and/or cleaning work (43/243 or 18% for each service). The new services that were assigned to the HSAs were collection of vital statistics (births, deaths, marriages, divorces etc..) in the villages and running village clinics which were assigned to 31% (76/243) and 31 (75/243) of the HSAs, respectively. These were new activities that were not previously covered by any other existing cadre of staff.

Table 6-1: Proportion of HSAs who were assigned various types of new services (N=243)

Types of services	N (%)	New service or task shifting?	Nature of task shifting
Dispensing drugs in clinic/pharmacy section	58 (24%)	Task shifting	From nurses and pharmacy technicians
Recording patient details in OPD	56 (23%)	Task shifting	From registry clerk
Registry work	43 (18%)	Task shifting	From registry clerk
Hospital/ward Cleaning	43 (18%)	Task shifting	From cleaners
Following up TB patients	24 (10%)	Task shifting	From nurses/clinicians
Assisting in ANC/ labour ward	21 (9%)	Task shifting	From nurse Assistants
Assisting in laboratory	7 (3%)	Task shifting	From laboratory technicians
Village registers/vital statistics	76 (31%)	New service	New
Running village clinics	75 (31%)	New service	New

In assisting with dispensing drugs, the HSAs are assigned to work in the pharmacy while the nurses and clinicians are in the OPD or the wards. Once patients have been examined and drugs have been prescribed by the clinicians and/or nurses, they are referred to the pharmacy section where they collect their drugs from the HSAs.

The decision to shift some of the non-HIV (see Table 6-2) tasks to the HSAs was made at the DHO level in 38% (42/110) of the cases while in a third of cases (34%, 37/110) the decision was made by the health facility managers and in slightly above a fifth of the cases (22%, 24/110) the decision was made by their immediate

supervisors. Seven HSAs (6%) made the decision on their own after seeing that their nurses and clinicians had a high workload and these seven HSAs were among the 43 HSAs who mentioned that they took up registry work. The foregoing discussion suggests the existence of both formal and informal models of task shifting in the health centres. Task shifting decisions are made at various levels, some at national and district levels but most are made at the health facility level. Task shifting could be considered 'local task shifting' if initiated by the facility managers and 'informal task shifting' if the decision to shift tasks is between health workers themselves.

Collection of vital statistics[37] (village registers) was a new service i.e. no one was doing this before and some HSAs had just been trained to start collecting and reporting these to the DHOs. Three quarters of the HSAs (75%, 83/110) said the previous providers of the new services were their seniors whereas 18 (16%) HSAs said the previous providers were their juniors probably from HSAs to senior HSAs because the lowest paid position in the structures of the Ministry of Health is that of an HSA (see Section 2.10 above) and nine HSAs (8%) received tasks that were previously delivered by fellow HSAs at the health centres. These findings suggest the existence of both vertical (mostly downward) and horizontal shifting of tasks in the health centres (see also Section 6.1 above).

From the foregoing discussion, it would therefore appear that task shifting and task sharing are common practices in the health facilities and that in many cases, decisions are made based on need. This therefore suggests the existence of both formal and informal task shifting and task sharing. In cases where lower cadres are doing some tasks informally, it may be because of anticipated benefits as was reported in TB programmes involving non-paid community volunteers and youths in Uganda and in Northern Cape Province (South Africa), respectively. There, the main source of motivation among the volunteers was the high level of unemployment as the volunteers had high hopes that through the TB programme, they would eventually get employed and get remunerated (Kironde S. & Bajunirwe F., 2002;

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[37] Vital statistics included births, deaths, marriages, divorces etc..

Kironde S. & Klaasen S., 2002). Research conducted from these programmes reported that the volunteers kept mentioning 'having spare time', 'a need to gain experience' and 'the desire to serve others or altruism' as some of the reasons why they decided to join the programme. This may not be the case with formal task shifting as the new cadres deliver those services because they are under instruction to do so. According to the WHO recommendations on implementing task-shifting and the 8-point framework suggested by Herman, Van Damme et al (2009) for successful task shifting programmes, formal task shifting needs to consider some form of incentives for its sustainability. This, however, has not been the case for the HIV programme in Malawi (see Section 6.4).

6.2.3 Task shifting for HIV services

There are many services related to HIV and AIDS that a health worker can provide and these could be grouped into (i). biomedical services and (ii). non-biomedical services. Biomedical services are specialised services whose providers require special training and they include ART, PMTCT and HTC whereas non-biomedical services can be provided by any health worker or members of the community and these include community sensitisation and awareness, community mobilisation and following-up people living with HIV and AIDS (NAC 2005). By the nature of their job, HSAs had been involved in the delivery of non-biomedical HIV services even before HTC services were shifted to them. In this study, the focus was on HSAs providing full HTC services[38] whether at the community level or at static points in a clinic setting or in an outreach setting.

During the interviews with the HSAs, all were asked whether or not they were providing HTC services so as to identify those HSAs who were task-shifted HTC service in addition to their mainstream HSA work. Nearly half (49%, 119/243) of the

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[38] Full HTC involves counselling, testing and referral where necessary (and not just counselling or just testing)

243 HSAs were providing HTC services and the proportions disaggregated by gender, type of health facility, length of service in the health sector, residence and district are presented in Table 6-2.

Statistically significant differences[39] were found when the results were disaggregated by sex of the HSAs (p=0.031), length of service (p=0.014) and by residence (p<0.001). As the results presented in Table 6-2 show, 55% (73/132) of the male HSAs were providing HTC services compared to 41% (46/111) of the female HSAs. Male HSAs were 1.7 times more likely to be providing HTC services than their female counterparts (OR: 1.7, 95% CI: 1.1-2.9). When length of service was considered, the results showed that 56% (78/140) of the HSAs who had worked for up to five years were providing HTC services compared to 40% (41/103) of the HSAs who had worked for more than five years. HSAs who had started working in the last five years were 1.9 times (OR: 1.9, 95% CI: 1.1-3.2) more likely to be providing HTC services than HSAs who had worked for more than five years. There were no statistically significant differences in the proportions of HSAs delivering HTC when the data was disaggregated by type of health facility (p=0.244) or by district (p=0.460). On the other hand, the majority of the HSAs who were living in their catchment areas (76%, 94/123) reported that they were providing HTC services compared to 21% (25/120) of the HSAs who were residing outside their catchment areas.

[39] The p-values presented here should be read carefully taking into account the limitations of logistic regression analysis presented in Section 5.11.1 which includes the assumption of independence of subjects under observations

Table 6-2: Proportion of HSAs who reported that they provide HTC services (univariate analysis)

Characteristics of the HSAs		Do you deliver HIV services? Yes n (%)	No n (%)	p-value	OR (95% CI)
Sex of the HSAs	Males (N=132)	73 (55%)	59 (45%)	0.031	1.7 (1.1-2.9)
	Females (N=111)	46 (41%)	65 (59%)		
Type of health facilities	Health Centre (N=184)	94 (51%)	90 (49%)	0.244	1.4 (0.8-2.6)
	District hospital (N=59)	25 (42%)	34 (58%)		
Length of service	0-5 years (N=140)	78 (56%)	62 (44%)	0.014	1.9 (1.1-3.2)
	>5 years (N=103)	41 (40%)	62 (60%)		
Residence	Lives in catchment area (N=123)	94 (76%)	29 (24%)	<0.001	12.3 (6.7-22.6)
	Lives outside catchment area (N=120)	25 (21%)	95 (79%)		
District	Salima (N=133)	68 (51%)	65 (49%)	0.460	1.2 (0.7-2.0)
	Mangochi (N=110)	51 (46%)	59 (54%)		
TOTAL		119 (41%)	124 (59%)		

A logistic regression analysis (Table 6-3), however, showed that only residential status (staying in the catchment area) was strongly associated with HTC service provision (OR=10.22, 95% CI=5.661-18.459; p<0.001) suggesting that HSAs who were staying in their catchment areas were more likely to be HTC providers than their counterparts. This is likely the case because when HTC services were being shifted to non-medical cadres including HSAs, the government promoted community-based and door-to-door HTC services in addition to facility based HTC provision (GoM, 2009b) and it is likely that HSAs who were residing in their catchment areas were providing the services both in their health centre settings and in the communities. There was also some borderline evidence that that length of service (0-5 years) as a single predictor would be associated with HTC provision as this variable was only removed from the model at the last. This would be the case because the majority of the HSAs who had started working in the last five years were recruited with the funding from the Global Fund in 2007 to support the scale up of the HIV programme in Malawi.

Table 6-3: Predictor characteristics of HTC service provision among the HSAs

Variables in the Equation					
				95% C.I. for OR	
		p-value	OR	Lower	Upper
Step 1[a]	Type of facility	.515	.793	.393	1.597
	Length of service	.157	1.979	.768	5.098
	Residential status	.000	10.182	5.554	18.667
	Sex	.549	1.205	.655	2.218
	District	.363	.755	.412	1.383
	Constant	.042	.229		
Step 2[a]	Type of facility	.481	.778	.387	1.565
	Length of service	.160	1.961	.766	5.021
	Residential status	.000	10.467	5.740	19.086
	District	.322	.738	.405	1.345
	Constant	.050	.261		
Step 3[a]	Length of service	.133	2.052	.804	5.235
	Residential status	.000	10.553	5.789	19.236
	District	.333	.744	.409	1.354
	Constant	.029	.232		
Step 4[a]	Length of service	.120	2.085	.825	5.269
	Residential status	.000	10.557	5.802	19.208
	Constant	.000	.149		
Step 5[a]	Residential status	.000	10.222	5.661	18.459
	Constant	.000	.290		
a. Variable(s) entered on step 1: faci_type, Service_length, q53_residence, sex, q4_district.					

All the HSAs who were delivering HTC services were asked to state how they started delivering the services i.e. who made the decision that they should take on the delivery of task shifted HIV services. As stated in Section 4.4 above, the 8-point framework on implementing task shifting programmes suggests that the success of

task shifting programmes to some extent depends on how the health workers on task shifting are selected and their motivations (Hermann et al, 2009). As such, the PhD researcher set out to assess if the HSAs on task shifting for HIV services had prior interest to be delivering HIV services or not.

Roughly 82% (97/119) of the HSAs said they started delivering HTC on instruction from the DHOs, 8% (10/119) were told by their facility managers, 7% (8/119) were recruited specifically to provide HIV services; while only 3% (4/119) requested to take on HIV service delivery on their own. The HSAs were also asked to state whether they had some interest prior to being assigned the HTC services a question to which 50% (60/119) answered in the affirmative whereas the other half said they had no prior interest. These findings show the top-down decision making process in assigning the new tasks to the HSAs, which is plausible because the DHOs and facility managers, as controllers at the district and facility levels, respectively, are expected to make decision regarding service delivery in their jurisdictions. Hence, many or most HSAs started delivering HIV services not because they had interest in the services but by order of management and in line with the last clause in the job description of the HSAs which states that: '…. and you shall deliver any other services as assigned to you from to time to time…'.

During the in-depth interviews with the facility managers, they were asked to describe how the process of assigning new roles to cadres (including task shifting) is done and who is involved in making the decisions. According to the facility managers, decisions to shift some tasks from some health workers to others depend on the complexity of the tasks. If the services being shifted are new and of a technical nature beyond that of the targeted cadres, the new cadres require formal training and/or orientation to guide them in the delivery of those services. Such types of task shifting are usually sanctioned at the national level and decisions are communicated to the facility managers through the DHOs. The facility managers then select the health workers to be trained on the new tasks.

HIV task shifting is an example of such task shifting decision-making where the HSAs were chosen to start delivering HTC services by the DHOs through the facility managers. In this type of task shifting, issues of personal motivation do not appear to form part of the process of being selected or assigned to the new roles, unless the facility manager had prior knowledge that some health workers had shown interest to start delivering the services:

> *".....what happened is that the DHO asked for people to go for HTC training and I made the selection…it also happens with other trainings where the DHO selects people in consultation with the facility managers ..... everyone just accepts because in our job description there is a clause which states that 'you will also provide any other duties as assigned from time to time'"* - **Facility Manager 3, Salima district**

The scenario presented above is typical of formal task shifting as was the case with the task shifting for HIV services. Some of the factors facility managers take into account when making the decision to delegate tasks to HSAs are personal characteristics or the level of trust that managers have in them:

> *"… like for counselling and testing, the one who is required is a person who keeps secrets because when a person has been found HIV positive, he or she should not announce to anyone about the results.....so we choose a person whom we feel will be able to keep secrets….."* **(Facility Manager 2, Salima district)**

There are also times when some tasks are shifted based on the perceived amount of workload that the various cadres have at the facility. In this particular case, some tasks which would have been shifted to health-related cadres such as HSAs are shifted even to the ground staff:

> *"…HSAs already have a lot of tasks to do and they are very busy….they even work during weekends while ground labourers work only during week days and mainly in the mornings….so some*

tasks such as dispensing drugs have been shifted to the ground staff…." **(Facility Manager 3, Mangochi district)**

Where task shifting is informal or localised at the facility level, perhaps stemming from the relationships between staff and a perception that some staff are willing and/or well suited to take on a new role, decisions are made by the facility managers or the section heads. This also applies to scenarios where task sharing (shifting tasks across cadres of same profession) is necessary usually to ease the workload of some health workers at the facility:

"...there are some tasks that are shifted by the DHO and there are some small ones that are done by myself as an in-charge of this health facility...this temporally task shifting usually happens at the same level or from medical assistants to nurses or vice versa....." - **(Facility Manager 1, Salima district)**

"....tasks like wound dressing, drug dispersion, antenatal health care and health talks have been shifted to HSAs and cleaners on my authority as head of this facility .....I decide who should take those tasks..... however, tasks like family planning and malaria testing have been shifted by the DHO because that these people have been trained by the DHO ...." - **(Facility Manager 2, Mangochi district)**

In some situations some tasks may not be shifted because there is no capacity to deliver those services at the health facility level i.e. where there is no one who has been trained or who has observed those services being delivered before. Such services are therefore suspended until the person who has the capacity is available:

"……but if the HSA does not know what is supposed to be done there (referring to the maternity ward)*….even if there was need to shift some tasks to him or her….task shifting will not be possible unless that HSA is also knowledgeable …"* **(Facility Manager 1, Mangochi district)**

The findings presented in this section therefore seem to suggest that official task shifting only covers certain tasks including HIV services as these were new tasks that had to be allocated in the health system. Other tasks in the system are shifted across cadres because of a number of reasons including unfilled positions (such as Pharmacy Assistants), high workload and self-voluntarism (altruism or *umunthu* in Malawi, *ubunthu* in South Africa) where some people just feel the need of helping their seniors or colleagues. From the foregoing discussion, task shifting for HIV services was sanctioned by the Ministry and formal orientation or training was being provided but temporally task shifting and task sharing practices were also common in the facilities and these seemed to be the cornerstones of service delivery.

6.2.4 Preference between HIV and PHC work

All the 243 HSAs were asked what they would prefer between delivering HIV services and PHC services and the reasons for their choices. These questions were asked to explore if the HSAs delivering HTC services had prior preferences towards the services and whether the HSAs who were not delivering HTC had the desire to start delivering the services. The questions that were asked were:

- “All factors considered, what would you prefer delivering between HIV and PHC services?”
- “What are the reasons for your choice (to the question above)?”

The two questions were asked to all HSAs regardless of whether they were delivering HIV services or not. Findings to the first question are presented in Table 6-4. As the results show, all HSAs would prefer some combination of PHC and HIV (91% overall), with the majority preferring an equal allocation (54%), 56% (67/119) of the HTC providers and 52% (64/124) of the non-HTC providers. Very few (9% overall) would prefer to deliver a single service. This finding suggests that even among the HSAs who were not delivering HIV services, more than half of them would have welcomed to be among the HIV service providers and most of these

cited the 'their desired need to serve others and save life -altruism' as the main reason. Similar findings where volunteers have cited altruism as the main reason have also been reported in South Africa and Uganda (Kironde S. & Bajunirwe F., 2002; Kironde S. & Klaasen S., 2002). To some extent, this finding suggests that the HIV task shifting programme in Malawi has the potential to expand because more HSAs have the willingness to start delivering the services.

Table 6-4: Preferences among the HSAs between delivering HIV or non-HIV services

	Category of HSAs		
	HIV providers (n=119)	Non-HIV providers (n=124)	Total (N=243)
	n (%)	n (%)	n (%)
Same allocation of time/effort to HIV and PHC	67 (56%)	64 (52%)	131 (54%)
More time/effort to HIV and less of PHC	2 (2%)	9 (7%)	11 (5%)
More time/effort to PHC and less of HIV	38 (32%)	42 (34%)	80 (33%)
Prefer delivering HIV services only	5 (4%)	6 (5%)	11 (5%)
Prefer delivering PHC services only	7 (6%)	3 (2%)	10 (4%)

Comparing HSAs who were working at health centres and those who were working at the District hospitals, the findings showed that 39% (71/184) of the HSAs at the health centres compared to 15% (9/59) of the HSAs who were interviewed at the district hospitals would prefer delivering more PHC services than HIV services. When asked why they would prefer PHC services as opposed to HIV services, the HSAs from the health centres cited distance to health facilities and problems with means of travel as the main reasons. As stated above, PHC services are delivered in HSA's catchment areas whereas for HIV services the HSAs were sometimes required to travel to their health facilities and without any allowances for meals and incidentals.

This may be the case because when task shifting for HIV service scale-up was just starting, the HSAs were required to travel to their health centres where HIV services were being provided. As presented in Section 6.4, the HSAs complained about the absence of allowances and the need for improvements in means of travel whenever they go out of their catchment areas on duty. There were no statistically significant differences when the results regarding preferences over delivering PHC or HIV services were disaggregated by gender of the HSAs, length of service or by district where they were interviewed ($p>0.05$).

6.3 Training and Supervision

Training is required when staff take new tasks. This is also emphasised in the task shifting guidelines drafted and operationalised in Malawi in 2014 regarding the engagement of HSAs in task shifting programmes (GoM 2014). As stated above (Sections 1.2 and 5.1.2), one of the objectives of this PhD research was to explore and describe mechanisms put in place to effectively train, monitor and evaluate the implementation of task shifting in Malawi as well as mechanisms put in place to ensure quality of the new services. The PhD researcher therefore collected information on the types of trainings which the HSAs received before being deployed as HSAs and before starting to deliver HIV services.

6.3.1 Basic HSA training

Initial (pre-service) training is important to the new cadres in any task shifting programmes as it ensures that the new cadres have the knowledge and skills to deliver those new services (Hermann et al, 2009). Pre-service training enhances service quality as well as helping to build confidence among the new cadres. In this study, the PhD researcher sought to explore whether the HSAs who were assigned to deliver HTC services received the initial HTC service training or not. In addition, the PhD researcher also collected information on whether the HSAs received the generic HSA training before being deployed or not.

All the 243 HSAs were asked about the year they started working as an HSA and they year they completed the formal HSA training. The responses to the two questions were compared and the total number of years they have worked as an HSA and the total number of years after receiving formal HSA training were computed. The findings on this are presented in Table 6-5.

Overall, only 33% (79/243) of the HSAs received formal HSA training before being deployed to their catchment areas, *33% (44/133)* of the HSAs in Salima and *32*% (*35*/110) of the HSAs in Mangochi and the two proportions were not statistically significant different (p=0.834) suggesting that the practice of deploying HSAs to their work stations before providing them with the initial HSA training was common in the two districts. There were no statistically significant differences when the results were also disaggregated by whether the HSAs were delivering HTC or not *(p=0.462),* the type of their health facility (p=0.223) *and* sex of the HSAs (p=0.104).

Table 6-5: Proportion of HSAs reporting to have received formal HSA training before or after starting HSA work

Characteristics of HSAs		Trained first before work n (%)	Trained after starting HSA work n (%)	p-value
Status of HIV provision	HIV Providers (N=119)	43 (35%)	81 (65%)	0.462
	Non-HIV providers (N=124)	36 (30%)	83 (70%)	
Type of facility	Health centres	56 (30%)	128 (70%)	0.223
	District hospitals	23 (39%)	36 (61%)	
Sex of HSAs	Males (N=132)	37 (28%)	95 (72%)	0.104
	Females (N=111)	42 (38%)	69 (62%)	
Length of service	0-5 years (N=140)	34 (24%)	106 (76%)	0.001
	>5 years (N=103)	45 (44%)	58 (56%)	
District	Salima (N=133)	44 (33%)	89 (67%)	0.834
	Mangochi (N=110)	35 (32%)	75 (68%)	
TOTAL (N=243)		79 (33%)	164 (67%)	

Statistically significant differences (p=0.001) were found when the results were disaggregated by length of service as only 24% (34/111) of the HSAs who had started in the last five years had been trained formally as HSAs compared to 44% (45/103) of the HSAs who had worked for more than five years. This finding reflects the manner in which the addition 7,000 additional HSAs were recruited and deployed in 2007 at the start of the HIV scale-up programme when the new recruits outstripped the training resources in the country (Martiniuk A. et al, 2014). According to the national and district health managers who were interviewed in this PhD research, the immediate aim was to scale-up the HTC programme. When the HSAs were recruited, what came first was HTC training (before they received the initial HSA training) and immediately the HTC training ended, the new recruits were deployed to the health centres with the promise that they will receive on-the-job

training in HSA work. During interviews with national and district respondents, they also acknowledged that in 2007, quite a good number of HSAs were recruited and sent to their respective catchment communities without receiving their basic HSA training and that some HSAs were promised to receive both their basic training and HTC training while on the job. More about this is discussed in the next Section below.

A 2009 study on the motivation and job satisfaction of HSAs in Mwanza district in southern Malawi also found that out of the 80 HSAs in the district, only 34 (44%) had received formal HSA training at the time of the study and complaints regarding their training status were raised highly during focus group discussions with the HSAs (Kok & Muula, 2013). This was also confirmed in another study which was conducted in Zomba district in southern Malawi which found that 10% of the HSAs had not received the initial HSA training and 85% of these had worked for more than five years (Martiniuk A. et al, 2014).

6.3.2 Training in HTC service provision

According to the HTC training manual for Malawi, new HTC cadres are supposed to undergo a three-week intensive classroom training session, followed by observed HTC sessions in the first two weeks and then followed up by HTC trainers at least once every month in the first three months and thereafter, once every three months (MoH, 2009; 2012). This level of training and supervision would enable the HSAs to acquire adequate knowledge and skills to deliver HTC services in their communities.

In this study, the HSAs who were providing HTC were asked to state how many days of classroom training on HTC provision they received, days of supervised practice and if they were supervised by a qualified HTC trainer in the first three months after the training and how many times they have been supervised in the three months before being interviewed. Ninety-nine HSAs (99/119, 83.2%) who were delivering HTC services provided information regarding their HTC training and of these 84 HSAs (87.5%) reported to have received some HTC training, 48 HSAs in Salima and

36 HSAs in Mangochi. Fifteen HSAs reported to have started providing HTC services without receiving the initial HTC training (nine HSAs in Salima and six HSAs in Mangochi).

Overall the 84 HSAs who received HTC service training had the training for 15.4 days on average (range of 10-21 days) and there were no statistically significant differences when the findings were disaggregated by district or type of health facility where the HSAs were working. In Salima the HSAs received HTC training for 15.6 days on average compared to 15.1 days on average in Mangochi. In both cases, the HSAs received less training on average than the stipulated 21 days of HTC training as stated above.

The findings presented above suggest that the HIV scale-up programme used a mix of officially trained HSAs and untrained HSAs. While HTC services would be scaled up properly (because the new cadres were trained in HTC provision) the delivery of the other PHC services would have faced some challenges as the new recruits had no basic skills and knowledge in community PHC work. This finding therefore also points to the mixed manner in which the HIV scale program was implemented using the task shifting approach as some of the HSAs received the required three-week training while others were trained for less period and some were not trained at all.

The health facility managers were also asked to state what training or preparation takes place whenever they want to shift some tasks to new cadres for non-HIV programmes or activities. The general consensus was that the new cadres are generally oriented or trained before they start delivering the services. After they start delivering the services they are also observed for the first few hours or days. The citations below reflect what most of the health facility managers said:

> *"we make sure that the new person is oriented in the new tasks….after she or he starts the work, we observe him or her in the first few hours or days…"*- **(Health facility manager 3, Mangochi district)**

"…when there is a gap somewhere and we want to shift responsibility to someone….. we orient him/her…..we provide him with on-the-job training…."- **(Health facility manager 4, Mangochi district)**

The facility managers were then asked why some of their HSAs started their HSA work before receiving the formal HSA training. The managers attributed this situation to funding constraints, lack of qualified HSA trainers at the district level and the urgency of the HIV programme which needed to be scaled-up rapidly between 2007 and 2008.

"…..there are some HSAs who started working before training…..the problem is that we do not have enough trainers in the district …funding is also another problem."- **(Facility manager 1, Mangochi district)**

From the foregoing discussion, it would appear that before tasks are shifted to new cadres, some orientation takes place to ensure that the new cadres acquire the knowledge and skills for the new tasks. This takes place both internally in the health facilities and sometimes at some organised training sessions depending on the complexity of the new tasks. All the HSAs who were delivering HIV services reported to have received the HTC training before they started delivering the services. However, the findings have also suggested that it is common that HSAs are sometimes deployed to their catchment communities before they receive the initial mainstream HSA training. It has been reported from the pilot community case management of childhood illnesses in six districts in Malawi that training and continued supervision helped to improve the performance of HSAs in diagnosing, treating and referring complicated cases among young children (Gilroy K.E. et al, 2012) which was not the case among the HSAs who were not trained in the village clinic concept.

6.3.3 Supervision

Supervision is a very important activity for the performance of health workers at various levels as it helps to monitor the quality of service delivery and outputs (Hermann et al, 2009). Recent studies have also reported that supervision helps to boost the morale of the health workers especially where feedback is provided on their performance (Iwu E.N. & W.L., 2014). In this study, information was collected from the HSAs who were also HTC providers on the frequency of supervision they received from the HTC trainers and/or supervisors in the first two weeks and three months. As stated above new HTC providers are supposed to undergo a three-week intensive classroom training session, followed by observed HTC sessions at least three times in the first two weeks and then followed up by HTC trainers at least once every month in the first three months and thereafter, once every three months (MoH, 2012).

On average, the HSAs had 6.6 days of HTC supervised practice in the first two weeks after their training (n=84), 6.5 days among HSAs in Salima (n=48) and 7.0 days for the HSAs in Mangochi (n=36). The range for supervised training was 3 to 12 days and the longest length of 12 days was reported by HSAs in Mangochi whereas in Salima, the longest period of supervised practice was 10 days. These findings indicate that the 84 HSAs who received initial training before they started delivering HTC services had adequate supervised practice of at least three times in the first two weeks soon after their training in accordance with the HTC training national protocol, a finding which suggests that where formal processes are followed, the Malawi HSA task shifting programme satisfies the requirements for implementing task shifting on training and supervision.

HSAs primarily are placed under the Department of Preventive Health Services and specifically under the Environmental Health Section. As such, HSAs are primarily supposed to be supervised by Environmental Health Officers for community PHC activities and by other technical officers on other tasks that they are assigned to provide including HTC. This was also confirmed during the interviews with the health

facility managers. In addition to the supervision from within health facilities, the HTC trainers at the district level and from the Department of HIV and AIDS in the Ministry of Health together with the Zonal Support Health Offices also conduct quarterly visits to ART, PMTCT and HTC sites as part of routine supervision (MoH, 2009). Twenty teams of three or four people each are deployed from the Ministry every quarter to visit 30 to 37 facilities in three weeks and this supervision is mostly limited to static sites providing the three services. At each facility, the visiting teams verify data, mentor the providers, discuss 'special' cases and check on drugs/commodity stocks and their management (MoH, 2009).

The 119 HSAs who were delivering HTC services were asked to state how many supervision visits they received in the first three months after receiving HTC training. On average, the HSAs were visited 1.2 times in the first three months 1.4 times in Salima and 0.9 times in Mangochi and this was on the lower side as according to the HTC protocols, the HTC providers are supposed to be supervised at least three times in the first three months following their 21 days of training and two weeks of intensive supervision. The HTC providers were also asked if they had received any supervision by HTC trainers or the MoH in the three months before being interviewed in this study regardless of whether they received initial training or not. Over three quarters (83%, 99/119) of the HSAs were not supervised in the three months before being interviewed, 14% (17/119) were supervised once whereas (3% (3/119) had received two or more supervision visits.

The large proportion of HTC providers who never received supervision in the last three months could partly be due to the changing policies on per diems and the five-day limit on field visit per person per month that the government had imposed on all civil servants because even at the national level, the MoH reported reduced supervision to all the HIV sites in the years 2010 and 2011 (GoM, 2011c). This was also confirmed during the interviews at the national and district levels where the informants cited limited funding, human resources and time constraints to have led to reduced regular supervision in their respective jurisdictions.

During the in-depth interviews with the facility managers, they were also asked to describe how the HSAs are supervised at the facility level. According to the managers, HSAs are supervised directly by senior HSAs to whom they also submit their reports on a monthly basis and these supervisors consolidate all the reports and present them to the managers of the facility. This was also confirmed during the interviews with the HSAs most of whom said they submit their reports to the senior HSAs but the only challenge they stated was the lack of stationery as this makes most of them to submit reports without keeping their copies. The only exception was on family planning and HTC where they are supervised by nurses and clinicians, respectively and stationery was reported to be adequate. It was also reported that HSAs are sometimes supervised by Environmental Health Officers especially regarding tasks related to water, sanitation and hygiene. Furthermore, it was also reported by the HSAs that they assemble at their health centres for group meetings and to discuss their monthly reports with facility managers. As part of their mentoring, HSAs give health talks to clients at the OPD in the presence of nurses and clinicians so as to demonstrate how they conduct similar health talks in their catchment areas.

As the foregoing discussion suggests, HSAs are supervised by a range of health workers some pertaining to their PHC work while other supervisors are specific to their technical fields. These include clinicians and nurses and at times by environmental officers and staff from NGOs working in their catchment communities. However, in the years 2010 and 2011, supervision from the MoH was reduced because of funding constraints and the 5-day limit of field visits per person per month imposed by the government on all civil servants.

6.4 Staff, remuneration and career structure

The conceptual framework on motivation for health workers in task shifting programmes discussed in Section 4.5 above suggests that motivation of the health workers is modelled around factors operating at three levels namely: community level, institutional level and at the individual level. As Figure 4-3 illustrates

(reproduced below), community level factors include the acceptance of the community to get health services from the new cadres, how the new cadres and the community relate with each other and the general work and home environment including transportation and access to better schools for children of the health workers. On other hand, institutional factors include issues of supervision and management support, compensation, opportunity for advancement, work conditions and relationships with fellow health workers. This Section presents findings on these community, institutional and individual factors from the perspectives of the HSAs and health facility managers and how these may have changed with task shifting and/or how these factors may affect how task shifting is taking place in the health facilities.

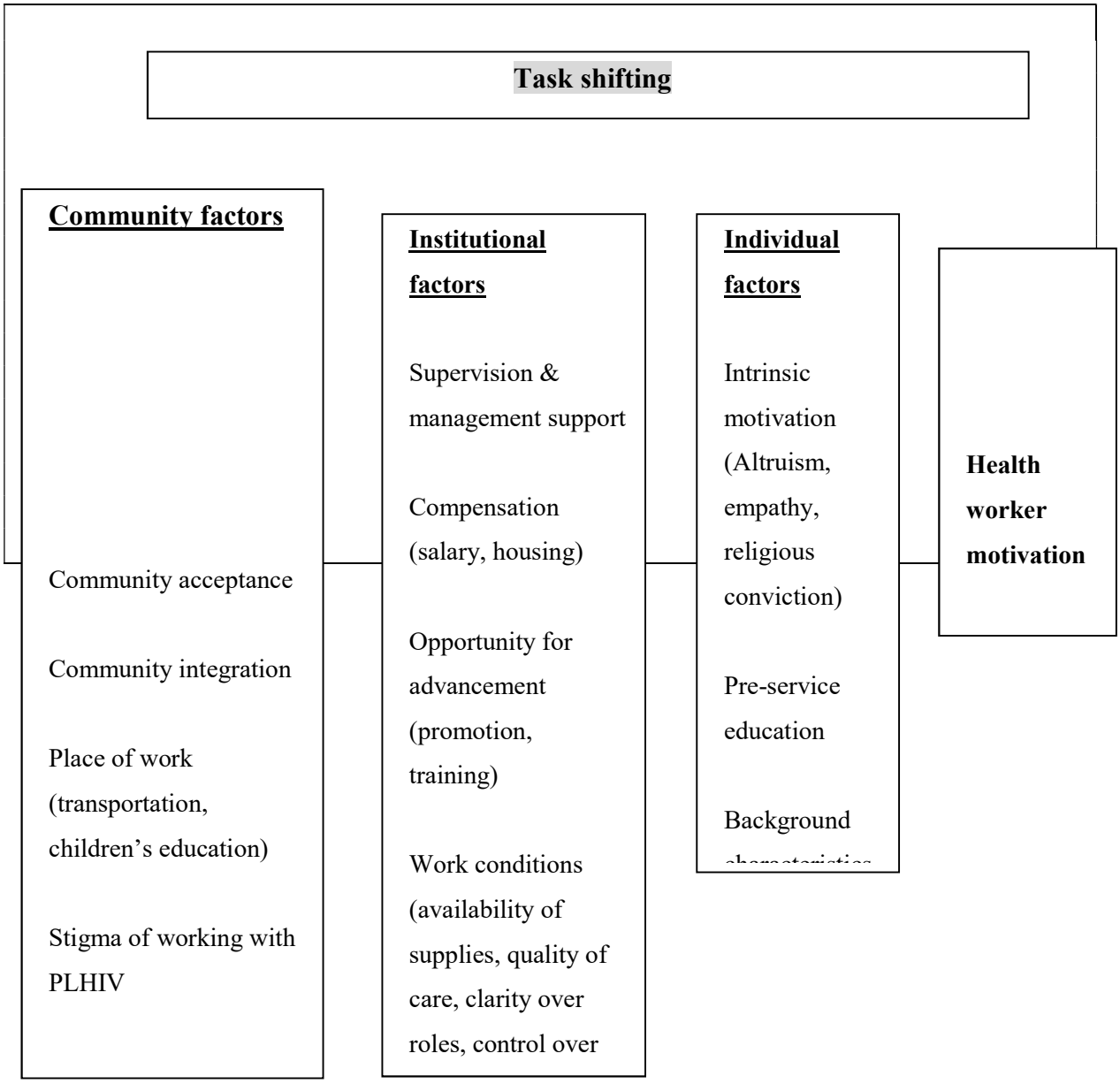

Figure 4-3: Conceptual framework of factors affecting health worker motivation in task shifting (Source: Jacobi 2010)[40]

[40] This Figure was firstly presented in Section 4.6 as Figure 4-3

6.4.1 Individual level factors

6.4.1.1 Motivation and job satisfaction

The HTC providers were also asked to compare HTC and PHC work environments and whether they specifically felt HIV work was more stressful and emotionally draining compared with PHC work (or vice versa) and whether HIV work was more rewarding than PHC work. Five statements were read out to the HSAs and after each statement, the response options: ‘always’, ‘often’, ‘occasionally’, and ‘never’ were also read out for them to choose one response option. The five statements are shown in Table 6-6 together with the proportion of HSAs who chose each of the four response options.

The majority of the HTC providers reported that their HTC work was never emotionally draining (88%, 105/119), 8% (9/119) that it was occasionally emotionally draining, 2% (2/119) said it was ‘sometimes/often’ emotionally draining and only 3% (3/119) said it was ‘always’ emotionally draining.

Table 6-6: Proportion of HTC providers expressing various levels of satisfaction with HTC work (N=119)

STATEMENTS	Always n (%)	Often n (%)	Occasionally n (%)	Never n (%)
1. "I feel emotionally drained by work as counselor more than PHC work"	3 (3%)	2 (2%)	9 (8%)	105 (88%)
2. "My work as counselor is more stressful than PHC work"	4 (3%)	4 (3%)	8 (7%)	103 (87%)
3. My work environment as counselor is more stressful that PHC"	4 (3%)	7 (6%)	1 (1%)	107 (90%)
4. My work as counselor is more rewarding than PHC"	9 (8%)	5 (4%)	10 (8%)	95 (80%)
5. "I have no confidence in my skills"	3 (3%)	1 (1%)	0 (0%)	115 (97%)

To the second and third statements the majority of the HTC providers also said both their HTC work and work environment were not stressful at all (87%, 103/119 and 90, 107/119, respectively. Almost all the HTC providers reported that they ‘always’ had confidence in their HIV counselling skills as 97% (115/119) answered ‘never’ to the statement 5. However, with regard to whether HTC work was more rewarding or not (statement 4) 80% (95/119) said HTC work was not more rewarding than PHC at all, 8% (10/119) said HTC work was ‘occasionally’ rewarding, 4% (5/119) said HTC work was ‘oftentimes/sometimes’ more rewarding than PC work and 8% (9/119) said HTC work was ‘always’ rewarding (see Table 6-7).

These findings therefore suggest that HTC work was neither considered emotionally draining, nor stressful but was not rewarding either and as discussed in Section 6.4 both the HSAs and the facility managers said delivering HIV services had not come

with additional incentives to the HSAs except ‘employment’ for the new additional HSAs who were recruited with the GF funding support.

6.4.1.2 Feelings about feedback from clients and facility managers

Previous research has indicated that health service delivery greatly improves when health workers feel appreciated by their clients, hospital management and their fellow health workers. When health workers feel appreciated (particularly by their clients and hospital management), they tend to believe in their skills and are willing to provide more of their time for the services (Jacobi, 2010; Philips et al, 2008).

In this PhD research, the 243 HSAs were asked whether they felt appreciated by their clients, hospital management and fellow HSAs. Using a four-step Likert Scale, the HSAs were asked if they ‘always’ or ‘often’ or ‘occasionally’ or ‘never’ felt appreciated. These questions were asked in line with the framework on job satisfaction and motivation presented in Section 4.5 above proposed by Jacobi (Jacobi, 2010). The health workers who answered that they were never appreciated by clients or hospital management or their fellow health workers were further asked for the reasons why they had such feelings.

Table 6-7 shows that the majority of the HSAs generally felt they were appreciated by both their clients and hospital management and by their fellow health workers. Nearly two thirds (61%, 148/243) of the HSAs said they were ‘always’ appreciated by their clients whereas 28% (68/243) said they were ‘often’ appreciated by their clients, 10% (25/243) said they were ‘occasionally’ appreciated and only 1% (2/243) said they are never appreciated. There were no statistically significant differences in the response patterns when the results were disaggregated by whether the HSAs were providing HTC services or not ($p=0.234$). Non-statistically significant differences ($p>0.050$, in all cases) were also found when the results were disaggregated by sex of the HSAs, type of health facility and length of service. These findings confirm what other studies have found, that is community health workers (including HSAs) provide

services which are liked in their communities and are usually appreciated by their clients (Chirwa et al, 2005; Padmanathan P. & M.J., 2013; Perry H.B. et al, 2014; Suzan-Monti M. et al, 2015) . However, the finding that they were also appreciated by other health workers seems to contradict what other studies have also reported, that is in previous studies when new cadres are introduced into the system some role conflicts arise (Patterson et al, 2007).

Table 6-7: Proportion of health workers expressing various degrees of appreciation of their services by clients, facility managers and fellow health workers

Questions	Characteristics of HSAs	Never n (%)	Occasionally n (%)	Often n (%)	Always n (%)
Do you feel appreciated by clients?	HTC providers (n=119)	2 (2%)	13 (11%)	35 (29%)	69 (58%)
	Non-HTC providers (n=124)	0(0%)	12 (10%)	33 (27%)	79 (64%)
	Total (N=243)	2 (1%)	25 (10%)	68 (28%)	148 (61%)
Do you feel appreciated hospital management?	HTC providers (n=119)	8 (7%)	18 (15%)	26 (22%)	67 (56%)
	Non-HTC providers (n=124)	8 (7%)	27 (22%)	25 (20%)	64 (52%)
	Total (N=243)	16 (7%)	45 (19%)	51 (21%)	131 (54%)
Do you feel appreciated by fellow health workers?	HTC providers (n=119)	3 (3%)	18 (15%)	28 (24%)	70 (59%)
	Non-HTC providers (n=124)	8 (7%)	19 (15%)	29 (23%)	68 (55%)
	Total (N=243)	11 (5%)	37 (15%)	57 (24%)	138 (57%)

With regard to appreciation by hospital management, the majority of the HSAs felt either being ‘always’ appreciated (54%, 131/243) or ‘often’ appreciated (21%, 51/243). Only 7% (16/243) said they are ‘never’ appreciated by their management. This finding confirms what other studies have found, namely that work relationships

between CHW and their management are generally fair and that managers appreciate what the CHW do in terms of service delivery (Alamo et al, 2012b; Rustagi A.S. et al, 2015). However, some conflicts can arise due to poor remuneration and when the CHW suspect favouritism and nepotism towards other members of staff (Blaauw et al, 2013; Davies N.E. et al, 2013). No statistically significant differences were found when the results were disaggregated by whether the HSAs were delivering HTC services or not and by whether the HSAs were working at a health centre or district hospital or by sex. Similar results were also found on the question about their fellow health workers in that the majority of the HSAs either said they are 'always' appreciated (57%, 138/243) or 'often' appreciated (24%, 57/243) and only 5% (11/243) said they were never appreciated by their fellow health workers (Table 6-7).

The findings presented above suggest the same level of satisfaction with service delivery among the HTC service providers and non-providers implying that the differences in the levels of PHC service delivery presented in Chapter 9 below would not be a result of being liked or disliked by clients, hospital management or fellow health workers.

6.4.1.3 Views of facility managers towards working with HSAs

During the in-depth interviews with the facility managers, they were asked to explain how they relate with the HSAs and how they see their work performance with regard to work ethics and general social relations with their clients. A few of the facility managers reported to have received reports that some of their HSAs were rude and that often they mistreated their clients. This is despite the fact that when it comes to general service delivery, the HSAs were able to do what they were tasked to do. While this was not commonly reported by the facility managers in this study, other studies have also reported that sometimes health workers (including HSAs) develop bad attitudes and behaviours towards their clients by becoming 'bossy' and sometimes shouting at their clients especially when they feel overworked (Chirwa et al, 2005; Kadzandira & Mvula, 2002).

At one HC in Mangochi, the informant reported that HSAs who have worked longer at the health facility than other health workers were undermining their colleagues who were new at the facility even including their senior workmates. The participant also said that there were some conflicts among the HSAs because some HSAs regard themselves as 'seniors' or 'old-timers' and when there is a new thing to be done they leave it to those who are considered new. The informant therefore suggested that HSAs should not stay in one community for a long period of time to address this problem:

> *".....it can be good that just like clinicians and Nurses [who] are transferred from place to place, these guys [HSAs] should also be subjected to the same, so that there is efficiency in the way they do their duties and how they relate to one another, because what I have observed is that they get so used and relax because of overstaying in an area which then affects their work....."* **(Facility Manager 2, Mangochi district)**

At another HC in Salima district, the informant reported difficulties in managing HSAs especially those not living in their catchment areas and some HSAs who were allegedly recruited because they have relations at the MoH headquarters:

> *"…..some HSAs who do not live in their catchment area are difficult to trace whether they have gone to work or not….. if you ask what they have done, they can challenge you in the face …… there are also some HSAs who were recruited because they have their relatives in the health ministry….these HSAs are difficult to manage because their relatives have senior positions"* **(Facility Manager 4, Salima district)**

6.4.2 Community level factors

The PhD researcher collected information on the catchment characteristics of the HSAs such as number of households, distance to furthest villages, means of travel and whether the HSAs felt they were appreciated by their clients or not. This information was important in describing the general working environments of HSAs and to assess if HSAs who were providing HIV services had different working environments compared with their counterparts i.e. to assess if task shifting had brought changes to their living and work environments. As stated in Chapter 4, one of the main objectives of this study was to assess the effects of task shifting HIV services on the HSAs and their mainstream community work.

6.4.2.1 Distances to catchment areas and health centres

The HSAs were asked to estimate distances from their homes to the centre of their catchment communities and to their health facilities and from their health facilities to their catchment communities. As stated above in Section 2.10.2 above, distance to places of work has been reported to affect the delivery of health care especially in countries where public transport is not well developed (Chitimbe, 1998; Kadzandira & Chilowa, 2001; Smith et al, 2014). The information on the distances was therefore collected in this PhD research firstly to help in providing the contextual conditions under which the HSAs were performing their duties (in general); and, secondly, to assess if HSAs delivering HIV services were covering long distances that would be affecting the delivery of both HIV and PHC services.

Regarding distances from homes to catchment areas, statistically significant differences ($p<0.001$) were found between the HTC providers and non-providers. HTC providers were living an average of 1.9 km away from their catchment communities compared to 3.2 km among the non-HTC providers. In general therefore, the HTC providers were at an advantage with regard to the delivery of mainstream community PHC services because they were living closer to their catchment areas even though this was not a result of them being HIV service

providers. As stated above, in 2007 the Government of Malawi, through the support of the GF recruited an additional 7,000 HSAs to assist with the HTC scale-up. Most of these HSAs were placed in their home villages and they had shorter distances to their catchment areas than HSAs that were recruited for PHC services. Findings on the delivery of PHC and HIV services are discussed in Chapter 8 below.

On the other hand, the HTC providers reported statistically significant longer distances to their health centres than their PHC counterparts ($p=0.047$). The HTC providers were living 5.4 km on average from their health facilities compared to 4.2 km among the non-HTC providers. These long distances may have affected their community work because on the days that they were required to provide HTC, they travelled longer distances to and from the health centres (see Chapter 8).

There were no statistically significant differences in the distances between the HSAs in Salima district and those in Mangochi district or whether the HSAs were working in the health centres or at the district hospital or length of service ($p>0.050$ in all cases - Table 6-8).

Table 6-8: Average distances from homes to centres of catchment communities and health facilities disaggregated by whether the HSAs were providing HTC services or not

Characteristics of HSAs		Catchment to home		HC to home		HC to catchment	
		KM	p-value	KM	p-value	KM	p-value
Status of HIV provision	HIV Providers (N=119)	1.9		5.4		6.5	
	Non-HIV providers (N=124)	3.2	<0.001	4.2	0.047	6.4	0.813
Type of facility	Health centres	2.5		4.8		6.4	
	District hospitals	2.9	0.292	4.8	0.915	6.5	0.859
Length of service	0-5 years (N=140)	2.5		5.0		6.8	
	>5 years (N=103)	2.7	0.422	4.4	0.336	6.0	0.284
District	Salima (N=133)	2.4		5.1		6.6	
	Mangochi (N=110)	2.8	0.227	4.4	0.296	6.2	0.583
TOTAL	**N=243**	**2.6**		**4.8**		**6.4**	

6.4.2.2 Catchment population average monthly village visits

As stated in Section 2.10 above, HSAs are supposed to be assigned a catchment population of approximately 1,000 people (or ~215 households) so that they can adequately deliver their community services in line with the essential health package. In this PhD research, all the HSAs were asked to provide statistics of the catchment population (households and/or actual numbers of people). Where the HSAs provided catchment population, these were converted to approximate number of households using the national average household size of 4.7 (NSO, 2010b). The HSAs who were delivering HIV services were also asked to state the number of village visits they used to make before they started delivering HIV services.

There were no statistically significant differences in the average catchment population for the HSAs when the results were disaggregated by whether the HSAs were providing HTC services or not ($p=0.605$). The HTC providers had 376 households on average compared to 359 households on average among the non-HTC providers. There were also no statistically significant differences in the average catchment household population when the results were disaggregated by type of facility ($p=0.573$), sex of the HSAs ($p=0.391$) and length of service ($p=0.759$).

At the district level, the HSAs in Mangochi had statistically significant higher average catchment household population ($p<0.001$) than the HSAs in Salima (454 households compared to 296 households, respectively). The higher catchment household population in Mangochi is likely a reflection of overall district population compared to Salima (see Section 5.8). Regarding monthly village visits for community work, the HTC providers reported a statistically significant lower average of eight visits per month whereas the non-HTC providers reported an average of 13 visits per month ($p<0.001$) (See Table 6-9).

Table 6-9: Catchment population and average travel times among the HSAs disaggregated whether HSAs deliver HIV services or not

Characteristics of HSAs		Households		Village visits/month	
		Mean	p-value	Mean	P-value
Status of HIV provision	HIV Providers (N=119)	376		8	
	Non-HIV providers (N=124)	359	0.605	13	<0.001
Type of facility	Health centres	372		11	
	District hospitals	351	0.573	10	0.172
Sex of the HSAs	Males (N=132)	355		10	
	Females (N=111)	383	0.391	11	0.504
Length of service	0-5 years (N=140)	364		10	
	>5 years (N=103)	374	0.759	11	0.246
District	Salima (N=133)	296	<0.001	9	
	Mangochi (N=110)	454		12	<0.001
TOTAL	N=243	368		10	

The HTC providers reported an average of 12 monthly village visits before they started providing HTC services and these reduced to eight visits after they started providing HTC services (p<0.001). This could partly explain why these HSAs had lower monthly client volumes (and/or client visits) for some PHC services than their counterparts in 2011 (see Chapter 8) as during village visits, the HSAs inspect and report suspected cases of outbreaks, treat water, provide talks on hygiene and sanitation and they also work with community health volunteers and community based organisations. The reduction in the average number of monthly visits found among the HTC providers may therefore have contributed to the reduced delivery of the PHC services.

6.4.2.3 Modes of travel to work

HSAs require reliable modes of travel for their community work as well as when they want to report to their health facilities. Previous studies have reported that HSAs face travel problems either because they do not have any means of travel or their bicycles are broken down (Kadzandira & Chilowa, 2001; Kok & Muula, 2013; Smith et al, 2014). Lack of reliable transport affects HSAs delivery of services because they fail to collect materials from their health facilities on time and they also fail to reach their target communities if they live outside their catchment communities.

All the HSAs in this study were asked to state their regular mode of travel. Slightly below half (45%, 110/243) of the HSAs cited 'official bicycle' as their main mode of travel, 11% (26/243) cited 'personal bicycle', 15% (36/243) cited public transport (including bicycle taxis) and only 1% (3/243) mentioned 'motorbike' (Table 6-10). Male HSAs were more likely to cite bicycle (74%, 98/132) than female HSAs (34%, 38/111) as their main mode of travel. On the other hand, female HSAs were more likely to say that they walk (37%, 41/111) or use public transport (28%, 31/111) than the male HSAs (21%, 27/132 and 4%, 5/132, respectively). There were no statistically significant differences in the main modes of travel when the results were disaggregated by whether the HSAs were delivering HTC services or not or type of health facility where the HSAs were working or by district. This finding implies that the two groups of HSAs had similar modes of travel and any differences in the delivery of PHC services could not be attributed to differences in their common modes of travel.

Table 6-10: Common modes of travel cited by the HSAs

Common mode of travel	Sex of the HSAs		Total (N=243)
	Males (n=132)	Females (n=111)	
	n (%)	n (%)	n (%)
Bicycle (personal)	19 (14)	7 (6)	26 (11)
Bicycle (official)	79 (60)	31 (28)	110 (45)
Motorbike	2 (2)	1 (1)	3 (1)
Walking	27 (21)	41 (37)	68 (28)
Public transport	5 (4)	31 (28)	36 15)

6.4.3 Institutional level factors

6.4.3.1 Remuneration and career structure

As stated above, there has been little research on job satisfaction or motivation in relation to task shifting in Malawi and/or globally and the available literature broadly looks at these issues in relation HRH retention. In this study, the PhD researcher sought to explore whether the task shifting for scaling up HIV services had introduced any incentives for the HSAs and how satisfied were the HSAs with the new tasks and the incentives.

Regarding remuneration, the HSAs were asked about their salaries and all other allowances which they were receiving because of their work, whether HIV related or not. One HSA refused to give information about his salary or allowances. The average monthly salary was MK16,181 (or US$101 at the rate of US$1=MK160 in 2011)[41]. This included the normal government salary and the 26% salary top-up as

[41] At the time of the study the average salaries for nurses and clinicians in 2007 were ~US$150/month (MK15,000) while among doctors the average was US$455/month (MK46,000)

part of the EHRP which the government was providing to all the HSAs and 52% to 11 technical cadres in Malawi (Section 3.2.11). There were no special salaries, allowances or other tangible incentives that the HSAs reported that they were getting because of providing HTC or other HIV-related services and there were also no allowances for providing treatment services at the community level.

The findings on the remuneration packages for the HSAs were also corroborated during the in-depth interviews with the facility managers. The managers emphasised that no HSAs (or nurses and clinicians) was receiving additional incentives for delivering HIV services. However, there was some mention of allowances which the HSAs (and the nurses and clinicians) were getting for attending meetings and trainings organised by the government and non-governmental organisations (NGOs) and these meetings and trainings could be on HIV and AIDS or other fields.

Some of the informants were specific about the NGOs that work with HSAs in their catchment areas (see Table 6-11). At one HC in Salima district for example, the manager mentioned MALEZA (Malawi Enterprise Zone Association) as one of the NGOs that was working with HSAs in the area focussing on food security and environmental management. According to the facility managers, the NGOs were contending that the HSAs were government employees and therefore already on salaries. As such, they were not paying any additional salaries to the HSAs. As it may be seen from Table 6-11, the activities of the NGOs that were cited were all among the mainstream tasks of the HSAs and probably the NGOs were only supporting government efforts in these activities hence the argument against additional salaries from the NGOs:

> *"…..most of these NGOs have the belief that since HSAs are on government payroll then they cannot provide any further incentive or remuneration to them…"* **(Facility Manager 1, Salima district)**

Table 6-11: Examples of NGOs which were cited to be working with the HSAs

Name of NGO	HC where it was mentioned	Main focus of the NGO	Incentives for the HSAs
MALEZA	Makioni HC (Salima)	Food security and environment	Only training allowances ~MK800/day
Namwera AIDS Coordinating Committee (NACC)	Mangochi facilities (Chiponde, Monkey Bay)	HIV and AIDS	Only training allowances
Icelandic International Development Agency (ICEIDA)		Water and sanitation	Only training allowances (~MK500/day)
Coalition of Women Living with HIV and AIDS (COWLHA)	Salima facilities except Makioni	HIV and AIDS	Only training allowances
Mai Khanda		Safe Motherhood	Only training allowances
Assemblies of God		HIV and AIDS	Only training allowances
Family Health International (FHI)		Reproductive Health and HIV and AIDS	Only training allowances

During the discussions with the managers and the HSAs, the participants repeatedly requested allowances (including lunch allowances), support with transport, opportunities for career progression, better housing and access to social amenities, emphasising that they felt under-remunerated in their work.

6.4.3.2 Challenges faced by HSAs in their work

Previous studies on HSAs in Malawi have reported various challenges that HSAs face in their work including irregular supplies especially of protective clothing and drugs, poor accommodation and lack of transport (see Section 2.10.2 above). These challenges may not be specific to the delivery of HIV services but they need to be addressed for the successful implementation of the task shifting programme in Malawi.

In this study, the facility managers cited several challenges, but lack of transport, housing, large catchment areas and erratic availability of supplies and materials dominated the list (see Table 6-12). The first three challenges (transport, large catchment areas and lack of housing) are related, addressing the housing problem would be one way of solving the three challenges. As pointed out in Section 2.10, HSAs are supposed to work and live in their catchment areas and only report at their health facilities for reporting or to collect supplies and other materials. The housing problem was common and could partly explain why HSAs raised the need for transport/bicycles to travel from their residences to their communities and sometimes to report at their health facilities:

> *"…….HSAs are supposed to live within their catchment areas but they do not have good houses there…..hence they are forced to live elsewhere... and as a result instead of going to their communities for work they come here and just loiter around,"* **(Facility Manager 4, Mangochi district).**

> *"…..HSAs do not live a smooth life, they face a lot of challenges in their work. …..they have bad houses. HSAs are supposed to live in their catchment areas, but not all of them are based in their areas because*

the government does not provide good houses for them…….".
(Facility Manager 2, Salima district)

Almost all the facility managers who were interviewed cited housing as a major challenge for the HSAs. Still related to housing, some informants also talked of poor access to social amenities such as schools for their children:

"…….bad roads prevent HSAs from reaching out to the remotest....but also, in their areas, they lack some basic social services for their survival like schools for their children, portable water ...." **(Facility Manager 1, Salima district).**

Table 6-12: List of challenges faced by HSAs provided by health facility managers

		DISTRICT										
		Salima						Mangochi				
	Types of problems cited	Chipoka	Makioni	Chinguluw	Khombedz	Kaphateng	Mchoka	Namwera	Chiponde	Chilipa	Lungwena	Monkeybay
1	Travel (no bicycles or spare parts)[42]	√	√		√	√		√	√	√	√	
2	No or lack of housing	√		√	√	√	√		√			
3	Large catchment areas	√	√				√	√	√		√	
4	Supplies & materials	√	√						√		√	√
5	Low confidence/self-inferiority complex	√	√		√						√	√
6	Hostility from communities/Considered inferior		√			√				√		√
7	Problems with maintaining the cold chain			√					√		√	
8	No/ or limited career upgrading			√	√		√					
9	No (hardship/lunch) allowances	√		√			√					
10	Uniform and protective clothing			√				√				
11	Low salaries				√		√					
12	Limited access to social infrastructure			√							√	
13	Lack or limited supervision					√				√		

[42] These include servicing parts like tyres, tubes, chain/belt and other hardware type of parts. For HSAs who have motor cycles, these include oils and fuel

		DISTRICT										
		Salima						Mangochi				
	Types of problems cited	Chipoka	Makioni	Chinguluw	Khombedz	Kaphateng	Mchoka	Namwera	Chiponde	Chilipa	Lungwena	Monkeybay
14	Small of no office							√				
15	HSAs overstaying in catchment area								√			
16	Frequent absenteeism										√	

Challenges with supervision and mentoring, lack of incentives and unclear opportunities for career progression, which the WHO recommends to be addressed in task shifting programmes, were also cited by the health facility managers who were interviewed:

> *"…supervision is a major challenge… scaling up needs supervision, not so?.....we are not supervising, the main reason being that we don't have transport….this motorbike we have here* (pointing at a motorbike parked inside the room where the interview took place*), I don't even know when spare parts were bought….."***(Facility manager 4, Mangochi district**)

The other challenge encountered by HSAs as reported by facility managers was 'hostility' of some communities or community members. This was reported in two health facilities. For example, at one HC in Salima, it was noted that one HSA had a difficult community because most of the members were from the Zion church. In adherence to their religious practices and beliefs parents were refusing to have their children immunised. The HSA was chased away whenever he went to their village. At another facility, also in Salima, the participant reported a case involving one HSA where residents were refusing his services and they were even speaking to him using obscene language because they just don't believe in modern medicine.

6.4.3.3 Suggestions to improve the work of HSAs

HSAs suggested things that could improve their work and these are presented in Table 6-13. Seventy per cent (70%, 170/243) of the HSAs thought improvement in the means of travel would improve the work of HSAs. This was followed by provision of hardship allowances (for staying and working in remote areas) and lunch allowances (46%, 112/243). Thirty-four percent (34% -82/243) thought HSAs work would also improve if drug supplies (including test kits) would be improved and 30% (74/243) suggested the provision of refresher courses. According to three HSAs who were interviewed in Salima (October 2017), it would be preferable to have monthly supplies to limit their travel to their health facilities. However, two district informants who were also interviewed in the same district from the pharmacy section, it is usually not possible to give monthly supplies to the HSAs to avoid leakage but also due to the limited supplies that the DHO gets from the Central Medical Stores. The district informants further stated that since HSAs obtain immunisations on a bi-weekly interval it is recommended for them to get their drug supplies at the same time. The issue of improvements in means of travel was also brought up by the health facility managers during the in-depth interviews. This problem seems to have persisted for a long time as it was also highlighted in a survey of HSAs in 2001 (Kadzandira & Chilowa, 2001) and in another survey that was conducted in Mwanza district, southern Malawi in 2009 (Kok & Muula, 2013).

Table 6-13: Suggestions on improving the work of HSAs made by the HSAs themselves

Suggestions	% of all responses (N=595) n (%)	% of respondents (N=243) n (%)
Provide better means of travel	184 (31%)	170 (70%)
Provide hardship allowances	121 (20%)	112 (46%)
Make drug supplies regular	89 (15%)	82 (34%)
Provide more refresher courses	80 (13%)	74 (30%)
Provide better housing	69 (12%)	64 (26%)
Increase supervision	36 (6%)	33 (14%)
Recruit additional HSAs	13 (2%)	12 (5%)
Reduce tasks for HSAs	3 (1%)	3 (1%)

The health facility and district health managers were also asked to make suggestions on how the work of HSAs can be improved including the provision of HIV services. Generally, the suggestions from the managers could be grouped into health system improvements and improvements in the living and working conditions of the HSAs.

Regarding health system improvements, the facility managers made suggestions on improving supplies, need for enhancing the supervision of HSAs, introducing an appraisal system where HSAs should be assessed and rewarded based on their performance, providing refresher courses and recruiting more or additional HSAs to reduce the catchment populations of the HSAs thereby reducing the travel requirements and workload. Additionally, some common courtesy and short training could assist:

"…sometimes just thanking or appreciating a person…..the person feels better when he/she does a good thing….. he/she improves and that

*means next time he/she will do better than that…..one gains confidence to say, 'that means I did well there….but also they should introduce some system of appraisal so that HSAs are rewarded based on performance….”***(Facility manager 4, Salima district)**

*“….they should train the new staff thoroughly and not just for a short period of time which might produce half-baked staff hence compromise the quality of services being delivered”***(Facility manager 3, Salima district)**

On increasing the number of HSAs, one facility manager said:

“ *they should consider increasing the number of HSAs so that everyone should have a catchment area that is of good size so that they don't have problems with mobility because when a catchment area is big some tasks get disrupted….”***(Health facility manager 2, Salima district)**

The suggestion that the work of HSAs would improve if additional HSAs were recruited was also made by facility managers at five other HCs from the two districts.

With regard to improving the living and work conditions of the HSAs, the facility managers made suggestions on the need to address the transport challenges (by buying bicycles and/or repairing bicycles), providing some incentives (for example lunch and hardship allowances), opportunities for career progression and improvements in housing conditions:

“...they are not given spares (for their bicycle) and it takes time for the government to give them new bicycles...I think in the past three years there has been none who has been given a bicycle...” **(Facility manager 2, Mangochi district)**

*"….. most of them have official bicycles but they are no longer using them because they are in poor condition and they do not receive allowances which they can use to service their bicycles and they cannot afford to use bicycle taxis every time they go to work…"***(Facility manager 4, Salima district)**

…. task shifting can be improved by providing incentives to those categories of staff to whom tasks are to be shifted so that they are motivated to do the work…." **(Facility Manager 1, Salima district**).

Some of the facility managers emphasized the need to provide initial HSA training to all HSAs before they are deployed to the health facilities. According to these facility managers, HSAs who were deployed before receiving the initial HSA training do not perform as expected. Specific to task shifting, some facility managers suggested that people on future task shifting should be assigned the new tasks after assessing their motivation:

*"….everyone would love to work or take on new tasks on top of his or her old tasks only if there is motivation…. so there must be incentives provided so that the work is done effectively…."***(Facility manager, HC, Salima district)**

*"…they should be consulting before tasks are shifted….not just bringing it saying 'You HSA will be doing antenatal today,' or 'You HSA will be doing this thing today,' or 'you nurse will be doing this today.'…..they should first consult the people they want to shift that tasks to and hear their views…..."***(Facility manager, HC, Salima district)**

The danger in just imposing new tasks on the junior health workers was emphasized by another facility manager saying:

"….if the person shifting the tasks is a boss.....the junior person will not

*refuse to do the new tasks, but those tasks will not be done properly because he will work while murmuring….because he will work without putting his heart on it…."***(Facility manager, HC, Salima district).**

6.5 Summary

The findings presented in this Chapter suggest that the HTC task shifting was implemented before guidelines and protocols regarding the engagement of HSAs were drafted. While task shifting and task sharing were common in the eight health facilities, the facility managers and HSAs could not exactly explain the concept. As would be noted from the verbs that were used to describe task shifting cited above, it would appear that there are different degrees of transferral of tasks – from the formal allocation, 'delegation' to more informal 'swapping' and 'helping out' suggesting divergent views and practices around task shifting taking in the health facilities. While the official or formal task shifting is defined where some tasks are moved from highly trained professional to those with lesser training or skills, some informal task shifting or task sharing takes place across cadres of the same category and this is more temporally in nature and does not seem to meet many of the 22 recommendations of the WHO for implementing task shifting programmes.

The findings in this Chapter also suggest that HSAs who were delivering HIV services were living and working in similar environments and they had the same range of challenges as those HSAs who were not delivering HIV services. These challenges seem to have persisted as previous studies have also reported these challenges (Kadzandira & Chilowa, 2001; Kok & Muula, 2013; Smith et al, 2014). As such, the shifting of HTC services to HSAs (through task shifting) may have not brought any immediate additional incentives to those HSAs who were delivering HTC services.

7 STAFF TRENDS, SERVICE SCALE UP AND TASK SHIFTING

7.1 Introduction

As stated above, one of the main objectives of this study was to assess the effects and consequences of task shifting HTC services to HSAs on their delivery of PHC services and on their workload. Various studies on task shifting have reported service scale-up as one of the tangible effects of task shifting while not compromising the quality of services being delivered (Brugha et al, 2010; Ivers et al, 2011). However, these studies have rarely reported on the effects of task shifting on the mainstream activities that the new cadres are supposed to be implementing. In this study, the PhD researcher was interested to explore and assess the effects of task shifting on the PHC service delivery.

In this study, the PhD researcher firstly asked the health managers at the facility, district and national levels to give their overall views and opinions regarding the consequences and effects of task shifting HTC services to HSAs on health service delivery in general and on the HSAs themselves in particular. According to the managers, task shifting HTC services to HSAs had both negative and positive consequences on the HSAs (as well as on nurses and clinicians) as stressed by the facility manager at one HC in Mangochi district:

> *"....shifting of the tasks has advantages as well as challenges.....the advantage that I see is service scale-up ……things are moving....all the services are being delivered....a service that was not supposed to be delivered is being delivered.....but the workload has also increased..."*
> **(Facility manager 3, Mangochi district)**

According to the various respondents, the ultimate positive effect of task shifting HTC services to HSAs was HIV service scale-up whereas the negative consequences on

the HSAs were the reduction in PHC service delivery and a perceived compromise in quality of services (both PHC and HIV). Details about these findings are discussed below.

7.2 Changes in client trends for selected PHC services between 2006 and 2010

As stated above (Section 5.1.2), one of the objectives of this study was to assess and describe client trends in selected HIV and PHC services over the period 2006-2010 when task shifting for HIV services was introduced to see if the scale-up of HIV services contributed to crowding out of PHC services particularly those involving HSAs, or whether there was a corresponding service scale-up for the PHC services, or whether there was no clearly discernible association. Trends in HTC and FP client visits, Pentavalent clients and trends in health worker numbers (nurses, clinicians[43]and HSAs) for the period 2006-2010 were compared so as to determine if the introduction of task shifting led to service scale-up and whether service scale-up was matched with increases in health worker numbers.

Tables and graphs showing trends in service client visits for HTC, FP and Pentavalent and the trends in health worker numbers have been used in this PhD Thesis to show if there were any discernible – and if so statistically significant – correlations between these services in the period 2006-2010. In addition, bivariate correlation analyses were also performed to compare trends in the HTC client visits with trends in clients for Pentavalent and FP client visits so as to assess if HTC provision had any effect on the PHC services[44].

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[43]The term 'clinician' is composite and it includes all doctors, clinical officers and medical assistants at the health facility

[44] For services such as FP and HTC, health facilities record and report on client visits because some clients make more than one visit in any given period whereas for Pentavalent 3, they report number of clients because the vaccine is provided once to a child (unless if there was a special campaign during which even those children already vaccinated are invited for re-vaccination).

7.2.1 Service client trends in the Salima facilities

7.2.1.1 Salima district hospital

Trend data for HTC, Pentavalent and FP services clients for the four health facilities in Salima district are presented in Tables 7-1 (a-d) and Figures 14 (a-d). At Salima district hospital, HTC client visits increased from 6,100 clients to 6,917 clients between 2006 and 2007 before dropping to 6,115 clients in 2009 and increasing again to 6,785 clients in 2010. There were 32,452 HTC client visits at Salima district hospital in the period 2006-2010, a situation consistent with the definition of quantitative service scale-up (Kadiyala, 2004) provided in Section 4.4 above.

The rise in the numbers of HTC client visits at Salima district hospital was consistent with the national trends as in 2006, less than 250,000 people had accessed HTC in Malawi while at the end of 2009, over three million people had accessed the service and this was largely attributed to the use of HSAs, other community volunteers alongside nurses and clinicians and annual HTC campaigns in the provision of HIV services (GoM, 2009b). FP client visits at the district hospital took an upward trend between 2006 and 2009 from 4,765 to 8,072 client visits before dropping to 7,858 client visits in 2010. For Pentavalent, 2,915 children received the vaccine in 2006 and the number of children dropped to 2,106 in 2007 and started rising to 3,086 children in 2009 and dropped again in 2010 to 2,331 children.

Table 7-1: Trends in HTC and FP client visits, Pentavalent clients, and health workers at four health facilities in Salima district (2006-2010)

(a). Salima district hospital

Year	HTC	Pentavalent	FP	Nurses	Clinicians	HSAs
2006	6100	2915	4765	73	19	18
2007	6917	2106	5234	45	14	55
2008	6535	2274	5956	70	28	41
2009	6115	3086	8072	78	31	47
2010	6785	2331	7858	66	31	45

(b). Makioni health centre

Year	HTC	Pentavalent	FP	Nurses	Clinicians	HSAs
2006	0	783	1867	5	1	23
2007	0	965	1879	2	2	25
2008	1802	917	1939	2	1	21
2009	1557	1135	1691	2	1	18
2010	1400	1163	1788	2	1	19

(c). Khombedza heath centre

Year	HTC	Pentavalent	FP	Nurses	Clinicians	HSAs
2006	0	2421	3143	7	2	34
2007	0	2422	3112	3	4	35
2008	2962	2610	3224	3	2	44
2009	5115	2303	2630	4	2	39
2010	2613	2168	2282	4	2	39

(d). Maganga health centre

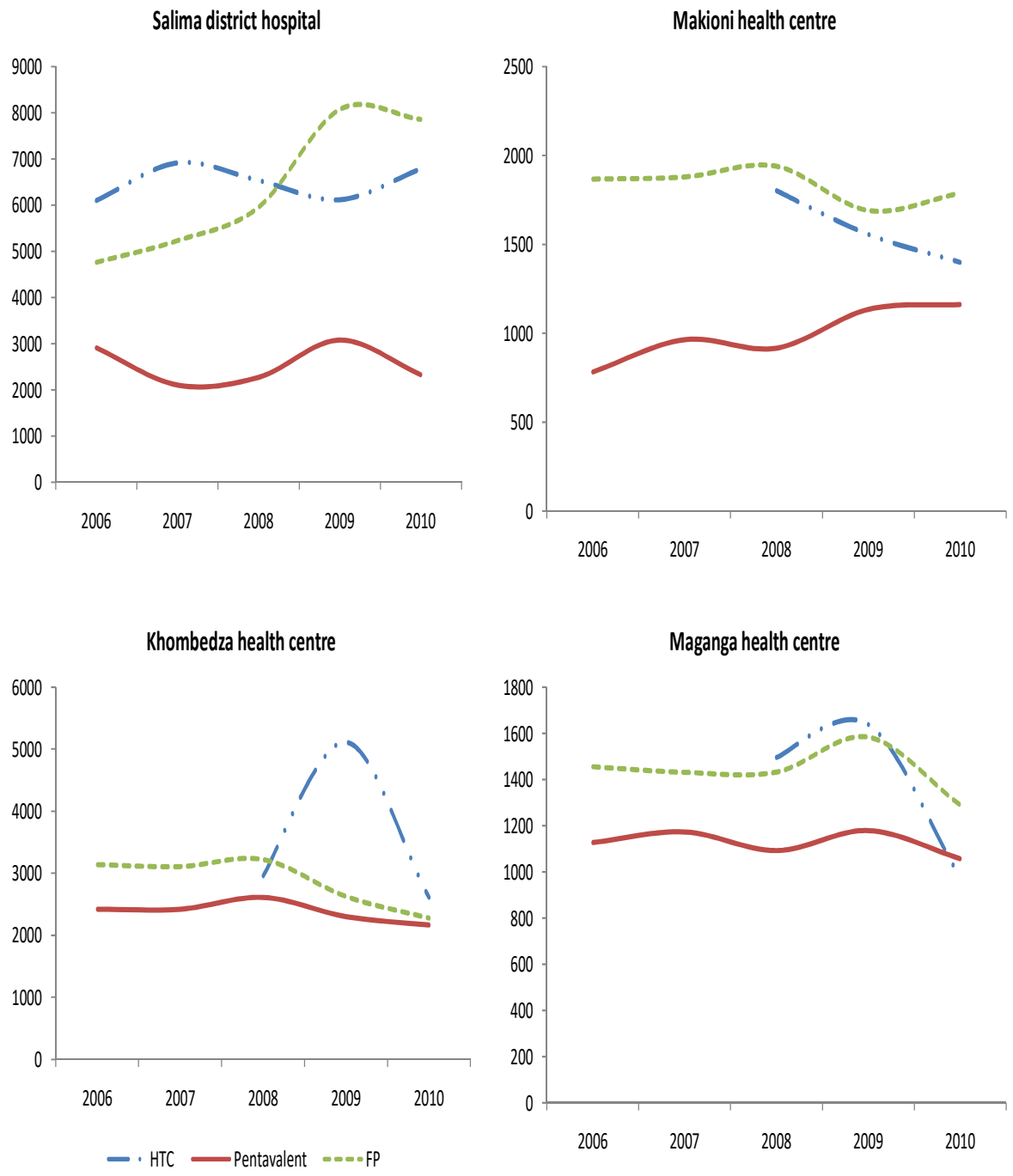
Year	HTC	Pentavalent	FP	Nurses	Clinicians	HSAs
2006		1127	1456	4	1	18
2007		1173	1432	2	2	21
2008	1496	1092	1433	2	1	21
2009	1639	1179	1584	2	1	21
2010	977	1057	1291	2	1	20

The drops in FP client visits and Pentavalent clients experienced in 2010 could be attributed to the drug shortages that Malawi experienced when the donors in the heath sector pulled out their funding due to concerns over procurement of drugs and medical supplies and fiscal discipline. At national level, for the same period, the government reported reduced client volumes because of drug shortages (GoM, 2011c). On the other hand, HIV services were not affected by the funding withdrawal

because the HIV programme had different funding, mainly from the GF and the World Bank which did not withdraw their funding. Bivariate correlation analyses produced correlation coefficients ranging from -0.34 to 0.5 among the three service types showing that neither strong positive nor negative relationships existed between the three services implying that the provision of any of the three services did not crowd out the others.

Regarding health worker numbers, there was a drop in nurses from 73 in 2006 to 45 in 2007 and the numbers rose again in 2008 to 70 and 78 in 2009 before dropping in 2010 to 66 nurses. A similar trend also occurred among clinicians whose numbers dropped in 2007 to 14 clinicians from 19 in 2006 and then rose to 28 clinicians in 2008 and to 31 clinicians in 2009 and 2010. HSA numbers tripled from 18 in 2006 to 54 in 2007 and dropped to 41 in 2008 before rising again in 2009. The tripling in the numbers of HSAs could be attributed to the ~7000 new HSAs which were recruited with funding from the GF as part of the support to the HIV programme in Malawi (GoM & MoH, 2011). The District Health Officer in Salima attributed the drops in nurse and clinician numbers between 2006 and 2007 to staff relocations to health centres to support the introduction of HIV services as mentors of the HSAs (as well as being providers themselves) and the rising of the numbers after 2007 was a result of new graduates joining the health sector.

From the foregoing discussion, at Salima district hospital the three services scaled-up in the period 2006 and 2009 alongside health worker increases starting in 2007 for the HSAs and 2008 for the nurses and clinicians (even though modest). The scaling down of some PHC services in 2010 was attributed to the funding crisis after donors withdrew their support. In addition to donor funding withdrawal, in 2009/10 the government also reported that drug pilferage was common in a number of districts and this had affected service delivery (GoM, 2011c).



Figures 7-1 (a-d): Trends in HTC and FP client visits and Pentavalent clients at four health facilities in Salima district, 2006-2010

7.2.1.2 Makioni Health Centre

At Makioni health centre, HTC services were introduced in 2008 and the health centre registered a total of 1,802 HTC client visits in that year alone. The HTC client visits dropped in 2009 to 1,557 before dropping further to 1,400 client visits in 2010. Client volumes for Pentavalent increased for most of the period 2006-2010 although there was a slight drop in 2008 whereas FP client visits also dropped slightly in 2009 but had generally been increasing albeit slowly. There were five nurses at the health centre in 2006 and three left the facility in 2007 to remain with only two nurses and these remained until 2010. There was only one clinician in 2006, a second clinician was posted to the health centre in 2007 but by 2008 one of the two clinicians had left to remain with one clinician again until 2010. At Makioni health centre, HSA numbers did not increase rapidly between 2006 and 2007 as was the case at Salima district hospital. Only two HSAs joined the health centre in 2007 to increase the HSA numbers to 25 from 23 and the numbers started dropping thereafter to 19 HSAs in 2010.

From the foregoing discussion, FP client visits, Pentavalent clients and health worker numbers at Makioni health centre generally took a downward trend in the period 2006-2010. The introduction of HIV services in 2008 therefore did not immediately bring in additional health workers at the health centre and all the services were being provided by the existing health workers. Bivariate correlation analyses of the three services produced correlation coefficients ranging from -0.09 to 0.92 with the strongest association between FP and Pentavalent services. According to the facility manager, HTC services registered high numbers of clients in 2008 partly because of the HTC campaign which was high at the start of the programme which included an intensive ‘HTC campaign month of August’. The facility manager attributed the decline in HTC client visits after 2008 to service saturation because the catchment area of the health centre had a small population. The facility manager also attributed the strong association between FP and Pentavalent to service integration because they were provided through the same clinic-times and days and by the same health

workers, either HSAs or the nurses or together. This finding corroborates what another study found in 30 Zambian health facilities where service integration enabled service scale-up and that staff workload for ART, PMTCT and at the OPD increased rapidly in the period of their study (2005-07) while health work numbers remained constant (Walsh A. et al, 2010). This study concluded that task sharing was taking place and seemed beneficial to the delivery of general services as staff designated by managers as ART and PMTCT workers, who made up a higher proportion of frontline services providers by 2007, were also servicing the OPD and other sections.

7.2.1.3 Khombedza health centre

At Khombedza health centre there were modest increases in Pentavalent clients and FP client visits between 2006 and 2008 before experiencing drops in both services between 2009 and 2010. HTC services were introduced at the facility in 2008 and in that year alone a total of 2,962 client visits were registered. The HTC client visits increased to 5,115 in 2009 before falling by almost half to 2,613 client visits in 2010. These trends relate to the trends in health worker numbers at the HC as the numbers either declined or remained fairly stable in the period under observation. In 2006, the health centre had seven nurses and these dropped to three in 2007 and 2008. An additional nurse was received in 2009 to increase the number to four nurses and the numbers remained the same up to 2010. There were only two clinicians in 2006 and in 2007, two more clinicians came to the health centre. Two clinicians left in 2008 to remain with two clinicians until 2010.

Bivariate correlation analyses of HTC and FP client visits produced negative correlation coefficients of -0.96 and -0.73 with Pentavalent, respectively in the period 2008-2010. This could be partly attributed to the declining numbers of HSAs that the health centre experienced in the period 2008-2010 (from 44 HSAs to 39 HSAs) because the HSAs are the main providers of immunisations and the introduction of HIV services in 2008 may have overstretched their workload thereby affecting the delivery of immunisations. Whereas immunisations by HSAs are usually provided in

the communities, HTC services by HSAs at the start of task shifting were provided in hospital settings for close supervision. According to some of the HSAs who were interviewed in this study, HTC clients were usually encouraged to adopt some form of FP during counselling sessions. It is therefore likely that FP services would be scaling up alongside HTC as the same HSAs providing HTC would also be promoting the FP services. The facility manager could not provide any possible suggestions on why Pentavalent and health worker numbers were either declining or remained stable in the period under observation.

7.2.1.4 Maganga Health Centre

At Maganga health centre, Pentavalent clients and FP client visits remained stable in the period 2006-2009 and declined in 2010. Health worker numbers remained fairly stable in the period 2006 and 2010. HTC services were introduced in 2008 and in that year, 1,496 client visits were registered and the number of client visits rose to 1,639 clients in 2009 before declining to 977 clients in 2010. The facility manager attributed the general decline in the client volumes for Pentavalent and FP and HTC client visits to the drug shortages that Malawi experienced starting in 2009. Bivariate correlation analyses that were conducted produced correlation coefficients ranging from 0.82 to 0.95 among the three services implying positive associations among the three services suggesting that none of the three services crowded out the others.

7.2.2 Service client trends in the Mangochi facilities

As stated above, service clients and health worker data in Mangochi district was collected in four health facilities that were part of the SWEF study in 2006-2008 namely Mangochi district hospital, Monkey Bay community hospital, Namwera health centre and Chilipa health centre. The trends are presented in both tabular and graphic formats below. Bivariate correlation analyses were also performed to asses any possible associations among the three services.

7.2.2.1 Mangochi District Hospital

Trend data for HTC and FP client visits, Pentavalent clients and health worker numbers at Mangochi district hospital are presented in Table 7-2 (a-d) and Figures 15 (a-d). Service client visits for FP and HTC, client volumes for Pentavalent and health worker numbers generally increased over the period 2006-2010. In 2006, a total of 2,536 HTC client visits were recorded at the hospital and this figure rose to 5,382 client visits in 2007 and continued rising to 11,342 client visits in 2010. HTC client visits dropped only in 2009 to 7,759 client visits from 8,375 client visits in 2008 while FP client visits dropped only in 2008. Bivariate correlation analyses among the three services produced correlation coefficients ranging from 0.41 to 0.89 implying positive associations among the three services suggesting that all the services and health worker numbers were scaling up simultaneously and all the services dropped together into 2010.

Clinician numbers increased from 12 in 2006 to 14 in 2007 before increasing again in 2009 to 17 clinicians up to 2010. In the same period there were also increases in the numbers of nurses and HSAs. From the foregoing discussion, it is apparent that the two PHC services at Mangochi district hospital generally scaled up in the period 2006-2009 (except for FP which dropped in 2008 but rose again thereafter) whereas for HTC services, client visits only dropped in 2009 and rose again in 2010. The rise in client visits also corresponded with health worker numbers which increased at the hospital. According to the informant who was interviewed at the hospital, the introduction of HIV services in rural health centres in 2008 took place at the time when the district had just recruited additional HSAs in 2007 to assist with the scale-up of the HIV services alongside other services. As such, HIV services increased alongside other PHC services because the HSAs were also required to deliver those services as well.

Table 7-2: Trends in HTC and FP client visits, Pentavalent clients and health workers at four health facilities in Mangochi district (2006-2010)

(a). Mangochi district hospital

Year	HTC	Pentavalent	FP	Nurses	Clinicians	HSAs
2006	2536	1806	9843	74	12	24
2007	5382	2358	11901	64	14	57
2008	8375	2507	7212	62	14	58
2009	7759	2974	11039	73	17	64
2010	11342	2984	14809	79	17	63

(b). Monkeybay rural hospital

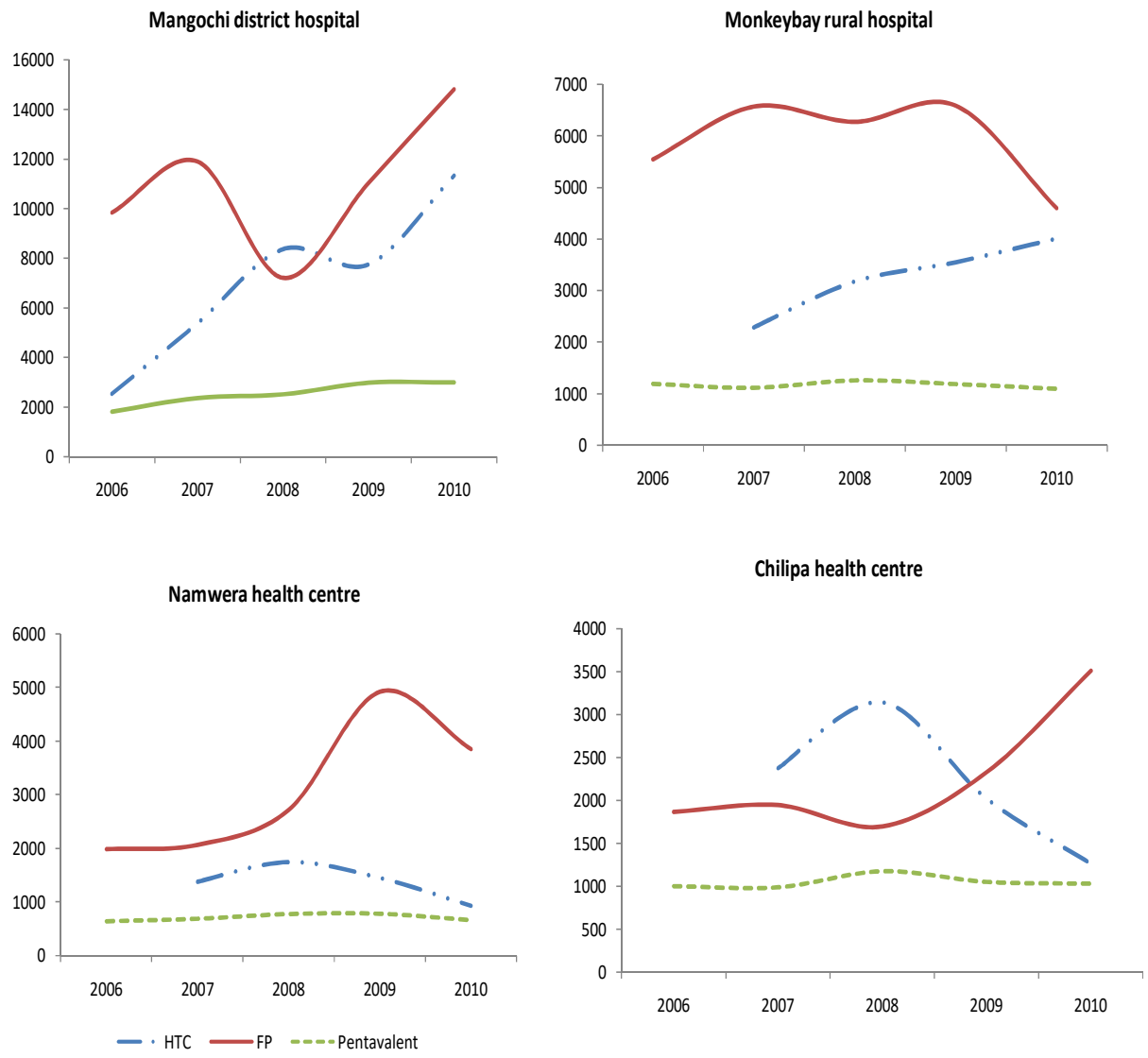
Year	HTC	Pentavalent	FP	Nurses	Clinicians	HSAs
2006		1189	5541	22	6	16
2007	2280	1112	6564	16	6	22
2008	3169	1256	6268	18	6	33
2009	3542	1185	6581	26	8	35
2010	4002	1093	4596	25	8	33

(c). Namwera health centre

Year	HTC	Pentavalent	FP	Nurses	Clinicians	HSAs
2006		642	1987	1	1	19
2007	1376	688	2068	2	1	27
2008	1746	778	2719	2	2	11
2009	1449	783	4918	3	2	11
2010	927	663	3850	2	1	10

(d). Chilipa health centre

Year	HTC	Pentavalent	FP	Nurses	Clinicians	HSAs
2006		1004	1865	4	2	11
2007	2376	991	1945	3	2	12
2008	3143	1176	1696	2	1	12
2009	2019	1053	2329	2	1	17
2010	1261	1033	3514	2	1	17



Figures 7-2 (a-d): Trends in service clients for HTC, Pentavalent and FP at four health facilities in Mangochi district, 2006-2010

7.2.2.2 Monkey Bay Community Hospital

At Monkey Bay rural hospital, HTC services were introduced in 2007 and in that year, a total of 2,280 client visits were registered. The HTC client visits increased to 3,169 in 2008 and kept increasing in 2009 and 2010 when 3,542 and 4,002 client visits were registered, respectively. For FP, a total of 5,541 client visits were

recorded at the hospital in 2006 and this figure rose to 6,564 in 2007 and 6,581 in 2009 but dropped to 4,596 client visits in 2010. Pentavalent client numbers were generally stable in the period 2006-2009 but dropped in 2010 to 1,093 clients. Bivariate correlation analyses produced correlation coefficients ranging from -0.70 between HTC and FP client visits to 0.44 between Pentavalent and FP trends showing neither strong nor weaker associations among the three services suggesting that none of the three services crowded out any of the other services.

There were 22 nurses at the hospital in 2006 and these dropped to 16 nurses in 2007 before the two more nurses were received in 2008 to make the total number of nurses 18 and by 2010, the number of nurses had risen to 25. There were six clinicians between 2006 and 2008 and two additional clinicians were received in 2009 to make the number of clinicians eight and this number of clinicians remained up to 2010. On the other hand, HSA numbers more than doubled between 2006 and 2010 from 16 HSAs in 2006 to 33 HSAs in 2010. The doubling in the numbers of HSAs and smaller increases in the numbers of nurses and clinicians could have contributed to the continued rise in HTC and FP clients. Similar to the situation in Salima, the facility manager at the hospital also attributed the drops in FP client visits and Pentavalent clients to the drug crisis that Malawi experienced starting in 2009/10 where service delivery was generally affected in the whole country.

7.2.2.3 Namwera Health Centre

At Namwera health centre, FP client visits and Pentavalent client numbers increased between 2006 and 2009 from 1,987 client visits and 642 clients, respectively to 4,918 client visits and 783 clients, respectively, before falling in 2010 to 3,850 client visits and 663 clients, respectively (Table 7-2 and Figure 15c). While the drug crisis that Malawi started experiencing in 2009/10 was cited by the facility manager as having contributed to the declines in 2010, problems with maintaining the cold chain was also mentioned to have affected the delivery of the immunisations at the health centre. According to the facility manager, the health centre had non-working

refrigerators and most of the HSAs had no cooler boxes which are used to carry the vaccines and the HSAs also had transport challenges so that they could not go to their health centre to collect the vaccines and return those not used for refrigeration at the end of the day.

7.2.2.4 Chilipa Health Centre

At Chilipa health centre, Pentavalent client volumes remained fairly stable in the period 2006-2010 whereas FP client visits increased. In 2006, a total of 1,004 clients were registered for Pentavalent services. This figure dropped slightly to 991 in 2007 before rising to 1,176 clients in 2008 and to 1,053 clients in 2009 and dropped slightly to 1,033 clients in 2010. HTC client visits increased between 2007 (at the start of the service) and 2008 and dropped in 2009 and 2010. With the exception of HSAs whose numbers increased between 2006 and 2010 from 11 to 17 HSAs, there were drops in the numbers of nurses (from four to two nurses) and clinicians (from two clinicians to one). From the foregoing discussion, it would appear that service delivery at Chilipa health centre was largely dependent on the increasing numbers of HSAs. The facility manager attributed the slight decline in HTC client visits between 2009 and 2010 to stockouts of the HIV test kits.

7.2.3 Comparison of client and health worker trends in the Salima and Mangochi facilities

The findings presented above suggest that between 2006 and 2008/09, there was a general increase in service client visits for both HTC and PHC services (Pentavalent and family planning) in the eight health facilities and these dropped from 2009 to 2010. Between 2006 and 2007, HSA numbers in the health facilities also increased by two to three fold whereas numbers of clinicians and nurses remained fairly stable or slightly changed (either decreased or increased) in the facilities. The additional HSAs in 2007 with funding from the GF to assist in the scale-up of HIV programme

may have led to increases in HTC services in the facilities just as was the case at the national level (GoM 2010a). This may also have led to some increases in the delivery of PHC services because the new HSAs were also asked to deliver other PHC services in their catchment communities just like any other HSAs who were already delivering these services. This suggests that the task shifting arrangement which was enhanced by recruiting additional HSAs could have contributed to achieving quantitative and programmatic service scale up for the HIV services. Additionally, the findings presented above also suggest that the introduction of HIV services did not negatively affect PHC services in the health facilities. In all the three services (HTC, Pentavalent and FP), there was a general quantitative scale-up between 2006 and 2008. As stated above, the drops in client visits experienced in 2009/10 could mainly be attributed to the drug shortages that Malawi experienced when the donors in the heath sector pulled out their funding due to concerns over procurement and fiscal discipline (GoM, 2011c). Donors contribute 40-45% of the funding in the health sector in Malawi (GoM 2015). Since the scale up of HIV services meant introducing the new service in the health centres (as stated above), this meant task shifting allowed programmatic scale up to take place. At the same time, the recruitment and deployment of additional HSAs enabled the increased and sustained delivery of other PHC services in the rural areas as the findings either showed increasing trends in the period 2006-2009 or the client figures remained fairly constant. The additional HSAs therefore helped the health facilities to take on HIV services without necessarily affecting the delivery of PHC services (social service scale up).

The foregoing discussion therefore suggests that the decision to shift HIV testing and counselling to HSAs (task shifting) and to recruit additional HSAs to help with the scale up of the HIV programme was also beneficial to other PHC services as both HIV and PHC services scaled up or remained fairly stable especially in the period 2006-2009. The three characteristics of service scale up were therefore achieved (quantitative scale up through the increased number of clients seen; programmatic by bringing the new HIV services to the health centres and communities through the HSAs; and social, through the additional HSAs which enhanced the capacities of the health centres to deliver HIV services even in the communities).

7.3 PHC service delivery among the HSAs interviewed in the study

The findings presented above focussed on service client trends at the facility level and not at the individual HSA levels in the period 2006-2010. As stated above, previous studies on task shifting have not studied the consequences of shifting tasks from higher cadres to the lower cadres on the mainstream tasks of the lower cadres. In this study, the PhD researcher set out to assess the effect of delegating HTC services to the HSAs on the mainstream community work that the HSAs are supposed to be delivering. By comparing the level of delivery of PHC services in the community between HSAs who were delivering HTC services and those who were not, the results would help to ascertain if the delegation of HTC services to the HSAs was having an effect on their community work or not. The facility level service trend data presented above showed service scale up at the facility level but this could mask what is happening at the HSA level since the HSAs not delivering HTC service would deliver more PHC services and mask the figures for their colleagues who were delivering HTC services. Furthermore, the additional ~7,000 who were recruited in 2007 could help scale-up the various services broadly but not at the individual HSA level.

All the 243 HSAs who were interviewed in this study were asked if in the two weeks before being interviewed they delivered the seven PHC services which they should deliver according to their job description (see Annex 4) namely: (i). immunisations, (ii). village inspections, (iii). growth monitoring, (iv). village clinics, (v). water treatment, (vi). family planning and, (vii). sanitation and hygiene talks. In addition, they were also asked if they assisted with drug dispensing and any other tasks at their health centres or hospitals.

Cross tabulations of the listed PHC services were performed to compute the proportion of HSAs who delivered the various services comparing HSAs who were delivering HTC and those who were not. Odds ratios (OR) were calculated to

ascertain any associations between HTC service delivery and the delivery of the selected PHC services.

In addition to the primary exposure dimension of the HSAs tested (delivering HTC services), the data were also analysed to assess the effect of other attributes of HSAs that would be confounding including: gender, length of service in the health sector, type of facility where the HSAs works (health centre or district hospital) and whether the HSA was living in the designated catchment area or not. Stepwise Backward (Conditional) Multiple Logistic Regression Analyses were also performed to examine the combination of these other HSA attributes that could be predictors of PHC service delivery.

7.3.1 Immunisation

The proportion of HSAs who delivered immunisations in the last two weeks was statistically significant higher ($p<0.001$) among the HSAs who were not delivering HTC services (93.5%, 116/124) compared to their colleagues (63.9%, 76/119). As the results presented in Table 7-3 below show, the odds of having delivered immunisations in the last 2 weeks (having not delivered HTC services) was 8.2 times (95% CI: 3.7-18.4) higher among the non-HTC service providers than their colleagues. Statistically significant differences ($p=0.004$) were also found when the results were disaggregated by district as 87.3% (96/110) of the HSAs in Mangochi had given immunisations in the last two weeks compared to 72.2% (96/133) of the HSAs in Salima (OR=2.6, 95% CI:1.3-5.2). There were no statistically significant differences when the results were disaggregated by the type of facility where the HSAs were working ($p=0.611$) or by sex of the HSAs ($p=0.682$) or length of service ($p=0.281$) and by whether the HSAs were living in the catchment areas or not ($p=0.187$).

Table 7-3: Differences in the delivery levels of immunisations in the last two weeks between HSAs delivering HIV services and those not delivering HIV services (Univariate analyses)

Characteristics of HSAs		n (%)	OR (95% CI)	p-value
Status of HTC service provision	Non-HTC Providers (N=124)	116 (94%)	8.2 (3.7-18.4)	<0.001
	HTC providers (N=119)	76 (64%)		
Type of health facility	District Hospital (N=59)	48 (81%)	1.2 (0.6-2.5)	0.612
	Health Centres (N=184)	114 (78%)		
Sex of the HSAs	Females (N=111)	89 (80%)	1.4 (0.6-2.1)	0.682
	Males (N=132)	103 (78%)		
Length of service	>5 years (103)	114 (81%)	0.7 (0.4-1.3)	0.281
	0-5 years (N=140)	78 (76%)		
Residence	Lives outside catchment area (N=120)	99 (83%)	1.5 (0.8-2.8)	0.189
	Lives in catchment area (N=123)	93 (76%)		
District	Mangochi (N=110)	96 (87%)	2.6 (1.3-5.2)	0.005
	Salima (N=133)	96 (72%)		

A logistic regression analysis modelling for category of HSAs (whether on HTC service delivery or not), type of health facility, sex of the HSA, length of service, residence and district also showed that ‘HTC service provision’, ‘district’ and ‘residential status’ were associated with the provision of immunisation (Table 7-4).

Provision of immunisations was less likely if the HSAs were delivering HTC services (OR=0.064, 95% CI=0.02-0.17, p<0.001) and was more likely if the HSAs were working in Mangochi (OR=0.354, 95% CI=0.170-0.738, p=0.006) and more likely if the HSAs were not living in their catchment areas (OR=2.847, 95% CI=1.20-6.75, p=0.017). This suggests that HSAs who were delivering HTC services and HSAs in Salima were less likely to deliver immunisations. This would be a possible indication that task shifting more HIV services to the HSAs would be compromising the delivery of immunisation services probably because of challenges with time allocation.

Table 7-4: Combined predictors of immunisation service delivery

Variables in the Equation					
				95% C.I. for OR	
		p-value	OR	Lower	Upper
Step 1[a]	HIV service delivery status	.000	.065	.024	.175
	Facility category	.607	1.249	.535	2.917
	Sex	.348	1.418	.683	2.943
	Service length	.076	.497	.230	1.077
	Residential status	.094	2.158	.876	5.313
	District	.003	.317	.148	.676
	Constant	.000	29.886		
Step 2[a]	HIV service delivery status	.000	.065	.024	.175
	Sex	.382	1.380	.670	2.840
	Service length	.081	.502	.232	1.087
	Residential status	.097	2.142	.872	5.263
	District	.003	.321	.151	.683
	Constant	.000	31.686		
Step 3[a]	HIV service delivery status	.000	.069	.026	.181
	Service length	.095	.522	.243	1.120
	Residential status	.087	2.176	.893	5.302
	District	.004	.332	.157	.703
	Constant	.000	35.006		
Step 4[a]	HIV service delivery status	.000	.064	.023	.173
	Residential status	.017	2.847	1.202	6.746
	District	.006	.354	.170	.738
	Constant	.000	23.304		
a. Variable(s) entered on step 1: deliver_HIV, faci_category, sex, service_length, q53_residence, q4_district.					

7.3.2 Village inspections

The proportions of HSAs who made village inspections[45] in the two weeks before being interviewed disaggregated by the six characteristics of HSAs are shown in Table 7-5. The proportion of HSAs who made village inspections was statistically significant higher ($p<0.001$) among the HSAs who were not delivering HTC services (88.7%, 110/124) compared to their colleagues (47.9%, 57/119). Statistically significant differences ($p=0.008$) were also found when the results were disaggregated by whether the HSAs were living in the catchment areas or not as 76.7% (92/120) of the HSAs who were living outside their catchment areas had made village inspections in the last two weeks compared to 61% (75/123) of their colleagues who were living in their catchment areas. This would probably be due to the fact that HSAs living in their catchment areas would not need special visits to investigate disease outbreaks because they are already part of their own communities unlike their counterparts who needed to travel to their communities. In addition to the status of their residence (living in catchment area or not), statistically significant differences ($p=0.001$) were also found when the results were disaggregated by district as 80.0% (88/110) of the HSAs in Mangochi had made village inspections in the last two weeks compared to 59.4% (79/133) of the HSAs in Salima.

As the results presented in Table 7-5 show, non-HTC service providers were 8.5 times (95% CI: 4.4-16.6) more likely to have made village inspections in the last two weeks than their colleagues. There were no statistically significant differences when the results were disaggregated by the type of facility where the HSAs were working ($p=0.073$) or by sex of the HSAs ($p=0.302$) or length of service ($p=0.826$).

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[45] During village inspections, HSAs investigate cases of disease outbreaks and monitor how people are taking care of their surroundings

Table 7-5: The proportion of HSAs who made village inspections in the two weeks before being interviewed (Univariate analyses)

Characteristics of HSAs		N (%)	OR (95% CI)	p-value
Status of HTC service provision	Non-HTC Providers (N=124)	110 (88.7)	8.5 (4.4-16.6)	<0.001
	HTC providers (N=119)	57 (47.9)		
Type of health facility	District Hospital (N=59)	35 (40.7)	0.6 (0.3-1.1	0.073
	Health Centres (N=184)	132 (71.7)		
Sex of the HSAs	Females (N=111)	80 (72.1)	1.3 (0.8-2.3)	0.302
	Males (N=132)	87 (65.9)		
Length of service	>5 years (103)	70 (68.0)	0.9 (0.5-1.6)	0.826
	0-5 years (N=140)	97 (69.3)		
Residence	Lives outside catchment area (N=120)	92 (76.7)	2.1 (1.2-3.7)	0.008
	Lives in catchment area (N=123)	75 (61.0)		
District	Mangochi (N=110)	88 (80.0)	2.7 (1.5-4.9)	0.001
	Salima (N=133)	79 (59.4)		

The findings presented in Table 7-6 show negative relationship between monthly village inspections and HTC service provision and differences in monthly village inspections between the two districts with Mangochi recording high monthly village inspections than Salima. There were also statistically significant differences in monthly village inspections based on the residential status of the HSAs with those residing outside their catchment areas having made higher monthly village visits compared to those residing in their catchment areas. However, a logistic regression analysis found that HIV service provision, category of health facility and district

together and independently of each other, were associated with monthly village visits. HTC service providers (OR=0.095; 95% CI:0.046-0.195; p<0.001), HSAs working at district hospitals (OR=0.389; 95% CI:0.184-0.821; p=0.13) and HSAs in Salima (OR0.325; 95% CI=0.168-0.627; p=0.001) were less likely to have made village visits in the past two weeks (see Table 7-6).

Table 7-6: Results of logistic regression analysis of predictors for Types of PHC Services

Service name	Predictor	OR	95% CI	p-value
Immunisations	Status of HTC provision	0.064	0.023 - 0.173	<0.001
	Residence	2.847	1.202 - 6.746	0.17
	District	0.354	0.170 - 0.738	0.006
Village inspections	Status of HTC service delivery	0.095	0.046 – 0.195	<0.001
	Facility category	0.389	0.184 – 0.821	0.13
	District	0.325	0.168 – 0.627	0.001
Growth monitoring	Status of HTC service delivery	0.051	0.23 – 0.116	<0.001
	District	0.428	0.218 – 0.838	0.013
Water treatment	Status of HTC service delivery	0.256	0.119 – 0.549	<0.001)
	Residence	2.105	0.995 – 4.453	0.051
	District	0.435	0.232 – 0.817	0.01
Sanitation and Hygiene	Status of HTC service delivery	0.226	0.093 – 0.553	0.001
	District	0.296	0.121 – 0.727	0.008
Family planning	Sex	2.570	1.491 – 4.432	0.001
	Service length	2.311	1.333 – 4.006	0.003
	District	2.33	1.231 – 3.697	0.007
Village clinic	District	2.095	1.153 – 3.807	0.015

7.3.3 Child growth monitoring services

The proportions of HSAs who conducted sessions for monitoring child growth in the two weeks before being interviewed disaggregated by the six characteristics of HSAs are shown in Table 7-7. The proportion of HSAs who conducted the sessions was statistically significant higher ($p<0.001$) among the HSAs who were not delivering HTC services (93.5%, 116/124) compared to their colleagues (43.7%, 52/119). Statistically significant differences ($p<0.001$) were also found when the results were disaggregated by whether the HSAs were living in the catchment areas or not as 80.8% (97/120) of the HSAs who were living outside their catchment areas conducted the sessions in the last two weeks compared to 57.7% (71/123) of their colleagues who were living in their catchment areas. In addition to the status of their residence (living in catchment area or not), statistically significant differences ($p=0.013$) were also found when the results were disaggregated by district as 77.3% (85/110) of the HSAs in Mangochi conducted child growth monitoring sessions in the last two weeks compared to 62.4% (83/133) of the HSAs in Salima.

As the results presented in Table 7-7 show, non-HTC service providers were 18.7 times (95% CI: 8.4-41.7) more likely to have conducted the child growth monitoring sessions in the last two weeks than their colleagues. There were no statistically significant differences when the results were disaggregated by the type of facility where the HSAs were working ($p=0.695$) or by sex of the HSAs ($p=0.726$) or length of service ($p=0.953$).

Table 7-7: The proportion of HSAs who conducted child growth monitoring sessions in the two weeks before being interviewed (Univariate analyses)

Characteristics of HSAs		n(%)	OR (95% CI)	p-value
Status of HTC service provision	Non-HTC providers (N=124)	116 (93.5)	18.7 (8.4-41.7)	<0.001
	HTC Providers (N=119)	52 (43.7)		
Type of health facility	District Hospital (N=59)	42 (71.2)	1.1 (0.6-2.2)	0.695
	Health Centres (N=184)	126 (68.5)		
Sex of the HSAs	Females (N=111)	78 (70.3)	1.1 (0.6-1.9)	0.726
	Males (N=132)	90 (68.2)		
Length of service	>5 years (103)	71 (68.9)	1.0 (0.6-1.7)	0.953
	0-5 years (N=140)	97 (69.3)		
Residence	Lives outside catchment area (N=120)	97 (80.8)	3.1 (1.7-5.5)	<0.001
	Lives in catchment area (N=123)	71 (57.7)		
District	Mangochi (N=110)	83 (62.4)	2.0 (1.2-3.6)	0.013
	Salima (N=133)	85 (77.3)		

The findings presented above show associations between growth monitoring sessions and HIV service provision, district and residence. However, a logistic regression analysis found only HTC service provision and district explain differences in the provision of growth monitoring services in the past two weeks. HTC services providers (adjusted OR=0.051, p-value <0.001) and HSAs in Salima (adjusted OR=0.428, p-value = 0.013) were less likely to have provided growth monitoring services in the past two weeks (see Table 7-6).

7.3.4 Running of village clinics

The proportions of HSAs who had run village clinics in the two weeks before being interviewed disaggregated by the six characteristics of HSAs are shown in Table 7-8. The proportion of HSAs who made village inspections was statistically significant higher (p=0.014) among the HSAs who were in Salima (33.1%, 44/133) compared to the HSAs in Mangochi (19.1%, 21/110). There were no statistically significant differences when the results were disaggregated by whether the HSAs were delivering HTC services or not (p=0.530), or the type of facility where the HSAs were working (p=0.0347) or by sex of the HSAs (p=0.052) or length of service (p=0.055) and by whether the HSAs were living in the catchment areas or not (p=0.139).

Table 7-8: The proportion of HSAs who had run village clinics in the two weeks before being interviewed (Univariate analyses)

Characteristics of HSAs		n(%)	OR (95% CI)	p-value
Status of HTC service provision	Non-HTC providers (N=124)	31 (25.0)	0.8 (0.5-1.5)	0.530
	HTC Providers (N=119)	34 (28.6)		
Type of health facility	District Hospital (N=59)	13 (22.0)	0.7 (0.4-1.4)	0.347
	Health Centres (N=184)	52 (28.3)		
Sex of the HSAs	Females (N=111)	23 (20.7)	0.6 (0.3-1.0)	0.052
	Males (N=132)	42 (31.8)		
Length of service	>5 years (103)	21 (20.4)	0.6 (0.3-1.0)	0.055
	0-5 years (N=140)	44 (31.4)		
Residence	Lives outside catchment area (N=120)	27 (22.5)	0.6 (0.4-1.2)	0.139
	Lives in catchment area (N=123)	38 (30.9)		
District	Mangochi (N=110)	21 (19.1)	0.5 (0.3-0.9)	0.014
	Salima (N=133)	44 (33.1)		

A logistic regression analysis also found that only district was associated with running of village clinics (District-Mangochi: adjusted OR=2.095, p-value = 0.015 (see Table 7-6 above). This means that HSAs in Mangochi were less likely to have run village clinics in the last two weeks than their colleagues in Salima.

7.3.5 Water treatment services

The proportions of HSAs who had provided water treatment services in their communities in the two weeks before being interviewed disaggregated by the six characteristics of HSAs are shown in Table 7-9. The proportion of HSAs who treated water in their catchment areas was statistically significant higher (p=0.002) among the HSAs who were not delivering HTC services (83.1%, 103/124) compared to their colleagues (65.5%, 78/119). Statistically significant differences (p=0.008) were also found when the results were disaggregated by district as 82.7% (91/110) of the HSAs in Mangochi had treated water in their communities in the last two weeks compared to 67.7% (90/133) of the HSAs in Salima.

As the results presented in Table 7-9 show, non-HTC service providers were 2.6 times (95% CI: 1.4-4.7) more likely to have treated water in their catchment areas in the last two weeks than their colleagues. There were no statistically significant differences when the results were disaggregated by the type of facility where the HSAs were working (p=0.461) or by sex of the HSAs (p=0.924) or length of service (p=0.329) and by whether the HSAs were living in their catchment areas or not (p=0.856).

Table 7-9: The proportion of HSAs who treated water in their catchment areas in the two weeks before being interviewed (Univariate analyses)

Characteristics of HSAs		n(%)	OR (95% CI)	p-value
Status of HTC service provision	Non-HTC providers (N=124)	103 (83.1)	2.6 (1.4-4.7)	0.002
	HTC Providers (N=119)	78 (65.5)		
Type of health facility	District Hospital (N=59)	135 (73.4)	1.3 (0.6-2.6)	0.461
	Health Centres (N=184)	46 (78.3)		
Sex of the HSAs	Females (N=111)	83 (74.8)	1.0 (0.6-1.8)	0.924
	Males (N=132)	98 74.2)		
Length of service	>5 years (103)	80 (77.7)	1.3 (0.7-2.3)	0.329
	0-5 years (N=140)	101 (72.1)		
Residence	Lives in catchment area (N=123)	90 (75.0)	1.1 (0.6-1.9)	0.856
	Lives outside catchment area (N=120)	91 (74.0)		
District	Mangochi (N=110)	91 (82.7)	2.3 (1.2-4.2)	0.007
	Salima (N=133)	90 (67.7)		

The findings presented above show a negative relationship between water treatment in the last two weeks and HIV service provision and differences in immunisation service provision between the two districts with Mangochi recording higher water treatment service provision than Salima. However, a logistic regression analysis found that in addition to HTC service provision and district, residence was also associated with treatment of water in the last two weeks when treated in combination with the other predictors i.e. living outside catchment area was associated with non-

provision of water treatment services in the past two weeks (adjusted OR=2.105, p-value=0.051) (see Table 7-6).

7.3.6 Provision of hygiene and sanitation talks

The proportions of HSAs who provided talks on hygiene and sanitation in their catchment communities in the two weeks before being interviewed disaggregated by the six characteristics of HSAs are shown in Table 7-10. The proportion of HSAs who made talks was statistically significant higher ($p<0.001$) among the HSAs who were not delivering HTC services (94.4%, 117/124) compared to their colleagues (79.0%, 94/119). Statistically significant differences ($p=0.008$) were also found when the results were disaggregated by district as 93.6% (103/110) of the HSAs in Mangochi provided talks in the last two weeks compared to 81.2% (108/133) of the HSAs in Salima.

As the results presented in Table 7-10 show, non-HIV service providers were 4.4 times (95% CI: 1.8-10.7) more likely to have made talks on hygiene and sanitation in the last two weeks than their colleagues. There were no statistically significant differences when the results were disaggregated by the type of facility where the HSAs were working ($p=0.434$) or by sex of the HSAs ($p=0.319$) or length of service ($p=0.325$) and by whether the HSAs were living in their catchment areas or not ($p=0.149$).

Table 7-10: The proportion of HSAs who provided talks on hygiene and sanitation in their catchment areas in the two weeks before being interviewed (Univariate analyses)

Characteristics of HSAs		n (%)	OR (95% CI)	p-value
Status of HTC service provision	Non-HTC providers (N=124)	117 (94.4)	4.4 (1.8-10.7)	<0.001
	HTC Providers (N=119)	94 (79.0)		
Type of health facility	District Hospital (N=59)	53 (89.2)	1.5 (0.6-3.7)	0.434
	Health Centres (N=184)	158 (85.9)		
Sex of the HSAs	Females (N=111)	99 (89.2)	1.5 (0.7-3.2)	0.319
	Males (N=132)	112 (84.8)		
Length of service	>5 years (103)	92 (89.3)	1.5 (0.7-3.2)	0.325
	0-5 years (N=140)	119 (85.0)		
Residence	Lives outside catchment area (N=120)	108 (90.0)	1.7 (0.8-3.6)	0.149
	Lives in catchment area (N=123)	103 (83.7)		
District	Mangochi (N=110)	103 (93.6)	3.4 (1.4-8.2)	0.004
	Salima (N=133)	108 (81.2)		

A logistic regression analysis also found that HIV service provision and district, both together and independently of each other, were associated with the provision of talks on hygiene and sanitation in the last two weeks. HTC service providers (adjusted OR=0.226; 95% CI: 0.093-0.553; p=0.001) and HSAs in Salima (adjusted OR=0.296;

95% CI: 0.121-0.727; p=0.008) wre less likely to have provided talks on sanitation and hygiene in their communities in the past two weeks (see Table 7-6 above).

7.3.7 Provision of family planning services

The proportions of HSAs who provided FP services in the two weeks before being interviewed disaggregated by the six characteristics of HSAs are shown in Table 11. There were no statistically significant differences in the proportions of HSAs who provided the FP services when the results were disaggregated by whether the HSAs were delivering HTC services or not (p=0.346) or type of health facility where the HSAs were working (p=0.103) and by whether the HSAs were living in their catchment areas or not (p=0.643).

Statistically significant differences (p=0.008) were found when the results were disaggregated by sex of the HSAs (p<0.001) as 58.3% (77/132) of the male HSAs had provided the FP services in the last two weeks compared to 32.4% (36/111) of the female HSAs. Statistically significant differences (p=0.008) were also found when the results were disaggregated by length of service in the health sector (p=0.002) as 58.3% (60/103) of the HSAs who had worked for more than five years had provided the FP services in the last two weeks compared to 37.9% (53/140) of the HSAs who had worked for up to five years. The finding that FP services delivery was higher among male HSAs and among HSAs who had worked for more than five years would probably be due do to the fact that HSA work, just like many cadres, has for a long time being male dominated and it is likely that older males had been trained to provide FP services hence the lower odds of FP delivery among the female HSAs (OR=0.3, 95% CI: 0.2-0.6) and among the new HSAs who had just joined the health sector in the last 1-3 years before being interviewed (OR=2.3, 95% CI: 1.4-3.9).

Table 7-11: The proportion of HSAs who provided family planning services in their catchment areas in the two weeks before being interviewed (Univariate analyses)

Characteristics of HSAs		n(%)	OR (95% CI)	p-value
Status of HTC service provision	Non-HTC providers (N=124)	54 (43.5)	0.8 (0.5-1.3)	0.346
	HTC Providers (N=119)	59 (49.6)		
Type of health facility	District Hospital (N=59)	22 (37.3)	0.6 (0.3-1.1)	0.103
	Health Centres (N=184)	91 (49.5)		
Sex of the HSAs	Females (N=111)	36 (32.4)	0.3 (0.2-0.6)	<0.001
	Males (N=132)	77(58.3)		
Length of service	>5 years (103)	60 (58.3)	2.3 (1.4-3.9)	0.002
	0-5 years (N=140)	53 (37.9)		
Residence	Lives outside catchment area (N=120)	54 (45.0)	0.9 (0.5-1.5)	0.643
	Lives in catchment area (N=123)	59 (48.0)		
District	Mangochi (N=110)	40 (36.4)	0.5 (0.3-0.8)	0.004
	Salima (N=133)	73 (54.9)		

A logistic regression analysis also found that sex of the HSAs, length of service and district, all together and independently of each other, were associated with the provision of family planning services. Male HSAs (adjusted OR=2.570; 95% CI: 1.491-4.432; p=0.001), HSAs who had worked for more than 5 years (adjusted OR=2.311; 95% CI:1.333-4.006; p=0.003) and HSAs in Salima (adjusted OR=2.33; 96% CI: 1.231-3.697; p=0.007) were more likely to have provided FP services in the past two weeks (see Table 7-6 above).

7.3.8 Supporting PLHIV/TB Groups

The proportions of HSAs who made community follow-ups with PLHIV/TB support groups in the two weeks before being interviewed disaggregated by the six characteristics of HSAs are shown in Table 7-12. The proportion of HSAs who made the follow-ups was statistically significant higher (p=0.016) among the HSAs who were delivering HTC services (26.1%, 31/119) compared to their colleagues (13.7%, 17/124). As the results presented in Table 7-12 show, non-HTC service providers were 0.5 times (95% CI: 0.234-0.869) less likely to have made follow-ups with PLHIV/TB support groups in the last two weeks than their colleagues. This is likely the case because the support groups are HIV related and the HSAs who were delivering HTC could have established links with the support groups where HIV positive people are referred for community care.

Table 7-12: The proportion of HSAs who made follow-ups with PLHIV/TB support groups in the two weeks before being interviewed (Univariate analyses)

Characteristics of HSAs		n (%)	OR (95% CI)	p-value
Status of HTC service provision	HTC Providers (N=119)	31 (26.1)	2.2 (1.2-4.3)	0.016
	Non-HTC providers (N=124)	17 (13.7)		
Type of health facility	District Hospital (N=59)	8 (13.6)	0.6 (0.2-1.3)	0.170
	Health Centres (N=184)	40 (21.7)		
Sex of the HSAs	Females (N=111)	25 (18.9)	1.1 (0.6-2.1)	0.728
	Males (N=132)	23 (20.7)		
Length of service	>5 years (103)	25 (18.9)	1.8 (1.0-3.4)	0.065
	0-5 years (N=140)	22 (15.7)		
Residence	Lives outside catchment area (N=120)	23 (19.2)	0.9 (0.5-1.7)	0.821
	Lives in catchment area (N=123)	25 (20.3)		
District	Mangochi (N=110)	32 (29.1)	3.0 (1.5-5.8)	0.001
	Salima (N=133)	16 (12.0)		

7.3.9 Dispensing drugs at heath facilities

The proportions of HSAs who assisted with dispensing drugs at their health facilities in the two weeks before being interviewed disaggregated by the six characteristics of HSAs are shown in Table 7-13. There were no statistically significant differences in the proportion of HSAs who assisted with dispensing drugs when the results were disaggregated by whether the HSAs were delivering HTC services or not (p= 0.430) or by any of the other characteristics of the HSAs (p>0.05) except when the results were disaggregated by district (p=0.046).

Table 7-13: The proportion of HSAs who assisted with dispensing drugs at their facilities in the two weeks before being interviewed (Univariate analyses)

Characteristics of HSAs		n (%)	OR (95% CI)	p-value
Status of HTC service provision	Non-HTC providers (N=124)	25 (20.2)	0.8 (0.4-1.4)	0.430
	HTC Providers (N=119)	29 (24.4)		
Type of health facility	District Hospital (N=59)	14 (23.7)	1.1 (0.6-2.2)	0.559
	Health Centres (N=184)	40 (21.7)		
Sex of the HSAs	Females (N=111)	25 (22.5)	1.0 (0.7-1.9)	0.918
	Males (N=132)	29 (22.0)		
Length of service	>5 years (103)	25 (24.3)	1.2 (0.7-2.3)	0.510
	0-5 years (N=140)	29 (20.7)		
Residence	Lives outside catchment area (N=120)	26 (21.7)	0.9 (0.5-1.7)	0.837
	Lives in catchment area (N=123)	28 (22.8)		
District	Mangochi (N=110)	18 (16.4)	0.5 (0.3-1.0)	0.046
	Salima (N=133)	36 (27.1)		

The findings presented show differences in the proportion of HSAs who assisted with dispensing drugs at their health facilities in the last two weeks between the two districts with Salima recording a higher proportion than Mangochi. As the findings suggest, assisting with dispensing drugs at health facilities was not closely associated with HIV services or not or gender of the HSAs but district suggesting that in Salima, there was more shifting of drug dispensing activities to HSAs compared to Mangochi. This would in turn also contribute to HSAs supporting the delivery of other

facility-based PHC services compared with community work as shown by the findings presented above that HSAs in Mangochi had delivered more of the community-based PHC services than their counterparts.

7.3.10 Assisting with other tasks at health facilities

The proportions of HSAs who assisted with other tasks at their health facilities in the two weeks before being interviewed disaggregated by the six characteristics of HSAs are shown in Table 7-14. The proportion of HSAs who assisted with other tasks was statistically significant higher ($p<0.001$) among the HSAs who were delivering HTC services (82.4%, 98/119) compared to their colleagues (44.4%, 55/124). Statistically significant differences ($p=0.008$) were also found when the results were disaggregated by the type of facility where the HSAs were working ($p=0.027$) with more HSAs in health centres providing assistance at their facilities than HSAs at the district hospitals and whether the HSAs were living in their catchment areas or not ($p=<0.001$). This could be partly because when HTC was initially task-shifted to the HSAs, the HSAs were supposed to work at their health centres for close monitoring by the clinicians and nurses and as such the HSAs had higher odds of assisting with other tasks at their health centres (OR=5.9, 95% CI: 3.2-10.6).

Table 7-14: The proportion of HSAs who assisted with other tasks at their health facilities in the two weeks before being interviewed (Univariate analyses)

Characteristics of HSAs		n (%)	OR (95% CI)	p-value
Status of HIV service provision	HIV Providers (N=119)	98 (82.4)	5.9 (3.2-10.6)	<0.001
	Non-HIV providers (N=124)	55 (44.4)		
Type of health facility	District Hospital (N=59)	30 (50.8)	0.5 (0.3-0.9)	0.027
	Health Centres (N=184)	123 (66.8)		
Sex of the HSAs	Females (N=111)	65 (58.6)	0.7 (0.4-1.2)	0.192
	Males (N=132)	88 (66.7)		
Length of service	>5 years (103)	62 (60.2)	0.8 (0.5-1.4)	0.443
	0-5 years (N=140)	91 (65.0)		
Residence	Lives outside catchment area (N=120)	57 (47.5)	0.3 (0.1-0.4)	<0.001
	Lives in catchment area (N=123)	96 (78.0)		
District	Mangochi (N=110)	69 (62.7)	1.0 (0.6-1.7)	0.945
	Salima (N=133)	84 (63.2)		

During data analysis, each PHC service that the HSAs delivered was assigned a value of one (1) if it was delivered or zero (0) if it was not delivered. The total number of services provided by each HSA in the past two weeks out of the possible seven services reviewed were calculated. On average HTC providers provided six of the eleven PHC services on average (median of six services) compared to six services on average (median of five services) among the non-HTC providers. Table 7-15 shows the proportion of HSAs who provided none of the PHC services and those who provided various numbers of the 11 PHC services. About 87.1% (108/124) of

the non-HTC providers had provided at least five of the seven PHC services compared to 62.2% (74/119) of the HTC providers.

Table 7-15: Proportion of HSAs who provided various numbers of PHC services disaggregated by whether they provided HTC services or not in the last two weeks before being interviewed

Number of PHC services delivered	Do you deliver HTC services?		
	Yes (n=119)	**No (n=124)**	**Total (N=243)**
	n (%)	n (%)	n (%)
0	2 (1.7)	3 (2.4)	5 (2.1)
1	1 (0.8)	2 (1.6)	3 (1.2)
2	8 (6.7)	2 (1.6)	10 (4.1)
3	11 (9.2)	1 (0.8)	12 (4.9)
4	23 (19.3)	8 (6.5)	31 (12.8)
5	23 (19.3)	19 (15.3)	42 (17.3)
6	19 (16.0)	40 (32.3)	59 (24.3)
>=7	32 (26.9)	49 (39.5)	81 (33.3)

The findings presented in this Section (Section 7.2) have shown that HSAs who were delivering HTC services had delivered less of the community PHC services in the past two weeks (before being interviewed) compared to their colleagues as both the tabular analyses and results of logistic regressions showed that 'not delivering HTC services' was a strong predictor of delivering community based PHC services. Of the eight community-based PHC services that were assessed (immunisations, village inspections, growth monitoring, village inspections, water treatment, hygiene and sanitation talks, family planning and supporting PLHA groups), HSAs who were not delivering HTC services had provided more than six of them (except family planning and supporting PLHIV groups) compared to their colleagues. On the other hand, HSAs who were delivering HTC services had provided more assistance at their

health centres than their colleagues probably because they were required to provide the HTC services within their health centres. HSAs in Mangochi who had also spent less time at their health facilities (delivering HTC services and assisting with other tasks) had also provided more community PHC services than HSAs in Salima suggesting that task shifting HTC services to HSAs was drawing the HSAs away from their core community services.

During interviews with national health managers, the PhD researcher also sought the views of the informants on the effects of shifting HIV services to the HSAs. According to one informant, a lot of attention, publicity and funding were being directed at the HIV and AIDS programme against other important diseases such as malaria:

> *"….I don't know whether it's because of the funding…..looking at the data in this country, malaria is still the number one cause of deaths……I don't know whether it's because of the publicity or what, I think, we tend to be more afraid of HIV, than the other diseases.....if there is a death there of malaria, a reporter will not write in the newspaper...if there is a death of HIV, everybody will write and everybody will want to read it……but to me, I believe a death is a death…..I am not saying that it's wrong to give those resources to HIV… what I am saying that if we are giving that much to HIV, we should give much more to malaria. That's my argument…* **(National Health Manager, Ministry of Health)**

From the findings presented above, it would appear that shifting HTC services to the HSAs had affected the delivery of PHC services at the individual HSA level and this would have an effect on the disease prevention and surveillance systems in the communities in the long run.

7.4 Time allocation to HTC and non-HIV services

The 119 HSAs delivering HTC services were also asked to estimate the proportion of their time which was being allocated to HTC services and to PHC services. On average the HSAs were allocating 43.5% of their time to HTC services (95% CI: 40-3%-46.6%) and 56.5% (95% CI: 53.4%-59.7%) to PHC services. However, HSAs in Mangochi were allocating more time to PHC services (64.1%, 95% CI: 60.4%-67.8%) compared to HSAs in Salima 52.2% (95% CI: 49.1%-55.3%). There were no statistically significant differences when the data was disaggregated by gender of the HSAs, length of service in the health sector, or type of health facility where the HSAs were working. Since an HSA is allocated to a single catchment area, the HSAs delivering more HTC services may be compromising other PHC work because they were allocating half or more of their time to HTC services, a situation which may affect the status of preventable diseases in their catchment areas in the long run. As stated above, HSAs in Mangochi provided more community based PHC services than their counterparts in Salima who spent a considerable amount of their time on HTC services and assisting with other tasks at their health facilities.

All the HSAs (n=55) who reported that they allocate half or more of their time on HTC services were asked why this was the case. The majority (90.9%, 50/55) said they were allocating more time to HTC because they were primarily recruited to provide HTC services and that they had to provide other services by default as HSAs. However, when this was cross-checked with the facility managers, the DHOs and the national informants during in-depth interviews, they refuted that there were some HSAs whose primary job was to deliver HTC services. According to these informants, the confusion may have arisen because some of the HSAs were recruited with the funding of the GF hence they consider themselves as belonging to the HIV programme. The views of these informants at the national, district and facility levels corroborate the National Health Sector Strategic Plan (2011-2016) and the National HIV Prevention Strategy and Action Plan (2009-2013) both of whom recommend the recruitment and training of multi-tasked HSAs and other community health workers to deliver a number of health behaviour promotion activities at the

community level instead of recruiting some people specific for selected tasks (MoH, 2011).

The findings presented in this Section illustrate the likely consequences of shifting HTC services on the provision of community PHC services. HSAs on task shifting had delivered less PHC services in the two weeks before being interviewed and they also reported allocating half or more of their time to HTC services. Since HSAs are allocated to a single catchment community, the findings suggest that HSAs delivering HTC services were delivering less PHC services in their catchment areas compared to HSAs who were spending more than half of their time on PHC services.

7.5 Facility level PHC service clients in 2011

Section 7.2 looked at PHC service delivery levels in the last two weeks comparing between HSAs delivering HTC services and those not delivering HIV services. The PhD researcher also collected monthly records for Pentavalent clients, client visits for family planning and HTC and the number of monthly village visits made by the HSAs in 2011. The aim of collecting these statistics was to compare monthly client volumes and monthly community visits between the HTC providers and non-providers. Differences by the five characteristics of HSAs described above namely sex residence, type of facility, length of service and district were also compared.

7.5.1 Pentavalent

The findings, presented in Table 7-16 below, showed that pentavalent clients volume was statistically significant associated with whether or not the HSA was a HTC provider or not ($p<0.001$), by type of health facility where the HSA worked ($p<0.001$) and by residential status of the HSAs ($p=0.006$). The non-HIV service providers had a median client volume of 247 (IQR[46]: 142-460) compared to a median of 103 (IQR:

[46] Inter-quartile range

57-183) among the HIV service providers suggesting higher pentavalent provision among the HSAs who were not delivering HIV services compared to their counterparts.

The differences in the pentavalent client volume between HSAs who were working at the district hospitals (median== 288 IQR: 139-552) and those who were working at the health centre (median=144;IQR: 58-227) could be attributed to differences in catchment populations as generally district hospitals serve larger populations compared to health centres. Sex of the HSAs (p=0.056), length of service (p=0.500) and district (p=0.831) had no effect on the provision of pentavalent in 2011.

Table 7-16: Pentavalent clients served by the HSAs in 2011 disaggregated by whether the HSAs were delivering HTC services or not and by other dimensions of the HSAs

Characteristics of HSAs		**N**	**Median**	**IQR**	**p***
State of HIV provision	HIV providers	109	103	57-183	<0.001
	Non-HIV providers	105	247	142-460	
Type of facility	Health centre	163	144	58-227	<0.001
	District hospital	51	288	139-552	
Sex of the HSAs	Males	110	135	58-248	0.056
	Females	104	199	74-309	
Length of Service	0-5 years	128	167	67-253	0.500
	>5 years	86	171	66-374	
Residence	In catchment	109	130	60-236	0.006
	Outside catchment	105	200	72-447	
District	Salima	125	174	60-326	0.831
	Mangochi	89	147	71-268	

* Mann-Whitney test

7.5.2 Village visits

The median annual number of village visits of 140 (IQR: 117-145) among the non-HTC service providers was statistically significant higher ($p<0.001$) compared to a median of 83 visits (IQR: 59-116) among the HTC service providers (Table 7-17) suggesting that HSAs who were delivering HTC services made fewer village visits in 2011 than their counterparts. This finding corroborates the findings on the delivery of PHC services in the last two weeks (see Section 7.2) where HSAs who were not delivering HTC services had delivered more PHC services in the last two weeks than their counterparts. HSAs who had joined the health sector in the last five years had a median annual visits of 103 visits (IQR: 73-139) compared to a median of 128 visits (IQR: 90-145) among the HSAs who had worked for more than five years. Type of facility ($p=0.564$), sex of the HSAs ($p=0.094$) and district ($p=0.449$) had no effect on the number of annual village visits that the HSAs made in 2011.

These findings therefore suggest that everything being equal, HSAs who were not delivering HTC services made more community visits in 2011 than their colleagues and this could be attributed mainly to time constraints among the HTC service providers. HSAs who had worked for less than five years made less village visits in 2011 probably because shortly after being recruited, they were sent to their communities before they were trained to provide other PHC services hence they could not do a lot of community activities.

Table 7-17: Annual community visits made in 2011 by the HSAs

Characteristics of HSAs		N	Median	IQR	p
State of HTC provision	HTC providers	108	83	59-116	<0.001
	Non-HTC providers	118	140	117-145	
Type of facility	Health centre	169	116	83-140	0.564
	District hospital	57	123	73-145	
Sex of the HSAs	Males	119	112	69-141	0.094
	Females	107	120	89-144	
Length of Service	0-5 years	132	103	73-139	0.002
	>5 years	94	128	90-145	
Residence	In catchment	115	97	66-128	<0.001
	Outside catchment	111	127	98-145	
District	Salima	128	115	70-141	0.449
	Mangochi	98	118	90-143	

* Mann-Whitney test

7.5.3 Family planning

HSAs in Mangochi had statistically significant (p<0.041) higher median FP client visits of 118 (IQR: 90-143) compared to a median of 115 client visits (IQR: 70-141) among the HSAs in Salima (Table 7-18). There were no significant differences in the median client visits when the results were disaggregated by whether the HSAs were delivering HTC services or not and by sex of the HSAs or length of service.

Table 7-18: Family planning client visits in 2011 for the HSAs

Characteristics of HSAs		N	Median	IQR	p*
State of HIV provision	HIV providers	32	144	46-271	0.806
	Non-HIV providers	21	132	51-249	
Type of facility	Health centre	44	141	57-271	0.362
	District hospital	9	131	42-221	
Sex of the HSAs	Males	39	125	43-271	0.478
	Females	14	141	88-244	
Length of Service	0-5 years	30	115	49-260	0.478
	>5 years	23	173	43-285	
Residence	In catchment	30	167	77-405	0.065
	Outside catchment	23	105	42-174	
District	Salima	41	125	43-254	0.041
	Mangochi	12	192	109-535	

* Mann-Whitney test

7.6 Views of facility and district health managers on the effects of task shifting on PHC delivery

There was wide acknowledgement among the facility and district managers that task shifting HIV services to HSAs enabled the scale-up of both HIV services and non-HIV services. In the health facilities, a lot of clients were being counselled and tested for HIV because there were physically more HSAs to do this work which eventually enabled the generation of more clients for the ART and PMTCT programmes and clients for opportunistic infections. The increased availability of HSAs in the communities also enabled the availability of non-HIV services because the new HSAs had to deliver non-HIV services as well. From what the facility and district managers said, it could be deduced that task shifting had enabled all the five characteristics of service scale-up described in Section 4.4 above in the period between 2006 and 2010.

In terms of '*programmatic'* scale-up of services (Kadiyala, 2004) the HSAs enabled the services to be delivered even in areas that are hard to reach i.e. both the HIV and non-HIV were brought to some communities and people where the services would not be available in the absence of task shifting.

> *"…shifting tasks to HSAs has helped to increase the coverage of those services…you know these HSAs live in communities and there are many of them.....task shifting has helped us to take such services to those hard to reach areas and that's very good because what it means is that women can access family planning right there, children can get simple drugs there…"***(Facility manager 2, Mangochi district)**

> *"….at the moment we see that services are going on well… the HSAs are spread everywhere…..according to the way we are performing these days, it seems that we are able to reach out to all the areas.….it is like they are the transport to capture those people who are dodging the health facility….the HSAs know each and every home in their area…..they can trace all defaulters.."***(Facility manager 2, Salima district)**

The quotation below illustrates that task shifting enabled '*quantitative'* scale-up of services (Kadiyala, 2004) because the HSAs had increased the reach of the services to large numbers of people. This was confirmed by the managers interviewed.

> *"….task shifting has brought in some effects in terms of coverage , HSAs provide HTC to a good number of people in need of the services when they come to the health centre…a lot of people have been counselled..."***(Facility manager 3, Salima district)**

In relation to '*social'* scale-up (Kadiyala, 2004) the HSAs enabled the health facilities to deliver more services that would have suffered:

"…service coverage is now wide because at the end of the day there is work done……what was supposed to be done gets done", **(Facility manager 1, Mangochi district)**

"….in terms of treating people, the coverage is good because most HSAs are based in their catchment areas and they are able to cover a large area even at their free time…", **(Facility manager 4, Mangochi district)**

Health facility managers therefore perceived that task shifting directly enabled three Characteristics of task shifting namely programmatic, quantitative and social scale-up to occur. However, it could also be added that task shifting had allowed the organisational and political characteristics of service scale-up. By allowing HSAs to deliver HTC services and assisting with other tasks at the health facilities, it means there were some positive changes in the internal management of health services at the facility levels (organisational scale-up). Although not directly related to the HIV programme, some HSAs were running village clinics and were able to make decisions on their own (through the task shifting arrangement), indicating that task shifting had enabled the political dimension of service scale-up.

All the health facility managers stressed the fact that some HSA's delivering HTC services were having difficulties with time scheduling given the many competing tasks that the HSAs have. Since HTC services were not in their original tasks, they had to accommodate these new services within their time thereby reducing the amount of time they initially were allocating to community work. In addition, by accommodating HIV services, they had consequently increased their workload:

"….in a month, two weeks are spent at the health facility delivering HTC while the other two weeks are spent on his PHC work in the community....of course this means for two weeks his community suffers because he is not available ***…"*****(Facility manager 2, Salima district)**

"…..HSAs are spending three to four days in a week in the community… they spend much of their time doing HTC work…." **(Facility Manager 5, Mangochi district)**

*"….because HSAs have been heaped or loaded with lots of other activities, their PHC work has been affected to some extent....."***(Health facility manager 5, Salima district)**

According to the district and health facility managers, HSAs delivering HTC services were spending nearly half of their time on HIV services because when task shifting had just started, the HSAs were required to travel to their health facilities where HTC was taking place so that the HSAs could be supervised by nurses and clinicians. In addition to being supervised, HTC was considered as an entry point into the ART and/or PMTCT programmes. As such, it was easy for the HSAs to refer all HIV positive HTC clients to these services for further assessment on their eligibility for enrolment on the programmes.

These findings are therefore consistent with the findings from the HSAs (presented in Section 7.3) who reported reduced time allocation to PHC services. As also presented in Section 7.2 above, the level of PHC service provision in the last two weeks was found statistically significant lower among the HSAs on task shifting compared to their counterparts. The annual client records for Pentavalent and community visits they made in 2011 were also statistically significant lower among the HSAs on task shifting compared to their counterparts. These findings all suggest the effect of HIV services on the delivery of PHC services.

During the in-depth interviews with the health managers at the facility, district and national levels, the respondents were asked to comment on the quality of services delivered by HSAs. In general, the managers were of the view that HSAs are capable of delivering some of the services to the expected standards or quality if given the necessary support and supplies:

"..... HSAs are able to carry out all the activities that have been assigned to them no matter how many tasks they have and with the little knowledge and resources at their disposal.....sometimes they even do a better job than some us clinicians....." **(Facility Manager 6, Salima district)**

"..... most of the HSAs are very good at administering HTC...sometimes they are much better than myself when it comes to administering new vaccines," **(Facility Manager 3, Mangochi district)**

"…… the quality of services provided by the HSAs is very good….and this is like that because HSAs do their work according to how they were trained….. there are only few areas where the HSAs do have problems…and in such cases, they come to ask from me on what to do…" **–(Facility Manager 4, Salima district)**

However, erratic supplies, lack of supervision and workload was said to be affecting the work of HSAs. Furthermore, HSAs delivering HTC services had to reduce their time allocation to PHC services. The combination of additional workload (resulting from the new HTC clients) and the difficulties with time scheduling for the competing tasks had increased pressure on the affected HSAs and this was seen as compromising the quality of both PHC and HIV services:

*".....HSAs have been loaded with lots of other activities.....I see that their PHC work has been affected to some extent ....these numerous activities they are carrying now has caused them to have less time spent per activity as compared to the past...*and *so this has affected service quality..."***(Facility manager 5, Salima district)**

*"….it is difficult for the other services to be provided as is expected because the HSAs have much work to do..... in addition, HSAs are weak in decision-making whereby sometimes they are not able to decide on whether the client should be seen by a nurse or a medical assistant"***(Facility Manager 5, Mangochi district)**

While acknowledging that HSAs have been used to delivering good services and that they will continue to be the pillar of service delivery in hard to reach areas, one national informant cautioned against the over-reliance on the HSAs since some of them may consider themselves as the end-point of health care delivery and may not see the need to refer some of their clients:

*"....we should avoid making the HSA as another referral central hospital by giving everything to them including treatment of illnesses....this is so because HSAs sometimes feel they are everything when it comes to community treatment and may not be referring children and women for proper care at health centres...."***(National Health Manager, Ministry of Health Lilongwe).**

7.7 Summary

The findings presented in Section 7.5 have shown that 'delivery of HTC services' was associated with less delivery of immunisations (Pentavalent) and the annual village visits in 2011 but less effect on FP. These findings correspond well with the findings presented in Section 7.2 (results of Univariate analyses and multiple logistic regressions for PHC services delivered in the last two weeks) and they also correspond to Section 7.3 (time allocation to HTC and non-HTC services among the HTC providers) suggesting that task shifting HTC services to HSAs resulted in reduced delivery of community PHC services.

The findings presented in this Chapter also suggest that through task shifting, both HTC and PHC scaled up in the period 2006-2009 before decreasing in 2010 mainly

because of health system challenges. HTC services were taken to most rural health centres and communities where without task shifting, they would not have reached (programmatic scale-up) and the addition of ~7,000 HSAs to assist with HTC service scale-up enabled more people to access the services and the additional HSAs also assisted in the delivery of other PHC services (quantitative scale-up). Furthermore, the findings suggest that task shifting had also enabled social and organisational service scale-up in the facilities as well as in the political scale-up through enabling the health facilities to increase their capacity for the delivery of both HTC and PHC services by the additional HSAs.

While the findings suggest that task shifting had resulted in service scale-up for both HTC and PHC services this was only and mainly at the facility and district levels. At the HSA level, the findings however showed that task shifting HTC services to them had resulted in increased workload which had consequently resulted in reducing the time allocated to their mainstream PHC community work thereby delivering less of the PHC services than before task shifting was introduced. The findings show that HSAs who were delivering HTC services had delivered less of the community PHC services compared to their colleagues as both the tabular analyses and results of multiple logistic regressions showed that 'not delivering HTC services' was a strong predictor of delivering community based PHC services. Of the eight community-based PHC services that were assessed (immunisations, village inspections, growth monitoring, village inspections, water treatment, hygiene and sanitation talks, family planning and supporting PLHA groups), HSAs who were not delivering HTC services had significantly provided more of six of them (except family planning and supporting PLHIV groups) compared to their colleagues. On the other hand, HSAs who were delivering HTC services had provided more assistance at their health centres than their colleagues probably because they were required to provide the HTC services within their health centres. Since HSAs are allocated to a single catchment community, the findings suggest that HSAs delivering HTC services are delivering less PHC services in their catchment areas compared to HSAs who are spending more than half of their time on PHC services.

The finding that task shifting HTC services to HSAs (and the additional 7,000 HSAs recruited to assist with the HIV scale-up programme) resulted in service scale-up corroborates what most studies have reported. Published research indicates that task shifting contributes significantly to service scale-up ((Brugha et al, 2010) and that the new service providers are able to provide the new services mostly to the same level of quality or even better if properly trained, supervised and remunerated (Morris, Chapula et al. 2009; (Ivers et al, 2011); (Decroo T. et al, 2012). However, the findings from this study point to the fact that task shifting HIV services to a cadre (HSAs) that had its own mainstream community PHC work led those HSAs to deliver less of their mainstream activities because of increased workload and competing demands. The scaling up of both HIV and PHC services in the period 2006-2009 reported from this study was therefore only possible because of the additional 7,000 HSAs who had increased coverage and reach in the communities.

8 TASK SHIFTING AND WORKLOAD

8.1 Introduction

As stated above (Sections 2.5-2.7), the government of Malawi started task shifting to scale-up HIV and other services in the country as a measure to mitigate the health worker shortfalls the country was facing (MoH, 2007; MoHP, 2004) and continues to face (GoM & MoH, 2011). It was envisaged that by shifting HTC and other health care services to HSAs, the workload among nurses and clinicians would be reduced while at the same time the country would be able to scale-up the services to the rural and other underserved communities (GoM, 2004c).

One of the objectives of this study was to assess the consequences of shifting HTC services to HSAs on their workload. As stated above (Section 1.4), the PhD researcher was involved in another study that was conducted between 2006 and 2008 on the sector-wide effects of the global health initiatives on health service delivery in Malawi. Findings from that study showed that the introduction of comprehensive HIV and AIDS programmes[47] overstretched service delivery as health facilities received a lot of clients that the facilities were failing to manage (Mwapasa & Kadzandira, 2009).

There are different measures that are used to estimate workload among health workers (see Section 4.6.1 above for more discussion on this). In this Thesis, the PhD researcher used the 'service utilisation method' (Ridoutt & Wise, 2005) and the personnel-to-population (Walsh A. et al, 2010) to estimate workload among the HSAs. The service utilisation method provides a more direct measure of the actual workload among the health workers as it compares the numbers of clients physically

[47]Initially, most health centres had no HIV and AIDS programme at all until 2006/7 when some started providing HTC services only but uptake was slow. When ART and PMTCT services were introduced, a lot of clients started going to access HTC services because treatment had become available (Mwapasa and Kadzandira 2009).

seen at a health facility against the existing staff levels whereas the personnel-to-population method provides estimates of potential workload and is usually used to estimate and/or to project future health worker requirements. The next section presents aggregate health worker trends for the eight facilities that were visited in the two districts for the period 2006-2010 and the other sections present workload trends among the health workers.

8.2 Staffing levels in the health facilities (2006-2010)

The two district hospitals (Salima and Mangochi hospitals) had 16 clinicians on average in 2006. These dropped to 14 clinicians in 2007 before increasing to 21 in 2008 and to 24 clinicians thereafter (Table 8-1). On the other hand, average nurse numbers also dropped from 74 in 2006 to 55 in 2007 and rose again between 2008 and 2010 to 73 nurses. The number of HSAs more than doubled (21 to 56) between 2006 and 2007, probably because of the additional HSAs that the Government recruited with the funding support from the GF. The situation in the health centres was different from the district hospitals. While clinician and nurse numbers firstly dropped between 2006 and 2007 and thereafter rose in the two district hospitals, the average clinician and nurse numbers in the health centres remained fairly constant. The health centres had two clinicians on average in 2006 and the situation remained the same in 2010 even though in 2007 and 2009 the averages changed slightly to three clinicians. Nurse numbers ranged from 5 to 7 in the period 2006-2010. On the other hand, HSA numbers rose 1.6 times from 20 HSAs in 2006 to 32 HSAs in 2007 and the numbers stabilised thereafter.

Table 8-1: Numbers and population density of health workers by category disaggregated by type of health facility, 2006-2010

	HTC Clients	2006	2007	2008	2009	2010
Population**	District hospitals (n=2)	529154	544577	567500	573565	599628
	Health centres (n=6)	24874	25627	27922	28765	29633
	Total (N=8)	603776	621459	651266	659860	688527
Health workers						
Clinicians	District hospitals (n=2)	16	14	21	24	24
	Health centres (n=6)	2	3	2	3	2
	Total (N=8)	6	6	7	8	8
Nurses	District hospitals (n=2)	74	55	66	76	73
	Health centres (n=6)	7	5	5	7	6
	Total (N=8)	24	17	20	24	23
HSAs	District hospitals (n=2)	21	56	50	56	54
	Health centres (n=6)	20	24	24	24	23
	Total (N=8)	20	32	30	32	31
Health workers per 10,000 population						
Clinicians	District hospitals (n=2)	0.293	0.257	0.370	0.418	0.400
	Health centres (n=6)	0.872	1.104	0.777	0.869	0.786
	Total (N=8)	0.091	0.091	0.106	0.119	0.113
Nurses	District hospitals (n=2)	1.389	1.001	1.163	1.316	1.209
	Health centres (n=6)	2.883	1.822	1.730	2.260	2.082
	Total (N=8)	0.393	0.276	0.309	0.360	0.330
HSAs	District hospitals (n=2)	0.397	1.028	0.872	0.968	0.901
	Health centres (n=6)	8.109	9.299	8.534	8.170	7.762
	Total (N=8)	0.338	0.513	0.464	0.477	0.447

** The catchment population for District hospitals includes catchment population for all the other facilities in the district because they act as referral facilities for these facilities although they serve the population at the district headquarters as their primary heat care facilities

8.3 Workload estimates: the personnel-to-population estimates

Table 8-1 and Figure 16 shows the health worker numbers per 10,000 population using population estimates that were provided by the health facility managers. Only three health worker cadres (clinicians, nurses and HSAs) were considered in this study because of their relevance to the objectives of the study (task shifting of HTC

from clinicians and nurses to HSAs). The health centres had clinician-to-population ratio of 0.872:10,000 in 2006. This rose to 1.104 clinicians per 10,000 inhabitants in 2007 before dropping to 0.777 clinicians per 10,000 inhabitants in 2008. The nurse-to-population estimate in 2006 in health centres was 2.883 nurses per 10,000 people and this dropped to 1.822 nurses per 10,000 people in 2007 before rising again between 2008 and 2010.

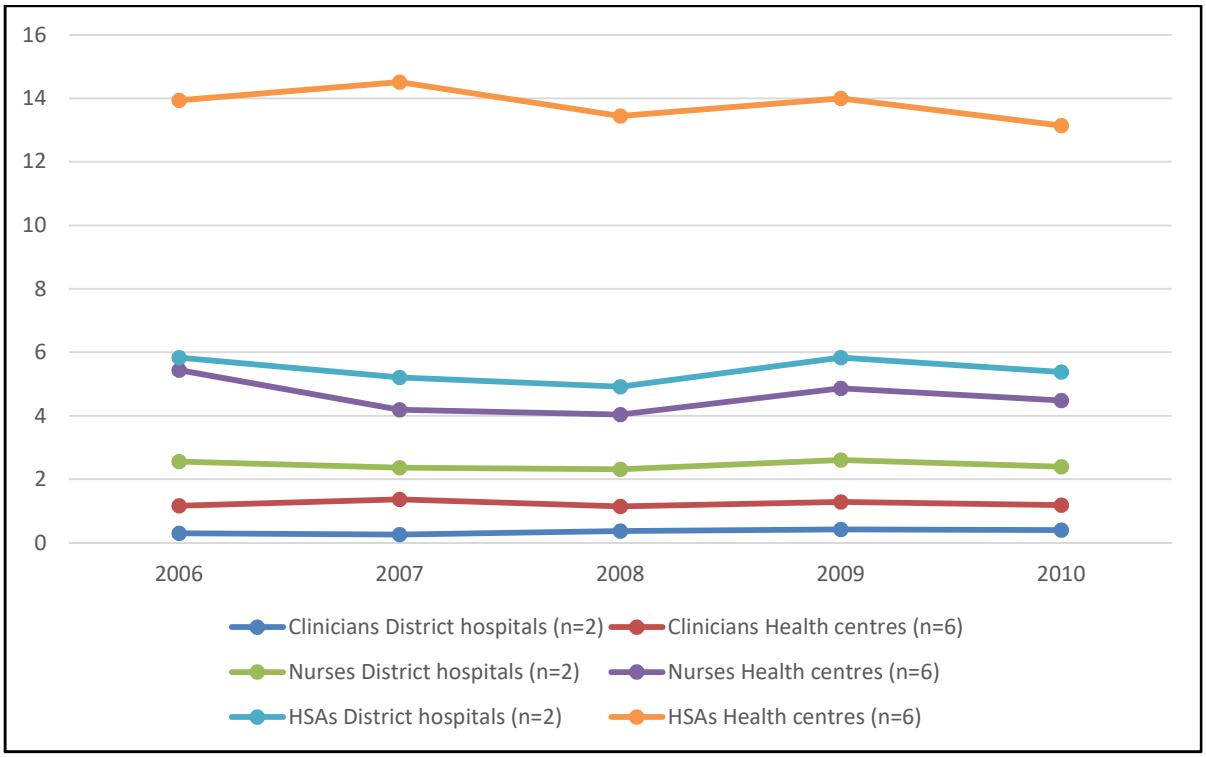


Figure 8-1: Health worker per 10,000 population 2006-2010 in the 8 health facilities

There were 8.1 HSAs for every 10,000 inhabitants on average in the catchment areas of the health centres in 2006 compared to 7.8 HSAs per 10,000 inhabitants in 2010, the reduction largely because of population increases while HSA numbers remained fairly constant in the period. While these statistics are better than the national estimates derived in 2007 of 4.4 HSAs per 10,000 people on average, they are still lower than the levels recommended by the WHO of 2.28 professional health workers per 1,000 population (WHO, 2006) and for the effective heath care delivery the EHP planned by the government of Malawi (GoM, 2004a). Furthermore, as stated in Section 2.10, HSAs are supposed to serve a population of 1,000 inhabitants

for effective delivery of community PHC activities. Therefore, the 1,233 inhabitants per HSA in 2006 and 1,288 inhabitants per HSA in 2010 were higher than the recommended thresholds for the implementation of the EHP. This suggests that even with the 7,000 additional HSAs who were recruited in 2007 there was still a need to recruit more HSAs in order to meet the EHP HSA threshold.

8.4 Workload trends between 2006 and 2010

Table 8-2 shows average clients for Pentavalent and client visits for FP and HTC services per HSA using service statistics that were provided by the health facility managers. The workload estimates in this Section have been presented only for the HSAs because they are the main providers of the three services. As would be observed, there was a minor drop in the average clients for Pentavalent from 59 to 51 clients among the HSAs in the health centres between 2006 and 2007 compared to the district hospitals whose average dropped from 112 to 40 clients. The drops in the average clients in the district hospitals and health centres was largely because of the huge rise in the HSA numbers in the facilities between 2006 and 2007 and the introduction of community clinics which meant that most of the immunisations were being done in the communities. On the other hand, average client visits for FP and HTC for HSAs in health centres generally went up between 2007 and 2009 and dropped in 2010 whereas for the HSAs in the district hospitals the figures continued to rise with the exception of 2008 when there was a slight drop in HTC client visits. The drops in 2010 in the health centres could be attributed to the general drug stock-outs outs that Malawi experienced after 2009 when Malawi health facilities were hit the most by the shortage (GoM, 2011c).

Table 8-2: Average client visits for Pentavalent, FP and HTC per HSA disaggregated by type of health facility, 2006-2010

		2006	2007	2008	2009	2010
Pentavalent Clients	District hospitals (n=2)	2361	2232	2390	3030	2658
	Health centres (n=6)	1194	1225	1305	1273	1196
	Total (N=8)	1486	1477	1576	1712	1562
Pentavalent clients per HSA	District hospitals (n=2)	112	40	48	55	49
	Health centres (n=6)	59	51	55	54	52
	Total (N=8)	73	46	52	54	51
FP Clients						
	District hospitals (n=2)	7304	8568	6584	9555	11333
	Health centres (n=6)	2643	2833	2880	3289	2887
	Total (N=8)	2565	2590	2971	3774	3681
FP Clients per HSA	District hospitals (n=2)	348	153	133	172	210
	Health centres (n=6)	131	119	121	140	126
	Total (N=8)	126	81	98	120	120
HTC Clients	District hospitals (n=2)	4318	6150	7455	6937	9064
	Health centres (n=6)	0	1005	2386	2554	1863
	Total (N=8)	1080	2291	3654	3649	3663
HTC clients per HSA	District hospitals (n=2)	206	110	151	125	168
	Health centres (n=6)	0	42	100	109	81
	Total (N=8)	53	72	121	116	119

The findings presented in Table 8-2 illustrate that workload among the HSAs either increased or remained constant during the period 2007-2010 after it dropped quite significantly from the 2006 levels mainly due to the additional HSAs who were recruited with funding from the GF. Apart from the additional HSAs who were recruited in 2007 which led to some reductions in the HSA to population ratios between 2006 and 2007, there was increasing ratios afterwards mainly resulting from population increases and the introduction of ART services which attracted many clients in order to access treatment (Mwapasa & Kadzandira, 2009).

8.5 Monthly workload trends for the HSAs in 2011

As stated above, all HSAs were asked to provide monthly data for pentavalent clients and client visits for FP and HTC (if they were providing the service) and the number of community visits which they made in 2011. The findings on this are presented in Table 8-3. Pentavalent client numbers ranged from 22 to 30 among the HSAs who were delivering HTC services with most months registering between 26 and 30 clients while among the HSAs who were not delivering HTC services, pentavalent clients ranged from 28 to 34 with some months registering around 30 clients. As such, the findings suggest that based on PHC service provision alone, the workload among both groups of HSAs, measured by client episodes per HSA across the year, was somehow similar but slightly higher among the HSAs who were not delivering HTC services. However, when HTC client visits were included in the analysis the findings showed that HSAs who were delivering HTC had double the workload than their counterparts. This finding suggests that HTC service provision had increased workload among the HSAs who were providing the service and corroborates what other studies on HSAs have found in Malawi that HIV service provision led to increased workload among the HSAs (Kok & Muula, 2013; Smith et al, 2014). These studies have also reported increased dissatisfaction among the HSAs with increased workload without any form of additional incentives. The finding that task shifting HIV services had increased the workload among the HSAs was also corroborated during the in-depth interviews with the facility managers as presented below.

Table 8-3: Monthly workload trends for the HSAs in 2011

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
HIV Providers												
Pentavalent	28	26	30	29	27	25	24	24	22	26	30	26
Community visits	10	10	10	10	9	9	9	9	9	9	9	9
FP	5	6	4	5	4	6	6	5	6	6	7	5
Total excluding HTC	**43**	**42**	**44**	**44**	**40**	**40**	**39**	**38**	**37**	**41**	**46**	**40**
HTC	51	47	55	49	52	62	55	60	56	51	54	56
Total including HTC	**94**	**89**	**99**	**93**	**92**	**102**	**94**	**98**	**93**	**92**	**100**	**96**
Non-HIV Providers												
Pentavalent	34	32	31	35	31	29	31	30	29	32	31	28
Community visits	10	9	10	9	10	10	10	9	10	10	10	10
FP	6	7	3	4	7	8	6	7	7	8	8	9
Total	**50**	**48**	**44**	**48**	**48**	**47**	**47**	**46**	**46**	**50**	**49**	**47**

8.6 Views and perceptions of the health managers on workload

The health managers at the facility, district and national levels were also asked to comment on the workload for nurses and clinicians after HTC services were delegated to HSAs and/or to other lower cares. Generally, there were mixed feelings on this issue with some of the facility managers saying task shifting HTC services had reduced workload for the nurses and clinicians while the others saying either workload did not change or increased because of the need to provide ART and other related services. The quotations below illustrate the sentiments around task shifting and workload:

"…things have been going on well because we are relieved instead of having all the tasks performed by us alone….." **(Health facility manager 1, Salima district)**

"…as they are taking some tasks on top of their original tasks, they are lessening the workload for the medical assistants as well as nurses……. they are also lessening the health problems in their catchment areas by providing preventive measures through community education as a result the number of people visiting the health centre is being controlled……", **(Health facility manager 4, Salima district)**

Some facility managers were of the view that task shifting (whether for HIV or other services) did not result in reduced workload for the nurses and clinicians because there were even more people coming for other services including ART:

*"….I see that workload is still there because like this time I am here, it means the women who have come for the antenatal clinic are waiting for me. When I go there to provide antenatal clinic services the people who have come here will be waiting for me…."***(Health facility manager 5, Salima district)**

*"…..even though there are some tasks that have been shifted to other people, clinicians still have a heavy workload….. because among others, they are supposed to screen each and every client that comes at the health centre for treatment…"***(Health facility manager 2, Mangochi district)**

"….despite shifting other tasks to the HSAs, workload for the only clinician here has not changed……there are always many patients to be attended by one person……" **(Health facility manager 3, Mangochi district)**

From the findings presented above, it would appear that task shifting brought temporal relief to the nurses and clinicians regarding their workload. Since the HSAs mobilized and tested large numbers of the people, a lot of new clients for ART, PMTCT and opportunistic infections were generated which required the services of the nurses and clinicians. Consequently, the workload for the nurses and clinicians also increased. This finding supports what was reported from a study that was conducted to assess the sector wide-effects of the Global Health Initiatives on service delivery in Malawi and Zambia where the successes in mobilising large numbers of HTC clients turned out to be a burden on the health workers themselves through the increased clients for ART and PMTCT services (Mwapasa & Kadzandira, 2009; Walsh A. et al, 2010). Before the large scale-up process began, stigma levels were very high and many people who could have accessed treatment for HIV and opportunistic infections did not get tested or treated. Task shifting led to reduced stigma through the various mobilisation activities. The availability of services such as ART, PMTCT and nutrition supplementation also attracted people to come and test for HIV consequently resulting in increased workload for the HSAs, the nurses and clinicians (GoM, 2011c).

8.7 Summary

The findings presented in this Chapter suggest that task shifting led to increases in workload for the eight health facilities in the PhD research. Between 2006 and 2010, there were modest increases in the health worker numbers in the eight health facilities but service clients for both HTC and PHC increased. At the district hospitals numbers of clinicians and nurses initially increased between 2006 and 2007 and dropped thereafter mainly due to transfers and opening up of new clinics. In the health centres, clinician and nurse numbers remained fairly the same and most the

HCs had 1-2 clinicians and 1-2 nurses. In both the district hospitals and HCs, HSA numbers increased between 2007 and 2008 mainly because of the additional 7000 HSAs that the government of Malawi recruited with the support of the GF.

The workload for the HSAs remained fairly constant or increased in the period 2006 to 2010 mainly because of massive community mobilisation which was led by the HSAs themselves and other players (including volunteers and local chiefs). A lot of people were attracted to go and test for HIV consequently increasing the workload of the HSAs. These findings on increased workload corroborate what the SWEF study reported from a study that was conducted to assess the sector-wide effects of GHI's on the Malawi health system (Mwapasa & Kadzandira, 2009). From this study, it was reported that when HTC was scaled-up to the rural communities, a lot of clients were generated for the HTC service which they could access in their own communities or at the clinics and in turn a lot of clients were also generated for the PMTCT and ART clinics thereby also increasing the work for the nurses and clinicians.

A review of monthly records for Pentavalent, HTC and FP for 2011, showed that HTC providers had almost equal workload as the non-HTC providers but clients for HTC were added, the workload for the HTC providers doubled implying that HTC providers had more work than the non-providers. The findings also suggest that HTC providers made fewer community visits in 2011 compared to their colleagues, probably reflecting on their lower provision of PHC services as presented in Section 7.4.2.

9 DISCUSSION AND CONCLUSION

9.1 Introduction

This PhD research examined the consequences of task shifting HTC services on the Health Surveillance Assistants and their main stream community PHC work. As stated in Sections 1.2 and 5.1, the study was conducted in order to assess and describe task shifting models taking place in Malawi's hospitals and health centres; to assess and describe client trends for HTC services and some selected PHC services between 2006 and 2010 and to assess and describe the consequences of shifting HTC services to HSAs on their mainstream community PHC services, their motivation and job satisfaction. In this Chapter the PhD Researcher discusses the findings presented in this thesis in line with these objectives and the conceptual framework presented in Section 5.3. The PhD Researcher also compares and contrasts the findings from this research with the published literature and highlights the contribution of the research to the understanding of task shifting and service delivery. In particular, the researcher highlights the importance of the findings from this research on the policy relevance in Malawi and elsewhere.

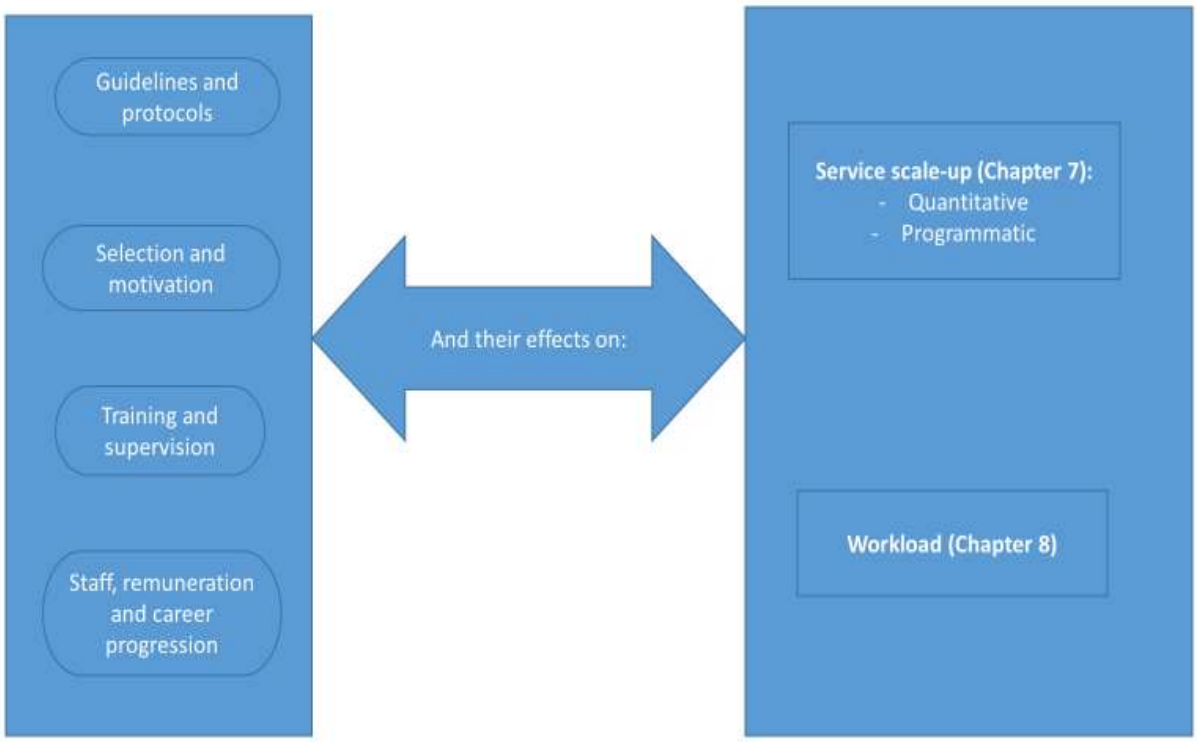


Figure 4-3: Conceptual model for the PhD research (Reproduced)

9.2 The status of task shifting in the Malawi Health Sector

9.2.1 Availability of guidelines and standardized protocols

As discussed in Sections 4.2.1 and 4.4, the presence of guidelines and protocols on task shifting is necessary to guide frontline health workers and managers in delivering and quality-assuring essential services. However, as the findings presented in this thesis suggest, there were no guidelines or protocols that defined task shifting arrangements for the HIV service scale-up programme in the period 2007-2012 when data collection for this PhD research was conducted. While facility managers reported that the absence of guidelines had little or no effect on the task shifting arrangements and service scale-up at the facility level (see Section 6.1), the task shifting programme in Malawi fell short of some of the recommendations for implementing task shifting programmes made by WHO (2008) and Hermann and Vane Damme et al (2009) presented in Sections 4.2.1 and 4.4, respectively. According to some of the national and district respondents in this PhD research, the

speed at which HIV services were planned to be scaled up did not allow for time to draft, debate and agree on the task shifting policies and guidelines. Therefore, the MoH, supported by external stakeholders decided to roll-out the scaled-up programme, with drafting of guidelines and protocols in the course of implementation (Palmer D. 2006).

As recommended by the WHO, any programme on task shifting needs proper regulation, coordination and consultation among different stakeholders in order to enhance the buy-in and participation of the various stakeholders (WHO 2008) because team work is essential when involving a country-specific cadre in a new CHW programme, as in the case of HSAs in Malawi. As stated above (Section 4.3), some studies have reported task shifting programmes which have led to confusion and role conflicts in the delivery of health services, eventually leading to frustration among the health workers (Yakam & Gruénais, 2009). There have also been reports of animosity between the new cadres and the old cadres who view task shifting as a threat to their professionalism and international competition (Kober & Van Damme, 2004), (Patterson et al, 2007). However, according to the HSAs and the managers who were interviewed in this PhD research at the facility and district levels, task shifting of HTC services did not precipitate tensions or confusion among the health workers. As suggested by one facility manager in Mangochi (see Section 6.1), the success of the task shifting arrangement for HTC was largely reliant on the reassignment of tasks to HSAs, as had previously taken place in Malawi for other programmes.

As stated above (Section 2.8), task shifting in Malawi could be traced back to the 1960's when the government started training non-physician clinicians (clinical officers and medical assistants) after noticing the slow pace in graduating medical doctors who were by then only being trained outside the country (WHO & GHWA, 2008). In the same period, a new cadre of non-medical staff was also introduced to deal with an outbreak of smallpox as smallpox vaccinators, a title which was later changed to cholera assistants to deal with another outbreak of cholera in the 1970's (see Section 2.10.1) which was later turned into the position of HSAs in mid-1980s (MoH, 2004a;

2012; Namilaza, 1998). Over the years, the work of HSAs has broadened beyond their original community work with new tasks being shifted to them or new services being introduced by the government and non-governmental organisations (Chitimbe, 1998; Gilroy K.E. et al, 2012; Kadzandira & Chilowa, 2001).

This historical evolution of the work of HSAs, with the assignment of new tasks to HSAs as new health challenges and needs emerged, is likely to have facilitated the task shifting of HTC services to HSAs. It is also likely to have contributed to there being little resistance from clinicians and nurses who had previously been the providers of these services, which were non-technical and were contributing to a major increase in their workload (Mwapasa & Kadzandira, 2009). As the findings presented in this thesis (Section 6.1) suggest, there were no guidelines or protocols on HTC task shifting and on the roles and relationships between HSAs and the nurses and clinicians (clinical officers and medical assistants) who had previously being delivering these services in the period 2006-2010; and the first guidelines were only drafted and operationalised in 2014 (GoM 2015). None of the health facility managers reported being trained or oriented on how to handle conflicting roles in their facilities, if they were to arise; however, none expressed frustration with the arrangement. The most likely reason for this fairly seamless task-shifting transition is Malawi's long history of task shifting.

As the findings from this PhD research suggest, task shifting in the Malawi health sector is often done informally, with decisions being made within health facilities; and sometimes through national programmes such as the scale-up of HTC services through the use of HSAs. From the interviews which were conducted with the health managers at the facility, district and national levels and with the HSAs themselves, it was clear that task shifting and task sharing in the eight facilities that were researched for this thesis were effective ways of increasing health care coverage, sometimes taking place informally or as temporary arrangements, as needs arose locally, and sometimes formally. Even though there was some ambiguity and uncertainty in the meaning of 'task shifting' as a 'concept' (mainly due to linguistic issues) among the health facility managers who were interviewed in this PhD

research, the practice of shifting tasks across cadres was widely recognised by both the managers and health workers.

There was, however, good knowledge about task shifting as a concept among the managers who were interviewed at the district and national levels, who were more aware of the new national task-shifting programme for scaling-up HTC, in contrast to the facility level managers suggesting differential level of access to information. The ambiguity in the meaning of task shifting (while being practiced) could be a strong indicator of the intuitiveness of task shifting arrangements in the Malawi Health Sector and that task shifting is strongly embedded in the health sector as the 'norm'. As stated above (Section 2.10.1), task shifting services to HSAs has a long history, since they were formally recognised in the structures of the Ministry of Health, and their job description keeps evolving and also expanding over time (GoM 2004) and task shifting has not been limited to HSAs only. As also stated above (Section 2.8), the health service delivery in Malawi has relied heavily on the backbone of task shifting since the 1960's when the government decided to start training non-physician clinicians (clinical officers and medical assistants) (WHO & GHWA, 2008).

The findings from interviews with the national, district and facility health managers point to the fact that task shifting is an accepted health care delivery model in Malawi especially considering that most rural health facilities (and even those in urban areas) are grossly understaffed and there are a lot of skills-mix gaps for the provision of adequate care (GoM 2015). The 2011-2016 HSSP has also placed strong emphasis on the use of task shifting as well as promotion of hygiene and prevention of diseases through the use of HSAs (GoM 2015). According some of the health managers who were interviewed in this PhD research at the district and facility levels, they have been able to deal with some of the health problems in their areas because of task shifting some services to HSAs; and they also indicated that some of these new essential services, such as HTC, could not have been expanded to rural areas through clinicians and nurses only. The findings from this research suggest that two main forms of task shifting are taking place in the Malawi health sector

which have also been reported in other parts of sub-Saharan Africa (see Mijovi H. et al 2016):

1. **Informal task shifting** – in the health facilities where health facility managers were interviewed as part of this PhD research, the respondents described situations where decisions to shift tasks to certain cadres, either of the same rank (as in task delegation or task sharing) or to lower cadres (as in task shifting), are made at the local facility or hospital department level. According to information collected from this PhD research (see Section 6.1), some lower cadres also volunteer themselves to assist their senior health workers with such tasks as wound dressing, drug dispensing and taking anthropometric and blood pressure measurements. Over time, the lower cadres reportedly acquire some experience and the tasks may become regularised as their own. These new cadres sometimes also feel like they are progressing in their jobs even if they don't get any additional remuneration for the new tasks. According to some of the respondents who were interviewed in this PhD research, lower level staff (HSAs, but also aids, cleaners and porters who take on such roles) feel appreciated in their new roles and they consider themselves more a part of the wider health care delivery system. In this type of task shifting, there is no formal training apart from observations or on the job orientation and no formal guidelines to guide the new service providers. This finding from this PhD research is also corroborated by other studies on the feelings and experiences of HSAs in two other districts of Malawi namely Mwanza (Kok & Muula, 2013) and Zomba (Smith et al, 2014) and in some countries in sub-Saharan Africa (Mijovic H. et al 2016). These studies report that by being allocated tasks that were previously being delivered by senior cadres such as nurses and clinicians, the community health workers (HSAs in Malawi) feel happy as they see themselves to be progressing in their jobs albeit the fact that they may not be getting any additional remuneration.

2. **Formal/sanctioned task shifting:** the HIV programme is an example of a sanctioned task shifting arrangement where the new cadres are expected to be

trained or oriented first before taking up the new roles. The new cadres are also supposed to be provided with protocols and guidelines to assist with their new roles. As presented in Section 6.3.1, not all the HSAs who were interviewed in this research had received their initial HSA training when they were being deployed to their catchment areas to assist with the scaling up of the HIV programme and to deliver the community PHC interventions contained in the mainstream job description of HSAs. Only 24% of the HSAs who had worked for 0-5 years (probably recruited with GF funding) and 44% of the HSAs who had worked for more than five years reported having received the basic HSA training before deployment (see Table 6-5 in Section 6.3.1). There were no statistically significant differences when the results were disaggregated by whether the HSAs were delivering HTC or not and also when disaggregated by district, type of facility and sex of the HSAs. However, at least all the HSAs who were providing HTC services had received the required training on HTC provision.

Similar findings that some HSAs were deployed to their catchment areas before receiving the basic training were also reported in Mwanza district where only 44% reported receiving the training (Kok & Muula, 2013) and in Zomba district where 90% reported having received the training (Smith et al, 2014). These findings suggest a model of task shifting that took place in the eight health facilities where some training (HTC) took place for all HSAs on task shifting and yet some of them did not received the basic HSA training. By providing the basic HTC training to the HSAs on task shifting, the HTC scale-up programme attempted to meet some of the WHO recommendations and the 8-point framework on institutionalising task shifting presented in Sections 4.2.1 and 4.4 above, respectively. Generalising from the findings in these eight facilities, the interviews of district and national managers, and the findings from other recently published studies, it would appear that the shifting of HTC to HSAs seems to have been successfully assimilated in the Malawi health sector. Likely reasons for this success are the historical presence of task shifting, either informally or programmed, so that when HSAs started taking up or assisting with HIV services, the nurses and clinicians had few problems with the changing

roles. As the findings presented in Section 6.2.3 suggest, some of the HSAs reported enjoying HTC service delivery, a service that was previously restricted to higher level cadres and they felt better to be serving and saving life.

9.2.2 Selection and motivation

While task shifting for HIV service delivery seems to have been successfully operationalised in the Malawi health sector, there was some divergence from the eight fundamental pre-requisites that determine the successful implementation of task shifting programmes described in Section 4.4 above (Hermann et al, 2009) because of the manner in which the HSAs on task shifting were selected. The HSAs were just informed of the training, and later on, were assigned HTC duties, without firstly assessing their willingness to take on new tasks and without assessing their expectations once they take up the new tasks. More than three quarters (81.5%, 97/119) of the HSAs who were providing HTC were simply instructed to go for training by their facility managers on instruction from the District Health Offices (Section 6.2.3).

Both the WHO (WHO 2008) and Hemann and Van Damme et al (2009) recommend that programme managers need to consider the needs and motivation of the new cadres when designing task shifting programmes, so as to ensure their sustainability. It has been reported in a task shifting programme of neonatal nurseries in Nairobi, Kenya, that when staff motivation and remuneration were not considered for the new nursing cadres who were assigned to the mothers but without additional pay, there was resentment among the nurses (see Mijovic H. e al 2016). In this PhD research, when the HSAs were asked about job preference between providing HIV and non-HIV services, 33% (80/243) of the HSAs said they would prefer providing more of non-HIV services than HIV services (Section 6.2.4), including 32% of the HTC providers and 34% of the non-HTC providers (Table 6-4). There were no statistically significant differences when the results regarding preferences over delivering PHC or HIV services were disaggregated by gender of the HSAs, length of service or by

district where they were interviewed (p>0.05). The majority of the HSAs who said they preferred PHC services over HTC cited distance to their health centres as the main reason, mainly because when task shifting was just starting they were required to provide HTC in clinic settings for ease of supervision by the clinicians and nurses. This suggests that at the time of assigning HTC to these HSAs, the appointing authorities may have not considered their motivation, or the constraints that they would later experience around transport to work sites (see Section 6.4.3.2) which impacted on their PHC work – see later. According to Hemann and Van Damme et al (2009) the non-consideration of people's motivation in task shifting programmes has implications on the sustainability of the services, especially if those new services are not bringing new and/or additional incentives. Some studies have also reported the emergence mistrust from the HSAs and community volunteers towards health managers for non-payment which leads to demotivation and hampered performance (Chikaphupha, Namakhoma et al 2016).

What emerged from this PhD research, in addition, is in the importance of informal task shifting arrangements which were common in these facilities. The health facility managers or departmental heads have their own criteria for allocating tasks to staff including personal characteristics, the trust they have in the staff and the recognition of the amount of work that the new staff had taken on in their departments (see Section 6.2.3). Along with formal criteria that are part of new national programmes, there are likely to be informal criteria applied by managers locally, which take into account the motivation, skill level and willingness of the staff who work with them. This is a particular feature of informal task shifting, whereas as with the formal task shifting, managers were simply instructed on what services were being shifted and to what type of cadre.

The findings from this PhD research also showed that a statistically significant (p=0.03) higher proportion of HSAs working in HCs 49% (90/184) had taken on task shifting, compared to their colleagues working at the district hospitals (34%, 20/59). Higher levels of task shifting taking place in HCs is likely because most health centres in Malawi are generally understaffed (see Section 3.2.8 above). In an earlier

study by the PhD candidate, only 9% of the 553 primary level facilities belonging to government and CHAM met the minimum staff norms according to the EHP requirements of at least two clinicians (doctors, clinical officers or medical assistants), two nurses/midwives and at least one environmental health officer or health assistant in 2007 (Kadzandira et al, 2008); and in Salima and Mangochi districts, the proportions were 21% and 9%, respectively (ibid).

9.2.3 Training, supervision and support

As stated in Sections 4.2.1 and 4.4, training, supervision and support are important elements to consider in task shifting programmes (WHO 2008; and Hemann and Van Damme et al (2009). As the findings presented in this thesis (Section 6.3) suggest, the HTC task shifting programme seemed to have done well regarding this aspect as all the HTC providers reported to have received the basic HTC training. Whereas task shifting for HTC services may have done well in providing the basic HTC training to the HSAs, the actual HSA programme fell short of this. Among the 133 HSAs who were interviewed in Salima, 89 (66.9%) started their HSA work before receiving formal HSA training, 68.2% (75/110) of the 110 HSAs in Mangochi (see Table 6-5). It would appear that it is a common practice for the MoH to recruit and deploy HSAs to their catchment communities before they receive their initial HSA training as there were no statistically significant differences when the results were disaggregated by whether the HSAs were delivering HTC or not; nor was there a significant difference when disaggregated by district, type of facility and sex of the HSAs. Similar findings have been reported in studies on HSAs in Mwanza district in southern Malawi (Kok & Muula, 2013) and Zomba (Smith et al, 2014) that some HSAs started serving before they received the required eight weeks training from the Ministry of Health.

In a study by the PhD researcher 15 years ago, of the 121 HSAs who were interviewed in Salima, Nkhotakota and Ntchisi districts, 19.0% (23/121) reported not

to have been formally trained in HSA work before they started work (Kadzandira and Chilowa 2001.

With regard to supervision, the findings from this PhD research suggest that the HSAs were getting sporadic supervisory visits, mainly from senior HSAs and sometimes by environmental health officers (both neither HTC trainers nor supervisors). This was likely to be the situation because during the same period of data collection for this PhD research (2010-2012), the MoH had also reported sporadic field supervision across the health sector due to budgetary constraints and the 5-day ban on fieldwork by the government to all civil servants (GoM, 2011c). The findings from this research have also shown that after HSAs are trained and deployed to deliver HTC services, they were rarely supervised (see Section 6.3.3). In the interviews with district and facility managers, it was reported that HSAs report to their managers and senior HSAs through monthly reports which are discussed at the end of each month. This lack of regular field-based supervision was claimed to lead the HSAs to deliver only those services that they found easier or were provided in better environments such as HTC, which was being provided in office locations at the health facilities, unlike PHC services which needed them to travel. There were large differences in numbers of PHC service clients between HSAs delivering HTC and those not (see Section 7.4). Some of the HSAs said they liked HTC because it was done in static settings, unlike PHC where they had to walk long distances. Whereas some preferred PHC services because they said they were less emotional unlike HTC which needed a lot of counselling (See Section 6.2.4).

In this PhD research, some of the HSAs in five health facilities cited stock-outs of HTC kits and according some of the respondents at these five facilities, such a situation could lead to demoralisation among the HSAs and the community members in the long run. As presented in Section 6.4, the HSAs raised challenges which they were facing in their day-to-day delivery of services including mobility/travel challenges and the fact that some did not live in their catchment communities. While in the period between 2006 and 2008 most HSAs were relatively new (and had just been recruited and given bicycles), the situation was different in the period after 2009

because those old bicycles were now reported worn-out and could not be used for the effective delivery of their services. The issue of worn-out bicycles was raised a lot by the HSAs and their facility managers in all the Health Centres as likely to be contributing to service declines. National programme managers need to consider the constraints that emerge later, as supports such as bicycles for transport are no longer available or functioning, undermining the sustainability of core programmes. The lack of adequate supervision and support to the HSAs seems to have continued as these were also reported from other studies which were conducted in 1998 and 2001 (Chitimbe, 1998; Kadzandira & Chilowa, 2001) and in most recent studies conducted in the southern districts of Mwanza (Kok & Muula, 2013) and Zomba (Smith et al, 2014) and this trend seems to be common across countries in sub-Saharan Africa (see Mijovic H. et al 2016).

9.2.4 *Staff, remuneration and career structure*

The presence of clear career structure and consideration for remuneration have been shown to contribute to the success of task shifting programmes (Hermann et al, 2009). As the findings presented in this thesis (Section 6.4) suggest, none of the HSAs providing HTC reported getting allowances or additional salaries for delivering HTC and most of the HSAs raised concerns with the absolute absence of information regarding their career path structure (whether on HTC or not). The HSAs also complained a lot about their low salaries and the general lack of field allowances as frustrating their work. Sometimes these issues bring mistrust between the HSAs and volunteers on the one hand and the higher level managers on the other (Kok, Namakhoma et al 2016). These challenges have been reported in other studies on the work of HSAs, by this author and others (Kadzandira & Chilowa, 2001; Kok & Muula, 2013; Smith et al, 2014) and they seem to continue persisting. A more recent qualitative study on factors that facilitate or hinder the motivation of HSAs in Malawi's two districts of Mchinji and Salima identified five factors to be crucial namely: salary, accommodation, human resource management, supplies and logistics, and community links (Palmer D., 2006).

Jacobi (2010) identified three categories of factors that influence health worker motivation as operating at the community level, institutional level and at the individual level. The findings from this PhD research found that distances to catchment areas, the size of catchment population and means of travel were the key community level factors that were crucial to the understanding motivation among the HSAs. At the individual level, the findings from this research suggest that feelings about feedback HSAs receive from clients and facility managers and job satisfaction are also crucial whereas institutional factors include remuneration and career structure and work environments were cited as factors by both the HSAs and the facility managers.

Overall HIV task shifting HTC services to some HSAs bought no tangible benefits to those HSAs albeit increasing workload (discussed below) and challenges with managing competing demands on their time. It would appear the lack of choices or alternative jobs and/or expectations about potential opportunities are the factors making some of the HSAs to accept taking up additional tasks even if they are increasing their workload as has been reported in other studies in Uganda and South Africa using unpaid where the new service providers had high hopes that through the TB programmes they would eventually get employed or that they would use the experience to get employed elsewhere (Kironde S. & Bajunirwe F., 2002; Kironde S. & Klaasen S., 2002). Taking the findings in this research and published findings, the risk is that after the initial enthusiasm, additional resources and hopes that task-shifting might lead to new career opportunities, disillusion might kick-in for those lower cadres who take on task shifting, leading to a fall-off in implementation of task shifted programmes.

9.2.5 Contribution of the PhD research to understanding task shifting models

While most studies on task shifting have focussed mainly on the quality of patient outcomes (Morris et al, 2009); (Selke et al, 2010) (Tran D.A. et al, 2012) (Fairall et al, 2012), this PhD research partially focussed on describing the task shifting

arrangements and models in the Malawi heath sector. Specifically, the findings from the PhD research seem to suggest that:

i. The scaling-up of HIV services using task shifting which started in 2006/07 was implemented before Malawian guidelines for engaging HSAs were drafted as these were only drafted in 2014 (GoM 2015). This therefore suggests it is possible to start implementing some task shifting programmes even before the guidelines and protocols are drafted and agreed upon especially if the resources to draft these are scarce and where the service needed to be delivered is of urgent need as was the scale-up of HTC services in Malawi in order to achieve universal coverage. This was made possible by the historical precedents and the practice of informal task shifting by facility and local managers.

ii. At the time of data collection for this PhD research, there was clear lack of clarity and understanding of task shifting especially among the health facility managers and the HSAs themselves. Some of the managers referred task shifting to 'task sharing', 'shifting across of certain tasks', 'helping out colleagues', '*changing* responsibilities or *swapping* work', '*giving away* of tasks to other people or *helping out* one another to perform tasks. This further suggests the divergent views and practices around task shifting taking place in the health facilities. A lack of clear communications, protocols and guidelines from higher levels can contribute to this lack of clarity.

iii. The HSAs who were providing HTC services were not selected based on their motivation suggesting that the Malawi task shifting model did not meet some of the recommendations on implementing task shifting programmes recommended by the WHO (WHO 2008) and Hermann and Van Damme (2009)

iv. The HSAs who were providing HTC services in addition to their mainstream HSA work were not receiving additional remuneration and had no additional materials and supplies for providing the HTC services an aspect of the Malawi task shifting model which is not in line with the recommendations by the WHO (WHO 2008) and Hermann and Van Damme (2009) on implementing task

shifting programmes. Factors iii and iv could both contribute to a fall-off in commitment and lack of sustainability, over the longer-term.

While the WHO (2008) and Hermann and Van Damme (2009) recommend the drafting of guidelines and protocols, this research shows that the sharing of a common understanding of the task shifting principle and aims, the consideration of staff motivation, the provision of initial training and supervision and the consideration of remuneration and career path structure are pre-requisites to successful task shifting programmes. It also illustrates that while the Malawi model of task shifting for HTC undertook a different approach, by implementing only some of the components, it was relatively successful. The MoH prioritised the provision of initial HTC training and close supervision initially, in advance of other components. The drafting of guidelines and protocols only took place in 2014, seven years after task shifting for HTC service scale-up was introduced. Furthermore, the government had not at the time of submitting this Thesis in 2016, considered introducing special incentives for HIV service delivery. The rationale, presumably, is because HSAs are considered as part of the broader health system and this is contended as one of the core reasons for not providing them with extra allowances. Hence, a contribution of this PhD research is that countries may not need to include and implement all the 22 recommendations of the WHO (WHO 2008), and all the eight items suggested by Hermann and Van Damme (2009), when it introduces task shifting programmes. Countries facing severe resource constraints can therefore choose one or a combination of the recommendations which seem to be very critical to institutionalising the task shifting programme.

This PhD research also contributes to the general understanding of task shifting which include both formal and informal types of task shifting. While WHO and research world-wide recognise task shifting as the delegation of certain tasks from the highly skilled health workers to new cadres or those with less skills (Van Damme, Colebunders et al. 2008; (Philips et al, 2008; WHO, 2008) (WMA, 2009), there is a need to move beyond this understanding to include situations where some tasks can also move across cadres of the same profession as in task sharing; sometimes tasks

can be moved upwards (from nurses to clinicians, for example to assist with child delivery); and informal task shifting to local staff who lack formal training – such as ward aids, cleaners and porters – can also take place. This would be noted from the verbs that were used to describe task shifting by the health facility managers in this PhD research suggesting different degrees of transferral of tasks – from the formal allocation 'delegation' to more informal 'swapping' and 'helping out'. This further suggests the divergent views and practices around task shifting taking place in the health facilities.

The PhD Researcher therefore contends that when looking at what happened during the start of the scaling up of the HIV programme in Malawi and the history of using task shifting in the Malawi health sector (presented in Section 2.8), there was more than just task shifting as the implementation also relied on these other forms of task reassignment which have been in existence whether formally or informally. The success of the task shifting arrangement for HTC in Malawi in achieving the objective of HTC scale-up nation-wide was largely reliant on the historical reassignment of tasks to HSAs as is the case with other programmes, without adopting all or most of the recommendations for institutionalising task shifting. Other commentators have also pointed out that service delivery in most developing countries relies more on task sharing than task shifting alone (see Olson D.J. 2012)[48].

9.3 Task shifting and service scale-up

Kadiyala's framework for service scale-up (programmatic scale-up, quantitative scale-up, social scale-up, organizational scale-up and political scale-up (Kadiyala, 2004)) was used to determine whether service scale up for HTC and PHC services had been achieved through task shifting. As stated in Section 5.4.1, the PhD researcher collected and analysed client data for HTC, FP and Pentavalent for the period 2006-2010 for the eight health facilities included in this PhD research. The

[48] See: http://www.intrahealth.org/blog/task-sharing-not-task-shifting-team-approach-best-bet-hiv-care#.V-pfZPB96hc

results of the analyses generally showed that HIV (HTC) services scaled-up; and that PHC services also scaled up or remained fairly stable between 2006 and 2009, but declined in 2010. During the interviews with the district and health facility managers, the respondents indicated that when additional HSAs were recruited and deployed to the facilities in 2007 (with the support from the GF), HTC uptake increased by more than 2-3 times and this was partly due to the newly increased staff at old HTC sites; and at the same time also because more sites were opened (see Section 7.1 and (Singleton et al, 2007)). Several other studies have also reported HIV service scale-up (including ART and HTC) as one of the positive effects of task shifting (Singleton et al, 2007) (MSF, 2010) (Brugha et al, 2010).

In the eight health facilities where this PhD research was conducted, HSA numbers more than doubled in 2007 and 2008, a situation which was consistent with the rising client volumes for HTC. In the same period, HTC, ART and PMTCT service clients also increased in most health facilities that had the services in place (Mwapasa & Kadzandira, 2009). These findings show both programmatic and quantitative service scale-up (Kadiyala, 2004) because the services were taken to rural communities where the service would not have gone without task shifting and many people started accessing the services. These findings therefore support findings from other studies which have also reported service scale-up as a positive result of task shifting (Biesma R. et al, 2009b; Gabriel A.P. & Mercado C.P., 2011; Hermann et al, 2009). However, although there was PHC and HIV service scale-up at the facility and district levels (Section 7.1), this was mainly due to the increasing numbers of the HSAs because at the individual HSA level (Section 7.2) there was evidence that the individual HSAs had reduced their delivery of PHC services (Tables 7-3 to 7-14) because of the increased workload and the competing demands on their time (Section 7.3).

According to the district and some of the health facility managers and the 2010/2011 MoH performance report, what happened in the period between 2009 and 2010 when both HTC and PHC service clients started declining was a result of health systems weaknesses. These could be described as failures of the organisational

and/or political dimensions of service scale-up (Kadiyala, 2004) in the period 2009-2010. According to the district and facility managers who were interviewed in this PhD research, systems weaknesses which led to service declines between 2009 and 2010 included persistent stock-outs of HTC test kits and vaccines. The problems with drug stock-outs were also reported by the Government of Malawi as having reached the lowest levels in the last decade saying that most hospitals and HCs had run out of 95% of essential drugs in 2010; the last procurement of drugs was done in 2009 and donors who contribute nearly 40% of the health sector budget were reluctant to support drug procurement because of concerns around financial mismanagement and procurement related corruption (GoM, 2011c).

As stated in Sections 1.2 and 5.1, the PhD Research was also conducted in order to assess and determine if task shifting HTC services to some HSAs had any effect on their delivery of community PHC services. As stated in Section 3.1.4 above, Malawi's immunisation programme has been performing well over the last 2-3 decades, having achieved immunisation coverage rates in excess of 70% (MoH, 2011). This had partly been attributed to the active involvement of the HSAs and outreach programmes to deliver immunisations in the communities (GoM 2004; 2012). The findings from this study (Sections 7.2 and 7.4), however, have suggested reduced delivery of immunisations and other PHC services by the HSAs providing HTC services. The HTC providers reported allocating nearly half of their time to HIV services (Section 7.3). Evidence of static immunisation coverage was reported in the Malawi Demographic and Health Surveys of 2004 and 2010 and seems to have stabilised at around 76% into 2015/2016 (NSO 2016). Therefore, the findings in this thesis contribute modestly to the hypothesis that the assignment of new tasks to HSAs, such as the delivery of HTC, could contribute over time to undermining earlier achievements in immunisation coverage.

9.3.1 Contribution of the PhD research to understanding effects of task shifting on HTC and PHC service delivery

From the data that were collected from the eight health facilities (just as was being reported at the national level), the PhD Researcher found that both HTC and PHC services scaled up in the period 2006 to 2009 when task shifting using HSAs was just starting (Section 7.1). Client numbers for HTC, FP and Pentavalent increased in the period 2006-2009 suggesting that task shifting led to the achievement of the quantitative and programmatic dimensions of service scale-up discussed in Section 4.4. While this was the case, it is likely that the increasing trends in both PHC and HTC services was largely due to the increased numbers of HSAs because of the additional 7,000 HSAs who were recruited with the support from the GF in order to assist the HIV scale-up programme. However, at the individual HSA level (Section 7.3), the PhD Researcher found that the HSAs who were delivering HTC services were having difficulties to manage their time allocation between HTC and PHC services resulting in less delivery of their mainstream PHC services with some of them allocating nearly half of their time to HTC services.

Before the recruitment and deployment of additional 7,000 HSAs in 2007, there was a pool of HSAs whose catchment populations were reduced, because of the additional HSAs. However, since these HSAs had their original mainstream community PHC activities, the shifting of HTC services to some of them led to a diversion from their usual time allocation as they had to allocate some of their time to HTC services. Moreover, the rising numbers of HTC clients, because of the national and community-level HTC campaigns, exacerbated the situation, resulting in a general decline in their delivery of PHC services (see Section 7.2). As stated above, most studies have reported service scale-up as a result of task shifting, however these studies have not analysed the effects on both the new service and the former services which these staff were providing before. The analysis made in this PhD research potentially contributes to this understanding of the effects of task shifting on service provision, in that it demonstrates reduced service provision of the mainstream services at the individual HSA level in their catchment areas. In the case

of HSAs in Malawi, the reduction in PHC service delivery might extend to and affect disease surveillance and prevention activities. As such, task shifting, led to HTC service scale-up and may have helped maintain PHC service levels, because of the increased numbers of HSAs who were recruited in 2007 (in aggregate) but led to reduced PHC service delivery especially among the HSAs who were already delivering the services in their catchment areas.

9.4 Task shifting and staff workload

Some studies on task shafting have reported reduced workload for doctors and clinicians as a result of task shifting (Sanjana et al, 2009). One of the key reasons for shifting HTC and other non-technical jobs to HSAs and other health workers with lesser training in Malawi was to relieve nurses and clinicians so that they can concentrate on the other tasks that require their skills.

Data that was collected in this PhD research showed that in the district hospitals nurse and clinician numbers initially went down between 2006 and 2007 before rising again in the period afterwards (Table 8-1). According to the district health managers, the drops in 2006 and 2007 were mainly due to transfers and the opening of new clinics in the districts while the rising numbers in the period after 2007 was because of new recruitment. In the HCs on the other hand, nurse and clinician numbers remained fairly stable in the period 2006-2010. However, in both the district hospitals and HCs, HSA numbers mainly more than doubled,

As stated above (Sections 2.1 and 2.2.3), in the period 2006-2010, Malawi had just received large support for the HIV programme (GoM, 2010b) and there was massive community awareness and mobilization activities going on nationally. In the same period, ART and PMTCT services and nutritional support were being scaled up to most of the rural health facilities. The massive awareness campaigns resulted in more people accessing HTC causing the health facilities to be overwhelmed with clients (resulting in increased workload for clinicians and nurses) for HTC services

(Mwapasa & Kadzandira, 2009), hence the need for task shifting these services to trained HSAs.

As HTC clients increased and HIV disease and infections in pregnant women were detected, there were also new clients for ART and PMTCT, who after testing HIV positive were referred to health facility clinics for further assessment on their eligibility for the services (Mwapasa & Kadzandira, 2009) This increased the volume of clients for the clinicians and nurses because in addition to their regular clients at the OPD and antenatal departments, they had more clients wanting to access ART and PMTCT services. According to some of the facility and district managers who were interviewed in this PhD research, HIV prevalence was highest during the period when HTC services were just being scaled-up, because HIV-denial was high. With the increased mobilisation of the communities through task shifting of HTC to HSAs and other community volunteers, a backlog of people, many with previously undetected infections, went to the health facilities to access HTC and then other services. Research by the PhD candidate and supervisor that assessed the effects of GHIs on the health systems in Malawi identified and measured the increased workload among the nurses and clinicians (Mwapasa & Kadzandira, 2009). A recent GoM report suggest that workload may have eased, 2-3 years after introducing the HTC, PMTCT and ART programmes, because after first cohorts were tested and the reservoir of cases were detected, and those requiring it were put on treatment, episodes of illnesses at the OPDs reduced (GoM 2015).

For the HSAs who were assigned to provide HTC, the change meant additional work on top of their work schedules. Even though HSAs prepare weekly work schedules, the introduction of HTC meant some reductions in the allocation of time to other community PHC work. The HSAs who were interviewed in this PhD research reported facing difficulties with managing competing demands while not getting any additional incentives for the changes in their roles. According to some of the facility and district health managers who were also interviewed, contrary to the expected effect of task shifting in reducing the workload of the higher cadres (by removing a core task – HTC), the task shifting programme at the start of the HIV scale-up

programme did not achieve this objective. There were now more clients coming to the health facilities to access the ART and PMTCT services which were just being introduced with the additional funding from the Global Fund and other partners which resulted in more workload for the clinicians and nurses. At the same time, because HTC was task shifted to HSAs who had their existing mainstream PHC services and were already feeling overloaded with tasks, the shifting of HTC to them exacerbated the situation which had resulted in their reduced delivery of PHC services. On the other hand, a situation that could have gotten worse – whether it was undetected HIV progressing to HIV disease and AIDS, or the inevitable increase in need for ART – was halted in its tracks. Hence, an important policy objective was indeed achieved. However, taking the broader PHC perspective, lack of measures to ensure sustainability of the increased range of PHC and HTC services being delivered by HSAs represents the potential downside. The widespread reports of HSAs feeling overloaded with work and having difficulties with time allocation, with similar findings reported from studies conducted in Mwanza (Kok & Muula, 2013) and Zomba (Smith et al, 2014), are a harbinger of greater difficulties coming down the tracks, if the effects of HTC task shifting on HSAs is not closely monitored.

9.4.1 Contribution of the PhD research to understanding effects of task shifting on staff workload

Task-shifting HTC services to the HSAs and other community volunteers, at the same time while implementing massive community mobilisation, resulted in more clients accessing HTC services. This also happened when ART and PMTCT services were being introduced in a number of health facilities and/or being scaled-up in other facilities. The large numbers of clients for HTC exacerbated the situation for the HSAs who were already overloaded with tasks. The HSAs on task shifting complained having difficulties managing competing demands on their time and had difficulties to implement all their PHC tasks. Contrary to the expected result that task shifting would result in reduced workload for the nurses and clinicians, as more clients accessed HTC, more clients for ART and PMTCT were generated and this

meant more work for the clinicians. Task shifting HTC to HSAs and other volunteers therefore did not initially achieve the objective of reducing the workload for the nurses, clinicians and the HSAs themselves and this resulted in some reductions in the provision of PHC services by the individual HSAs.

9.5 Conclusions

The main objective of this study was to assess the consequences of task shifting HTC services on the Health Surveillance Assistants and their main stream community work. One of the specific objectives for this PhD research was to assess and describe the task shifting models taking place in the Malawi health sector focussing on the general understanding of the concept and whether it followed the WHO recommendations on the design and implementation of task shifting programmes. This is a departure from the focus of most studies on task shifting which are on the effects of task shifting on the quality of patient outcomes and service scale up. The findings from this PhD research have shown task shifting was initially implemented before guidelines for engaging HSAs were drafted as these were only drafted in 2014 and as a result of this there was a clear lack of clarity and understanding of task shifting (as a concept mainly due to linguistic issues) especially among the health facility managers and the HSAs themselves. However, although there was some ambiguity in the understanding and interpretations of task shifting, it was clear that task shifting existed in the facilities and was the cornerstone of service delivery not only for HTC services. The lack of a common understanding of the main aims of task shifting HTC services to HSAs points to some divergence with the recommendations of the WHO on implementing task shifting which call for a shared understanding and vision among the various stakeholders in the system.

While the WHO (2008) and Hermann and Van Damme (2009) recommend the drafting of guidelines and protocols and the consideration of staff motivation (incentives and career path) and the provision of initial training and supervision as being crucial to successful task shifting programmes, the results of this PhD research illustrate that countries can choose one or a combination of the recommendations

and still succeed, if the context is favourable (in the case of Malawi because of its long history of task shifting). In the case of Malawi, the government prioritised the provision of initial HTC training and close supervision while the drafting of guidelines and protocols only took place in 2014. The success of task shifting HTC to HSAs therefore relied more on the historical re-allocation of tasks across cadres, and to HSAs specifically, and not on the formalisation of the task shifting requirements. However, Malawi (and other countries) will continue to introduce new programmes and perhaps assign or shift these to new cadres, drafting of guidelines and tools is an essential element to the success of such programmes both for patient safety and the safety of the staff working on those programmes. In the 2016-20 Malawi health sector strategic place, the government has proposed to recruit a new 'HIV diagnostic assistants' just dedicated to community HIV testing, guidelines will need to be put in place before these are deployed to the field.

The finding from this PhD research have also highlighted the existence of both formal and informal models of task shifting, sometimes done vertically (from senior cadres such as nurses and clinicians to lower cadres such as HSAs or vice versa) or horizontally as in task sharing to colleagues. These findings therefore suggest moving beyond the WHO understanding that task shifting was the only way to achieving service scale-up but to also consider task sharing and other practices that take place in the health facilities (see Section 6.1). Although the majority of the HSAs delivering HTC felt happy with the new job, they also had some reservations due to the increased workload and especially with the absence of additional incentives (additional remuneration and career path). Hence, while there is a rationale for the GoM policy of not providing incentives for normal duties, the impact on this lower level cadre needs to be closely monitored.

Another objective of this PhD research was to assess and describe client trends for HTC services and some selected PHC services and health worker (HSAs, nurses and clinicians) numbers between 2006 and 2010. The findings from this PhD research have shown that at the district and facility levels, both HIV and PHC services scaled up between 2006 and 2009 but declined in 2010, as noted above

(Section 7.1.3) mainly due to health system challenges (GoM 2011). When 7,000 additional HSAs were recruited in 2007 to support the HTC service scale-up, HTC uptake more than doubled. There was also a corresponding increase in the client volumes for FP and Pentavalent. These findings corroborate findings from other studies which also reported service scale-up as a positive result of task shifting and the effects of the GHIs (Biesma R. et al, 2009b; Gabriel A.P. & Mercado C.P., 2011; Hermann et al, 2009). However, as the HSAs took over HTC in health facilities and also by taking the service to underserved communities, more people were reached and more clients were generated for the HTC programme which led to more workload for the HSAs. This created more problems for the HSAs regarding time allocation to their mainstream community PHC services especially among the HSAs who were already in the system.

The findings from this research therefore contribute to the general debate around the effects of task shifting on the community health workers such as HSAs especially if they already have their own mainstream tasks. Task shifting has the potential of drawing away these cadres from these mainstream tasks because of the increased workload and the competing demands on their time especially if the task shifting programme has no additional incentives for the new cadres. The findings from the PhD research are also supported by more recent studies conducted in two districts of Malawi namely Mwanza (Kok & Muula, 2013) and Zomba (Smith et al, 2014) and in some countries in sub-Saharan Africa (Mijovic H. et al 2016). This finding, although not clearly discernible at the facility levels at the time of data collection for this PhD research in 2010-2012, was mainly happening at the community level. From policy and programmatic implementation perspectives, the findings from this PhD research highlight that when planning to task shift new services to a cadre that already has its mainstream work, there is need for more consultations and consideration of those tasks, the workload implications for the new cadres; and the resulting competing demands on their time especially in the absence of clear additional incentives (remuneration and/or career path). The fact that HSAs were succeeding in delivering both HTC and PHC services, during the period of data collection for this thesis, does

not imply that these two core programmes are sustainable without further resources and attention to critical support functions.

9.6 Policy relevance of the PhD research

The government of Malawi realises that HRH challenges it has been facing will continue for quite some time and has thus promoted task shifting as the only way of delivering not only HIV services but a wide range of other health services especially to the rural and underserved communities in the country. A number of policy documents have highlighted the need for continued provision of HIV services through task shifting suggesting a number of activities for its implementation. However, as argued below, based on the findings from this research and international literature, the government of Malawi and development partners (GF, DfID, Irish AID, USAID etc..) need to reconsider how to successfully institutionalise task shifting by re-aligning the Malawi task shifting programme with recommendations by WHO (see Section 4.2.1).

The Malawi National HIV Policy states (NAC, 2013): *"….capacity development efforts should involve the strengthening of systems and services through training, retention and motivation of personnel at all levels, infrastructural development and availability of resources at all levels.."*. Thus the Policy advocates recognition of staff at all levels of service provision. However, there seems to be some departure from the original ideas framed in the policy when it comes to implementation as the implementation instruments seem to highlight the importance of the highly qualified health staff hence the need for improvement in their incentives and working conditions. For example, the National HIV Prevention Strategy 2015-2020 calls for the development of a comprehensive human development plan which should: *"….include retention strategies for experienced and qualified staff, institutionalisation of task shifting, mentorship and recruitment process…"* (NAC, 2015). The HSAs, who are the main service providers in the communities, are left out of the strategies to retain staff in the health sector which include incentives, better working conditions and institutionalisation of clear career pathways.

The 2015-2020 National HIV and AIDS Strategic Plan (NAC, 2015) has further moved away from the HSAs and is establishing a new cadre 'HIV diagnostic assistants -HDA' who will be posted to all health facilities in the country (mobile or static). The decision to move away from HSAs has been made after realising that relying on HSAs, who are already overburdened with other tasks, was derailing the scale-up of the national response to HIV and AIDS. Three thousand (3,000) HDAs will be recruited and trained and posted to the facilities and these will be retrained and recertified annually. Among others, the HDAs will:

- be performing rapid HIV and syphilis testing and counselling in all priority provider initiated HIV testing and counselling (PITC) settings;
- will be collecting blood samples for early infant diagnosis, viral load testing and tie-breaker testing for HIV diagnosis;
- will be coordinating and tracking sample transportation and return test results

If successful, additional services for the HDAs which will be included to their scope of work will include Family Planning (FP), patient escorting and other HIV-relevant activities.

A quick analysis of the scope of work of the HDAs and that of the HSAs will in the long run be similar with the only difference being that the HDAs will be facility-based with possibilities of running mobile clinics. The findings from this PhD research have shown that among others, the failures by the HSAs to fully implement their tasks including HTC stems from lack of adequate support: they lack transport, housing, they have high workload and have competing demands over several tasks in their catchment areas. Introducing the HDA will exacerbate the situation and compromise HTC as the service will now only be provided in health facility settings (and rarely in the communities as was the case with HSAs). The 3,000 HDAs would be best be added to the pull of HSAs and help reduce catchment populations thereby reducing travel distances and time and workload, at the same time these HDAs when turned

into HSAs would also provide other community interventions just as the regular HSAs.

The government of Malawi works with development partners such as the GF, DfID, Irish AID, USAID and others who have supported many initiatives including institutional capacity development, procurement of drugs and medical supplies and human resources. Over the years (specifically in 2007) the GF supported the recruitment of additional 7,000 HSAs to support the scale-up of the national response to HIV and AIDS but even with this support it is still evident that some communities remain unreachable and therefore not served. Some of the reasons for this development have been highlighted by this PhD research and they include long distances to their catchment areas and facilities since not all HSAs reside in their areas due to, among others, housing problems; large catchment populations (~1,700 people); problems with means of travel; unclear career path and low remuneration; and, high workload and difficulties with time scheduling for the various tasks. Supporting the government of Malawi in these areas would help build the capacities of the HSAs to deliver even more services rather than to establish a new cadre of staff who will be facility based unlike if these were turned in to HSAs and work in the communities and help reduce the catchment populations and workload.

9.7 Study limitations

Six main limitations have been identified in this PhD research some of which were beyond the scope of the PhD researcher. The first limitation was that the PhD researcher did not include the community and patients in the list of people to be interviewed on their views and perceptions regarding task shifting. The community and patients, being the recipients of both HTC and PHC services, would have provided a different dimension to the effects of task shifting. This was considered beyond the scope of this PhD as the sample size would have been large because one HSA covers several villages and thus to get perspectives on different HSAs would have required recruiting across several communities.

The second limitation of this PhD research concerns dissemination of the study findings to the district and national stakeholders before the completion of this Thesis. Potentially the participants at these levels would have provided their interpretations and views on the findings presented in this Thesis. This was not done because of delays in data collection, followed by delays in analysing the data. By the time the analysis was completed, some years had elapsed since data collection and time to completion of the PhD was constrained. As stated below, plans are underway to use a number of channels to disseminate the findings from this study.

The third is about the positionality of the PhD researcher. As stated in Section 1.4, the PhD researcher has participated in studies involving HSAs since 2001. The research interests he has in HSAs would potentially bias the interpretation of the findings. This was potentially dealt with by sharing all the field interview data and field reports with the PhD supervisory team who also verified the coding of the data and the interpretation. Throughout the thesis, PhD researcher also compared the findings from this PhD research with findings from other studies conducted on task shifting. The fourth limitation also concerns the positionality of the PhD researcher as he has worked in the health sector for a number of years and there could potentially be some respondents who could not feel comfortable discussing with him or in other places or locations. To deal with this, all respondents were asked to voluntarily participate in the study and were assured of privacy and confidentiality. The PhD researcher and the four data collectors were reading out a consent form to all the respondents which contained information about the study, their nature of their participation and how their responses will be kept confidential throughout the study period until the final thesis is produced. The respondents were also advised that they were free to decline their participation or to stop the interviews at any time if they wished to and they were also asked to choose a place for the interviews where they would feel comfortable. During data collection, none of the respondents refused to participate and all the respondents showed enthusiasm to take part except one facility manager who only refused to be audio-recorded but accepted note-taking.

The fifth limitation that the PhD researcher noted was about concepts and language associated with task shifting. This was mainly at the levels of national, district and health facility managers who were asked direct questions about task shifting as a concept. None of the HSAs was asked about the concept of 'task shifting' as these were only asked if they had been 'assigned' new tasks (including HTC) which were not part of their original job description. After noting that the health facility managers (unlike the national and district managers) were not aware of the concept, the PhD researcher provided some description of what happens in task shifting arrangements. As noted in Section 6.1, task shifting takes place in the facilities but people use different terminologies. Therefore the finding that the facility managers did not know 'task shifting' only applies to the concept and not the practice.

The sixth limitation relates to both quantitative and qualitative analyses as they both have potential emic biases during data collection, analysis and interpretation of the results. Capturing information from a third party is challenging and researchers usually rely on what they are told. However, the collection of data from different sources on the same topic(s) partially offsets these biases through the process of triangulation.

9.8 Dissemination of the PhD research findings

Once this PhD Thesis has been submitted at the completion of the PhD research, the researcher intends to use a number of ways to disseminate the findings from this research. Firstly, the University of Malawi where the PhD researcher works in collaboration with the National AIDS Commission and the MoH organises annual research dissemination conferences. The PhD researcher intends to disseminate at one of the conferences in 2018. Secondly, the University of Malawi and the Faculty of Social Science in particular, organises monthly seminar series where faculty members present findings of research in their areas of speciality and these will be targeted in 2018.

Thirdly, the University of Malawi has a website where summaries of research findings are posted for the general public to access. The PhD researcher intends to use the website to disseminate the research findings. Fourthly, the PhD researcher wants to summarise the PhD Thesis and send copies of the same to key institutions that contribute to policy making especially those involving human resources for health in Malawi. Lastly, for the benefit of the research community worldwide, the PhD researcher aims at submitting at least two manuscripts to peer-reviewed journals starting in 2018.

9.9 Suggestions for further research

Most studies on task shifting have looked at its effects on service scale-up and the quality of the services being delivered and this study looked at the implications of shifting HIV services to the HSAs on their mainstream community PHC work, workload and job satisfaction. The findings from most of these studies corroborate that the absence of additional incentives poses a threat to their sustainability. Further research is therefore needed to assess the types of incentives that would lead to the successful implementation of task shifting programmes which are also sustainable.

Further research is also needed to assess if there have been any changes to the workload of the nurses, clinicians and HSAs now more than 8 years since the start of the scale-up of the HIV programme in Malawi especially in the context of the training support provided from the Global Fund for doctors, clinicians and nurses. There is also a need to monitor the implementation of core PHC services that are supposed to be delivered by the HSAs to detect if there are localised low levels of coverage.

Lastly, there is need for a more robust research that would give chance to the recipients of the services (the population) provided through task shifting arrangements to make their assessment of the services.

10 BIBLIOGRAPHY

1. Abubakar A., Van Baar A., Fischer R., Bomu G., Gona J.K & C.R., N. (2013) Socio-Cultural Determinants of Health-Seeking Behaviour on the Kenyan Coast: A Qualitative Study. *PLOS ONE , 2013, DOI: 10.1371/journal.pone.0071998*.
2. AFD 2005: *Evaluation of General Budget Support – Malawi Country Report Evaluation of General Budget Support – Malawi Country Report: A Joint Evaluation of General Budget Support 1994-2004*. Agency for French Development
3. Aitken J.M. & Kemp J. (2003) *HIV/AIDS, Equity and Health Sector Personnel in Southern Africa*.
4. Alamo, S., Wabwire-Mangen, F., Kenneth, E., Sunday, P., Laga, M. & Colebunders, R. L. (2012a) Task-Shifting to Community Health Workers: Evaluation of the Performance of a Peer-Led Model in an Antiretroviral Program in Uganda. *Aids Patient Care and Stds*, 26(2), 101-107.
5. Alamo, S., Wabwire-Mangeni, F., Kenneth, E., Sunday, P., Laga, M. & Colebunders, R. L. (2012b) Task-shifting to community health workers: evaluation of the performance of a peer-led model in an antiretroviral program in Uganda. *AIDS Patient Care and STDs. Epub. January 6, 2012*.
6. Asante F.A. (2010) *National AIDS Spending Assessment 2007/08 and 2008/09: Level and Flow of Resources and Expenditures to Confront HIV and AIDS*.
7. Babigumira, J. B., Castelnuovo, B., Lamorde, M., Kambugu, A., Stergachis, A., Easterbrook, P. & Garrison, L. P. (2009): Potential impact of task-shifting on costs of antiretroviral therapy and physician supply in Uganda. *BMC health services research*, 9, 192.
8. Babigumira, J. B., Castelnuovo, B., Stergachis, A., Kiragga, A., Shaefer, P., Lamorde, M., Kambugu, A., Muwanga, A. & Garrison, L. P. (2011) Cost Effectiveness of a Pharmacy-Only Refill Program in a Large Urban HIV/AIDS Clinic in Uganda. *Plos One*, 6(3).
9. Bemelmans, M., van den Akker, T., Ford, N., Philips, M., Zachariah, R., Harries, A., Schouten, E., Hermann, K., Mwagomba, B. & Massaquoi, M. (2010) Providing universal access to antiretroviral therapy in Thyolo, Malawi through task shifting and

decentralization of HIV/AIDS care. *Tropical medicine & international health : TM & IH*, 15(12), 1413-20.

10. Bemelmans M., van den Akker T., Ford N., Phillips M., Zachariah R., Harries A., Schouten E., Hermann K., Mwagomba B. & Massaquol M. (2010): Providing universal access to antiretroviral therapy in Thyolo, Malawi through task shifting and decentralisation of HIV/AIDS care. *Tropical Medicine and International Health*, 15(12), 1413-1420.
11. Benett, F. J. & Cole-King, S. (1982) *Guidelines for the Development of Primary Health Care*.
12. Biesma R., Brugha R., Harmer A., Walsh A. & N., S. (2009a) The effects of global health initiatives on country health systems: a review of the evidence from HIV/AIDS control. *Health Policy and Planning*, 24(4), 239-52.
13. Biesma R., Brugha R., Harmer A., Walsh A., Spicer N. & G., W. (2009b) The effects of global health initiatives on country health systems:a review of the evidence from HIV/AIDS control. *Health Policy Planning*, 24(2), 239-52.
14. Biesma R., Makoa E., Mpeni R., Tsekoa L., Odonkor P. & R., B. (2012) The implementation of a global fund grant in Lesotho: applying a framework on knowledge absorptive capacity. *Social Science and Medicine*, 74(3), 381-9.
15. Blaauw, D., Ditlopo, P., Maseko, F., Chirwa, M., Mwisongo, A., Bidwell, P., Thomas, S. & Normand, C. (2013) Comparing the job satisfaction and intention to leave of different categories of health workers in Tanzania, Malawi, and South Africa. *Global Health Action*.
16. Bradley, S. & McAuliffe, E. (2009) Mid-level providers in emergency obstetric and newborn health care: factors affecting their performance and retention within the Malawian health system. *Human Resources for Health*, 7, 14. doi: 10.1186/1478-4491-7-14.
17. Braun V. & V., C. (2006) Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3, 77-101.
18. Brentlinger, P. E., Assan, A., Mudender, F., Ghee, A. E., Vallejo Torres, J., Martinez Martinez, P., Bacon, O., Bastos, R., Manuel, R., Ramirez Li, L., McKinney, C. & Nelson, L. J. (2010) Task shifting in Mozambique: cross-sectional evaluation of non-physician clinicians' performance in HIV/AIDS care. *Human resources for health*, 8, 23.

19. Brugha, R. (2008) Global Health Initiatives and Public Health Policy. *International Encyclopaedia of Public Health*, 3, 72-81.
20. Brugha, R., Kadzandira, J. M., Simbaya, J., Dicker, P., Mwapasa, V. & Walsh, A. (2010) Health workforce responses to global health initiatives funding: a comparison of Malawi and Zambia. *Human Resources for Health 2010, 8:19*.
21. Brugha R., Simbaya J., Walsh A., Dicker P. & P., N. (2010) How HIV/AIDS scale-up has impacted on non-HIV priority services in Zambia. *BMC Health Services Research*.
22. Buttorff C., Hock R.S., Weiss H.A., Naik S., Araya R, Kirkwood B.R., Chisholm D. & V., P. (2012) Economic evaluation of a task-shifting intervention for common mental disorders in India. *Bull World Health Organ. 2012 Nov 1;90(11):813-21. doi: 10.2471/BLT.12.104133. Epub 2012 Sep 14.*
23. Callaghan, M., Ford, N. & Schneider, H. (2010) A systematic review of task shifting for HIV treatment and care in Africa. *Human Resources for Health*, 2010, 8:8.
24. Callaghan-Koru, J. A., Hyder, A. A., George, A., Gilroy, K. E., Nsona, H., Mtimuni, A. & Bryce, J. (2012) Health Workers' and Managers' Perceptions of the Integrated Community Case Management Program for Childhood Illness in Malawi: The Importance of Expanding Access to Child Health Services. *American Journal of Tropical Medicine and Hygiene*, 87(Suppl 5), 61-68.
25. Campbell C. & R., B. (2012) The role of communities in advancing the goals of the Movement for Global Mental Health. *Transcultural Psychiatry* 49(3–4) 379–395.
26. Chibwana A.I., Mathanga D.P., Chinkhumba J. & CH, C. (2009) Socio-cultural predictors of health-seeking behaviour for febrile under-five children in Mwanza-Neno district, Malawi. . *Malaria Journal 8: 219*.
27. Chilowa, W., Milner, J., Chinsinga, B. & Mangani, R. (2000) *Social Policy in the Context of Economic Reforms: A Benchmark Survey Report.* .Harare.
28. Chilowa W. (2000) Immunisation Coverage Rates in Malawi, *Historical and Social Science Research in Malawi: Problems and Prospects.* Chancellor College, University of Malawi, June 26-29 2000.
29. Chirwa, M. L. (2009) *Knowledge Synthensis on Malawi Health System: A Literature Review* Blantyre.

30. Chirwa, T., Kadzandira, J. M., Zanera, D., Kachaka, W. & Bello, G. (2005) *Baseline Survey Report for the HIV/AIDS Programme of Dignitas International in Zomba District of Malawi*.
31. Chitimbe, E. G. (1998) Determination of Knowledge, Attitudes and Practices of the Primary Health Care Approach by HSAs in Balaka and Blantyre Districts., [Lecture]. University of Malawi. BSc in Environmental Health Dissertation. University of Malawi (Polytechnic), unpublished.
32. Creswell J.W. & Clark V.L.P. (2007) *Designing and Conducting Mixed Methods Research*Sage Publications.
33. Creswell J.W., Plano Clark V.L., Gutmann M.L. & Hanson W.E. (2003) Advanced mixed methods research designs, in (Eds), A. T. C. T. (ed), *Handbook of mixed methods in social and behavioral research*. Thousand Oaks, CA: Sage, 209-240.
34. Cumbi A., Pereira C., Vaz F., McCord C., Bacci A. & S., B. (2007) Major surgery delegation to mid-level practitioners in Mozambique: health professionals perception. *Human Resources for Health*, 5, 27-36.
35. Davies N.E., Homfray M. & E.C., V. (2013) Nurse and manager perceptions of nurse initiated and managed antiretroviral therapy (NIMART) implementation in South Africa: a qualitative study. *BMJ Open*.
36. De Brouwere, V., Dieng, T., Diadhiou, M., Witter, S. & Denerville, E. (2009) Task shifting for emergency obstetric surgery in district hospitals in Senegal. *Reproductive health matters*, 17(33), 32-44.
37. De Vvan Niekerk, J. P. (2008) Task shifting or Power Shedding?: Editorial Comment. *South African Medical Journal*, 8(15).
38. de Wet K., Wouters E. & M., E. (2011) Exploring task-shifting practices in antiretroviral treatment facilities in the Free State Province, South Africa. *Journal of Public Health Policy (2011) 32, S94–S101. doi:10.1057/jphp.2011.30*.
39. Decroo T., Van Damme W., Kegels G., Remartinez D. & F., R. (2012) Are Expert Patients an Untapped Resource for ART Provision in Sub-Saharan Africa? *AIDS Research and Treatment*, Volume 2012, Article ID 749718.
40. DfID (2009) *Health portifolio review report 2009*Centre, D. H. D. R.

41. Dong K., Thabethe Z., Hurtado R., Sibaya T., Dlwati H., Walker B. & D., W. (2007) Challenges to the Success of HIV and Tuberculosis Care and Treatment in the Public Health Sector in South Africa. *Journal of Infectious Diseases*, 196:S491–6.
42. Ejembi C.L., Norrick P., Starrs A. & K., T. (2013) New global guidance supports community and lay health workers in postpartum hemorrhage prevention. *International Journal Gynaecology and Obstetrics*, 122(3), 187-189.
43. El-Sadr W.F., Holmes C.B., Mugyenyi P., Thirumurthy H., Ellerbrock T., Ferris R., Sanne I., Asiimwe A., Hirnschall G., Nkambule R.N., Stabinski L, M., A., C., T., Zulu I. & A., W. (2012) Scale-up of HIV Treatment Through PEPFAR: A Historic Public Health Achievement. *Journal of Acquired Immune Deficiency Syndrome*, 60(3), 96-104.
44. Emdin C.A., Chong N.J. & P.E., M. (2013) Non-physician clinician provided HIV treatment results in equivalent outcomes as physician-provided care: a meta-analysis. *Journal of International AIDS Society*, 16(18445).
45. Ergo A., Eichler R., Koblinsky M. & Shah N. (2011) *Strengthening Health Systems to Improve Maternal, Neonatal and Child Health Outcomes: A Framework*.
46. Fachmi I. (2011) Task delegation versus task shifting in the Indonesian Health Service. *World Medical Journal*, 57(N.r. 2 April 2011), 24-25.
47. Fairall, L., Bachmann, M. O., Lombard, C., Timmerman, V., Uebel, K., Zwarenstein, M., Boulle, A., Georgeu, D., Colvin, C. J., Lewin, S., Faris, G., Cornick, R., Draper, B., Tshabalala, M., Kotze, E., van Vuuren, C., Steyn, D., Chapman, R. & Bateman, E. (2012) Task shifting of antiretroviral treatment from doctors to primary-care nurses in South Africa (STRETCH): a pragmatic, parallel, cluster-randomised trial. *Lancet*, 380(9845), 889-98.
48. Ferrinho, P., Sidat, M., Goma, F. & Dussault, G. (2012) Task-shifting: experiences and opinions of health workers in Mozambique and Zambia. *Human Resources for Health*, 10(1), 34.
49. Findley S., Matos S., Hicks A., Chang J. & D., R. (2014) Community health worker integration into the health care team accomplishes the tripple aim in a patient-centred medical home: a Bronx tale. *Journal of Ambulatory Care Management*, 37(1), 82-91.
50. Ford, N., Chu K. & E.J., M. (2012) Safety of task-shifting for male medical circumcision: a systematic review and meta-analysis. *AIDS Care*, 26(5), 559-66.

51. Frenk, J. (2009) Strengthening Health Systems to Promote Security: A Commentary *The Lancet*.
52. Gabriel A.P. & C.P., M. (2011) Evaluation of Task Shifting in Community-Based DOTS Program as an Effective Control Strategy for Tuberculosis. *The Scientific World Journal*, 11, 2178–2186.
53. Gabriel A.P. & Mercado C.P. (2011) Evaluation of Task Shifting in Community-Based DOTS Program as an Effective Control Strategy for Tuberculosis. *The Scientific World Journal*, 11, 2178–2186.
54. Gilroy K.E., Callaghan-Koru J.A., C.V., C., Nsona H., Amouzou A., Mtimuni A., Daelmans B., Mgalula L. & J., B. (2013) Quality of sick child care delivered by Health Surveillance Assistants in Malawi. *Health Policy Planning*, 573-585.
55. Glenn J.K. & Goldman J. (1976) Task Delegation to Physician Extenders -Some Comparisons. *American Journal of public Health*, 66:1.
56. GOM (1997) *Human Resource Development, MoH (Environmental Health Section)*.
57. GoM (2003) *National HIV/AIDS Policy: A Call for Renewed Action.* Lilongwe:
58. GoM (2004a) *A joint Programme of Work for a Health Sector Approach (SWAp) 2004-2010.* Lilongwe:
59. GoM (2004b) *A Joint programme of Work for a Health Sector Wide Approach (SWAp) 2004-2010*.
60. GoM (2004c) *Human Resources in the Health Sector: Towards a Solution*.Lilongwe.
61. GoM (2009a) *National HIV Prevention Strategy and Action Plan*
62. GoM (2009b) *National HIV Prevention Strategy and Action Plan. .* Lilongwe:
63. GoM (2010a) *Malawi Report to the UNGASS 2008/09*.
64. GoM (2010b) *The 2009/2010 Budget Statement.* Lilongwe:
65. GoM (2011a) *Health Sector Strategic Plan 2011-2016: Moving towards equity and quality*.
66. GoM (2011b) *Malawi National HIV and AIDS Strategic Plan January 2012-December 2016*.
67. GoM (2011c) *Mid-Year Performance Report of the Malawi Health Sector (July-December 2011)*.Lilongwe.
68. GoM (2012) *Malawi Growth and Development Strategy II 2012-17*
69. *GoM (2016): Human Resources for Health Assessment Report*. Ministry of Health

70. GoM & MoH (2008) *Malawi HIV and AIDS Monitoring and Evaluation Report 2007: Follow-up to the UN Declaration of Commitment on HIV and AIDS*.Lilongwe, Malawi.
71. GoM & MoH (2011) *Health Sector Strategic Plan 2011-2016: Moving towards equity and quality*.Lilongwe.
72. GoM & NAC (2005) *National HIV and AIDS Action Framework 2005-2009*.Lilongwe.
73. Green A., de Azevedo V., Patten G., Davies M.A., AIbeto M. & V., C. (2014) Clinical Mentorship of Nurse Initiated Antiretroviral Therapy in Khayelitsha, South Africa: A Quality of Care Assessment *PLOS Medicine*, 9(6): e98389. doi:10.1371/journal.pone.0098389
74. Hanefeld, J. & Musheke, M. (2009) What impact do Global Health Initiatives have on human resources for antiretroviral treatment roll-out? A qualitative policy analysis of implementation processes in Zambia. *Human Resources for Health/BMC*, 2009 - 7:8.
75. Hanson W.E., Creswell J.W., Plano Clark V.L., Petska K.S. & Creswell J.D. (2004) Mixed methods research designs in counseling psychology. *Journal of Counseling Psychology*, 52(2), 224-235.
76. Harries, A. D., Zachariah, R., Jahn, A., Schouten, E. J. & Kamoto, K. (2009) Scaling up antiretroviral therapy in Malawi-implications for managing other chronic diseases in resource-limited countries. *Journal of Acquired Immune Deficincy Syndrome* 52(1).
77. Heller, J. (1978) Officers de Sante: The second-Class Doctors of Ninteenth Centuary in France. *Medical History 1978, 22:1*.
78. Hermann, K., Van Damme, W., Pariyo, G. W., Schouten, E., Assefa, Y., Cirera, A. & Massavon, W. (2009) Community Health Workers for ART in sub-Saharan Africa: Learning from Experience - Capitalising on New Opportunities. *Human Resources for Health*, 7:31.
79. Huddart, J. & Picazo, O. (2003) *The Health Sector Human Resource Crisis in Africa: An Issues Paper.* .Washington.
80. Hurst, A. (2012) *Global Fund Support Extends Antiretrovial Treatment to 4.2 Million People (Nov 29. 2012)*, 2012. Available online: http://www.theglobalfund.org/en/mediacenter/newsreleases/2012-11-29_Global_Fund_support_extends_antiretroviral_treatment_to_4,2_million_people/ [Accessed.

81. Ivers, L. C., Jerome, J. G., Cullen, K. A., Lambert, W., Celleti, F. & Samb, B. (2011) Task-shifting in HIV care: a case study of nurse-centred comunity-based care in rural Haiti. *Public Health Medicine 2011 May 6:6(5):e19276*.
82. Iwu E.N. & W.L., H. (2014) Task shifting of HIV management from doctors to nurses in Africa: clinical outcomes and evidence on nurse self-efficacy and job satisfaction. *AIDS Care*, 26(1), 42-52.
83. Jacobi, N. (2010) *Extrinsic Factors Affecting Health Worker Motivation in the Context of Task Shifting: Experiences of VCT Counselors in Ethiopia*. MPH Johns Hopkins University, Bloomberg School of Public Health Baltimore, MD 21205.
84. Johns B., Asfaw E., Wong W., Bekele A., Minior T., Kabede A. & J., P. (2014) Assessing the costs and effects of antiretroviral therapy task shifting from physicians to other health professionals in Ethiopia. *Journal of Acquired Immune Deficiency Syndrome*, 65(4).
85. Kadiyala, S. (2004) Scaling-Up HIV/AIDS interventions through expanded partnerships (STEPs) in Malawi. International Food Policy Research Institute and the Social Development Family of the World Bank. SD Note No. 96 /October 2004.
86. Kadzandira, J. M. & Chilowa, W. R. (2001) *The Role of Health Surveillance Assistants in the Delivery of Health Services in Malawi*UNICEF-Malawi, G. o. M. G.
87. Kadzandira, J. M., Chunga, C., Konyani, S. E. T., Munthali, A. C. & Chilimampunga, C. (2008) *Malawi Health Sector Employee Census 2007*Government of Malawi (GoM), M. o. H.
88. Kadzandira, J. M. & Mvula, P. M. (2002) *User Perceptions of Social Services (Education & Health) in Malawi. Social Protection Programme in Southern Africa*.
89. Kalanda, B., Mamimine, P., Taela, K., Changandu, L. & Mukukas, G. (2008) *Implementation of Regional and International HIV and AIDS Prevention, Treatment and Care and Support Conventions and Declarations in Lesotho, Malawi and Mozambique*Media, D. P.
90. Kalipeni, E. (2000) Health and Disease in Southern Africa: a Comparative and Vulnerability Perspective. *Social Science and Medicine*, 50(7), 965-983.
91. Kironde S. & Bajunirwe F. (2002) Lay workers in directly observed treatment (DOT) programmes for tuberculosis in high burden settings: Should they be paid? A review of behavioural perspectives. *African Health Sciences* 2 (2).

92. Kironde S. & Klaasen S. (2002) What motivates lay volunteers in high burden but resource-limited tuberculosis control programmes? Perceptions from the Northern Cape province, South Africa. *International Journal of Tuberculosis and Lung Diseases*, 6(2):104–110.
93. Kober, K. & Van Damme, W. (2004) Scaling Up Access to Antireviral Treatment in Southern Africa: Who will do the Job? *The Lancet*, 364.
94. Kok, M. C. & Muula, A. S. (2013) Motivation and job satisfaction of Health Surveillance Assistants in Mwanza, Malawi: an exploratory study. *Malawi Medical Journal*, 25(1), 5-11.
95. Kruk M.M., Pereira C.', Vaz F., Bergstrom S. & Galea S. (2007) Economic evaluation of surgically trained assistant medical officers in performing major obstetric surgery in Mozambique. *British Journal of Obstetrics and Gynecology*, 114, 1253-1260.
96. Kruse, G. R., Chapula, B. T., Ikeda, S., Nkhoma, M., Quiterio, N., Pankratz, D., Mataka, K., Chi, B. H., Bond, V. & Reid, S. E. (2009) Burnout and use of HIV services among health care workers in Lusaka District, Zambia: a cross-sectional study. *Human Resources for Health/BMC*, 2009: 7:55.
97. Laurant, M., Reeves, D., Hermens, R., Braspenning, J., Grol, R. & Sibbald, B. (2009) Substitution of doctors by nurses in primary care (Review). *The Cochrane Library*, 2009, Issue 1.
98. Lehmann, U., Van Damme, W., Barten, F. & Sanders, D. (2009) Task shifting: the answer to the human resources crisis in Africa? *Human resources for health*, 7, 49.
99. Lynch, C. & Lynch, I. (2008) The State of Economic Literature on Health Worker Migration in Africa: Health Policy Seminar Paper, *Health Worker Migration Global Policy Advisory Council Meeting.* Hotel de la Paix, 11, Quai du Mont-Blanc CH 1211 Geneva, May 18, 2008.
100. Mannan, H., Boostrom, C., MacLachlan, M., McAuliffe, E., Khasnabis, C. & Gupta, N. (2012) A systematic review of the effectiveness of alternative cadres in community based rehabilitation. *BMC Health Services Research*.
101. Martiniuk A., Smith S., Deveridge A., Berman J., Negin J., Mwambene N. & E., C. (2014) *Getting Treatment and Care to the Last Mile: Analyzing the Health Surveillance Assistant Cadre in Malawi*.
102. MaslowA.H. (1943) A theory of human motivation.

103. Mavhandu-Mudzusi, A. H., Netshandama, V. O. & Davhana-Maselesele, M. (2007) Nurses' experiences of delivering voluntary counseling and testing services for people with HIV/AIDS in the Vhembe District, Limpopo Province, South Africa. *Nursing Health Science Research*, 9(4), 254-62.

104. Mbilinyi D., Daniel M.L. & G.T., L. (2011) Health worker motivation in the context of HIV care and treatment challenges in Mbeya Region, Tanzania: A qualitative study. *BMC Health Services Research*, 11:266.

105. McAuliffe, E., Manafa, O., Bowie, C., Maseko, F., MacLachlan, M. & Normand, C. (2008) *Maximising Human Resource Capacity in Rural District Health Systems in Malawi*.Dublin.

106. McClelland D. (1965) Toward A Theory Of Motivation Acquisition (1965).

107. McCord C., Mbaruku G., Nzabuhakwa S. & S., B. (2009) Task shifting of major surgery to midlevel providers of health care in Mozambique: a solution to the crisis in human resources to enhance maternal and neonatal survival. *Public Health Medicine*, 34, 103-109.

108. McCoy, D., McPacke, B. & Mwapasa, V. (2008a) The Double Burden of Human Resources and HIV Crises: The Case of Malawi. *Human Resources for Health*, 6(16).

109. McCoy, D., McPake, B. & Mwapasa, V. (2008b) The Double Burden of Human Resources and HIV Crises: The Case of Malawi. *Human Resources for Health*, 6(16).

110. Mdege N.D., Chindove S. & S., A. (2012) The effectiveness and cost implications of task-shifting in the delivery of antiretroviral therapy to HIV-infected patients: a systematic review. *Health Policy Planning*.

111. Mdege N.D., Chindove S. & S., A. (2013) The effectiveness and cost implications of task-shifting in the delivery of antiretroviral therapy to HIV-infected patients: a systematic review. *Health Policy Planning*.

112. Mertens D.M. (2003) Mixed methods ad politics of human research: The transformative-emancipatory perpestive, in (Eds)., A. T. C. T. (ed), *Handbook of mixed methods in social and behavioral research*. Thousand Oaks, CA: Sage, 135-164.

113. Mills E.J, Schabas W.A., Volmink J., Walker R., Ford N., Katabira E., Anema A., Joffres M., Cahn P. & J., M. (2008) Should Active of Health Workers from sub-Saharan Africa be viewed as a Crime? *The Lancet*, 371, 685-88.

114. Mijovic H., McKnight J. & English M. (2016): What does the literature tell us about health worker's experiences of task-shifting projects in sub-Saharan Africa? A systematic, qualitative review. Journal of Clinical Nursing

115. MoH (1999) *Malawi National Health Plan 1999-2004.* .Lilongwe. Malawi.

116. MoH (2004a) *A joint programme of work for a health sector wide approach (SWAp) [2004-2010]. Lilongwe*.

117. MoH (2004b) *Malawi Health SWAp Memorandum of Understanding.* Lilongwe:

118. MoH (2006a) *A Report of a Country-wide Survey of HIV/AIDS Services in Malawi for the year 2005". HIV Unit, Department of Clinical Services, MoH, Lighthouse and CDC-Malawi*.

119. MoH (2006b) *HIV Testing and Counseling: The 5 Year Plan to Scale Up HIV Testing and Counseling Services in Malawi (2006-2010).* Lilongwe:

120. MoH (2007) *Human Resources and Capacity Development within the Health Sector Needs Assessment Study. Malawi Health SWAp Donor Group*.

121. MoH (2008) *Malawi Health Sector Employee Census (2007)*.

122. MoH (2009) Quarterly Report of Antiretroviral Programme in Malawi with Results up to December 2008". HIV Unit, Dept of Clinical Services, Ministry of Health, [Lecture].unpublished.

123. MoH (2011) *Malawi Health Sector Strategic Plan 2011-2016: Moving towards equity and quality*.Lilongwe.

124. MoH (2012) *The Health Surveillance Assistants: Origins and Current Status*

125. Lilongwe.

126. MoH & JICA (2004) *Malawi Health Facility Survey 2002 Report. Ministry of Health (Malawi) and Japanese International Cooperation Agency*.

127. MOH & NAC (2007) *HIV and Syphilis Sero –Survey And National HIV Prevalence and AIDS Estimates Report 2007*.

128. MoHP (1999) *Malawi National Health Plan 1999-2004*.Lilongwe.

129. MoHP (2004) *Human Resources in the Malawi Health Sector: Towards a Solution*.Lilongwe.

130. Monyatsi G., Mullan P.C., Phelps B.R., Tolle M.A., Machine E.M., Gennari F.F., Makosky J. & G.M., A. (2012a) HIV management by nurse prescribers compared with

doctors at a paediatric centre in Gaborone, Botswana. *South African Medical Journal*, 102(1), 34-37.

131. Monyatsi G., Mullan P.C., Phelps B.R., Tolle M.A., Machine E.M., Gennari F.F., Makosky J. & G.M., A. (2012b) HIV management by nurse prescribers compared with doctors at a paediatric centre in Gaborone, Botswana. *South African Medical Journal*, 102(1): 34–37.

132. Morris, M. B., Chapula, B. T., Chi, B. H., Mwango, A., Chi, H. F., Mwanza, J., Manda, H., Bolton, C., Pankratz, D. S., Stringer, J. S. A. & Reid, S. E. (2009) Use of task-shifting to rapidly scale-up HIV treatment services: experiences from Lusaka, Zambia. *BMC health services research*, 9, 5.

133. MRFA (2012) *Malawi Road Network (2012)*, 2012. Available online: [Accessed.

134. MSF (2007) *Help wanted! Confronting the health care worker crisis to expand access to HIV/AIDS treatment: MSF experience in southern Africa*.

135. MSF (2010) *Increasing Access to Antiretroviral Care in Rural Malawi: SANS FRONTIERES MEDECINS 2003–2009 programme report*.

136. MSF (2011) *Ten Years of Antiretrovirals Treatment in Malawi by MSF (2001-2011)*.Lilongwe & Chiradzulu.

137. Msukwa, L. A. H. (1987) *Primary Health Care in Malawi: a Search for Relevance*.

138. Mullan, F. & Frehywot, S. (2007) Non-Physician Clinicians in 47 sub-Saharan African Countries. *Lancet*, 370, 2158-63.

139. Muula A.S. (2004) Ethical and Programmatic Challenges in Antiretroviral Scaling-up in Malawi: Challenges in Meeting the World Health Organization's "Treating 3 Million by 2005" Initiative Goals. *Croatian Medical Journal*, 45(4):415-421,2004.

140. Mwapasa, V. & Kadzandira, J. M. (2009) *Global Health Initiatives and Delivery of Health Care: The Case of Global Fund on AIDS, TB and Malaria in Malawi*.

141. Nabudere H., Asiimwe D. & R., M. (2011) Task shifting in maternal and child health care: an evidence brief for Uganda. *Public Health Medicine* 27(3), 173-179.

142. NAC (2011) *Malawi National HIV and AIDS Strategic Plan 2011-2016.*

143. Nachreiner F., Ploger L.H. & H., G.-S. (1995) Changes in the structure of health complaints as related to shiftwork exposure, work and stress

144. Namilaza, D. M. (1998) *An Assessment of the Health Surveillance Assistants Work Performance After Training in Ntchisi, Mponela (Dowa) and Kasungu Districts*.

145. Needham J. (1997) Accuracy in workload measurement: a fact or fallacy. *Journal of Nursing and Management*, 5(2), 83-87.

146. Njozing B.N., Edin K.E., Sebastián M.S. & A.K., H. (2011) Voices from the frontline: counsellors' perspectives on TB/HIV collaborative activities in the Northwest Region, Cameroon. *BMC Health Services Research*, 11:328.

147. NSO (2000) *Malawi Demographic and Health Survey 2000*.

148. NSO (2006) *Multiple Indicator Survey (MICS).*

149. NSO (2010a) *Malawi Demographic and Health Survey*.

150. NSO (2010b) *Malawi Population and Housing Census Report 2008*.

151. NSO (2011) *Malawi Demographic and Health Survey 2010*.

152. NSO (2012) *Malawi Demographic and Health Survey 2010*.

153. Nsona H., Mtimuni A., Daelmans B., Callaghan-Koru J.A., Gilroy K., Mgalula L., Kachule T. & T., Z. (2012) Scaling Up Integrated Community Case Management of Childhood Illness: Update from Malawi. *American Journal of Tropical Medicine and Hygiene*, 87(5), 54-60.

154. Nyamtema, A. S., Pemba, S. K., Mbaruku, G., Rutasha, F. D. & Van Roosmalen, J. (2011) Tanzanian lessons in using nonphysician clinicians to scale-u comprehensive emergency obstetric care in remote and rural settings. *Human Resources for Health 2011, 9:28*.

155. O'Malley G., Asrat L., Sharms A., Hamunime Y., Stephanus Y., Brandt L., Ali D., Kaindjee-Tjituka F., Natanael S., Gweshe J., Feldacker C. & E., S. (2014) Nurse task shifting for antiretroviral treatment services in Namibia: Implementation research to move evidence into action. *PLOS Medicine*, 9(3 e92014).

156. Ojikutu B. (2007) The Realities of Antiretroviral Therapy Rollout: Overcoming Challenges to Successful Programmatic Implementation. *Journal of Infectious Diseases*, 196:S445–8.

157. Ooms, G., Van Damme, W. & Temmerman, M. (2007) Medicines Without Doctors: Why the Global Fund must Pay Salaries for Health Workers to Expand AIDS Treatment. *PLOS Medicine*, 4(4).

158. O'Neil M., Jarrah Z., Nkosi L., Collins D., Perry C., Jackson J., Kuchande H. & A., M. (2010) *Evaluation of Malawi's Emergency Human Resources Programme. Final Report*.

159. Padmanathan P. & M.J., D. S. (2013) The acceptability and feasibility of task-sharing for mental health care in low and middle income countries: a systematic review. *Social Science and Medicine*, 97, 82-6.

160. Palmer D. (2006) Tackling Malawi's Human Resources Crisis. *Reproductive Health Matters*, 14(27), 27-39.

161. Particip (2012) *Joint Mid-Term Evaluation of Flanders Government Support to Malawi Government CSP 2010-2015*.

162. Patterson, J., Russell, A., Thembo, P., Were, B., Davis, P., Cohn, J. & Machai, M. (2007) Building Health Communities: The Views of People Living with HIV in 'Task Shifting' and Health Systems Strengthening, [Lecture]. Health Global Access Project, INC., unpublished.

163. Pereira, C. (2010) *Task-shifting of major surgery to midlevel providers of health care in Mozambique and Tanzania : A solution to the crisis in human resources to enhance maternal and neonatal survival*. PhD Karolinska Institute.

164. Pereira C., Cumbi A., Malalane R., Vaz F., McCord C., Bacci A. & S., B. (2007) Meeting the need for emergency obstetric care in Mozambique: work performance and histories of medical doctors and assistant medical officers trained for surgery. *British Journal of Obstetrics and Gynecology*, 114, 1530-1533.

165. Perry H.B., Zulliger R. & M.M., R. (2014) Community health workers in low, middle and high income countries: an overview of their history, recent evolution and current effectiveness. *Annual Review of Public Health*.

166. Petersen, I. & Lund, C. (2011) Mental health service delivery in South Africa from 2000 to 2010: One step forward, one step back. *Samj South African Medical Journal*, 101(10), 751-757.

167. Petersen, I., Lund, C., Bhana, A., Flisher, A. J., Mental, H. & Poverty Research Programme, C. (2012) A task shifting approach to primary mental health care for adults in South Africa: human resource requirements and costs for rural settings. *Health policy and planning*, 27(1), 42-51.

168. Petersen I., Bhana A. & J., F. A. (2011a) A task shifting approach to primary mental health care for adults in South Africa: human resource requirements and costs for rural settings. *Health Policy Planning*, 27(1), 42-51.

169. Petersen I. & C., L. (2011) Mental health service delivery in South Africa from 2000 to 2010: one step forward, one step back. *South African Medical Journal*, 01(10)(10), 751-7.

170. Petersen I., Hanass Hancock J., Bhana A. & K., G. (2014) A group-based counselling intervention for depression comorbid with HIV/AIDS using a task shifting approach in South Africa: a randomized controlled pilot study. *Journal of Affective Disorders*, 158, 78-84.

171. Petersen I., Lund C., Bhana A. & A.J., F. (2012) A task shifting approach to primary mental health care for adults in South Africa: human resource requirements and costs for rural settings. *Health Policy Plan 2012* 27(1), 42-51.

172. Petersen I., Ssebunnya J., Bhana A. & K., B. (2011b) Lessons from case studies of integrating mental health into primary health care in South Africa and Uganda. *International Journal of Mental Health Systems*, 5(8).

173. Philips, M., Zachariah, R. & Venis, S. (2008) Task shifting for antiretroviral treatment delivery in sub-Saharan Africa: not a panacea. *Lancet*, 371(9613), 682-4.

174. Potter P., Deshields T. & M., K. (2010) Delegation practices between registered nurses and nursing assistive personnel, 18(2), 157-65.

175. Prata, N., Gessessew, A., Cartwright, A. & Fraseral, A. (2011) Provision of injectable contraceptives in Ethiopia through community-based reproductive health agents. *Bulletin of the World Health Organisation*, 89, 556–564.

176. Prata N., Gerdts C. & A., G. (2012) An innovative approach to measuring maternal mortality at the community level in low-resource settings using mid-level providers: a feasibility study in Tigray, Ethiopia. *Public Health Medicine*, 39, 196-204.

177. Ridoutt, L. & Wise, M. (2005) Demand Driven Human Services Workforce Planning. *Human Resources for Health*, 13(2), 22-27.

178. Rustagi A.S., Manjate R.M., Gloyd S., John-Stewart G., Micek M., Gimbel S. & K., S. (2015) Perspectives of key stakeholders regarding task shifting of care for HIV patients in Mozambique: a qualitative interview-based study with Ministry of Health leaders, clinicians, and donors. *Human Resources for Health*.

179. Sanjana, P., Torpey, K., Schwarzwalder, A., Simumba, C., Kasonde, P., Nyirenda, L., Kapanda, P., Kakungu-Simpungwe, M., Kabaso, M. & Thompson, C. (2009) Task-shifting HIV counselling and testing services in Zambia: the role of lay counsellors. *Human resources for health*, 7, 44.

180. Selke, H. M., Kimaiyo, S., Sidle, J. E., Vedanthan, R., Tierney, W. M., Shen, C., Denski, C. D., Katschke, A. R. & Wools-Kaloustian, K. (2010) Task-shifting of antiretroviral delivery from health care workers to persons living with HIV/AIDS: clinical outcomes of a community-based program in Kenya. *Journal of acquired immune deficiency syndromes (1999)*, 55(4), 483-90.

181. Shakarishvili G., Atun R., Berman P., Hsiao W., Burgess C. & Lansang M.A. (2010) Converging Health Systems Frameworks: Towards A Concepts-to-Actions Roadmap for Health Systems Strengthening in Low and Middle Income Countries. *Global Health Governance*, 3(2).

182. Sidel, V. W. (1972) The barefoot doctors of the People's Republic of China. *New England Journal of Medicine 1972, 286(24): 1924-1300*.

183. Singleton, G., Kadzandira, J. M., Wamai, G. & Ngwira, B. (2007) *Final Report of the Independent Revew Committee of the National Response to HIV and AIDS in Malawi*.

184. Smith, S., Deveridge, A., Berman, J., Negin, J., Mwambene, N., Chingaipe, E., Puchalski Ritchie, L. M. & Martiniuk, A. (2014) Task-shifting and prioritization: a situational analysis examining the role and experiences of community health workers in Malawi. *Human Resources for Health*.

185. Suri A., Gan K. & S., C. (2007) Voices from the Field: Perspectives from Community Health Workers on Health Care Delivery in Rural KwaZulu-Natal, South Africa. *Journal of Infectious Diseases*, 196:S505–11.

186. Suzan-Monti M., Blanche J., Boyer S., Kouanfack C., Delaporte E., Bonono .R.C, Carrieri P.M., Protopopescu C., Laurent C. & B., S. (2015) Benefits of task-shifting HIV care to nurses in terms of health-related quality of life in patients initiating antiretroviral therapy in rural district hospitals in Cameroon [Stratall Agence Nationale de Recherche sur le SIDA (ANRS) 12110/Ensemble pour une Solidarité Thérapeutique Hospitalière en Réseau (ESTHER) substudy]. *HIV Medicine. 2015 May;16(5):307-18. doi: 10.1111/hiv.12213. Epub 2015 Feb 27*.

187. Tantchou Y.J.C. & Gruénais M.E. (2009) Involving new actors to achieve ART scaling-up: difficulties in an HIV/AIDS counselling and testing centre in Cameroon. *International Nursing Review*, 56, 50–57.

188. Tenthani, L., Cataldo, F., Chan, A. K., Bedell, R., Martiniuk, A. L. C. & van Lettow, M. (2012) Involving expert patients in antiretroviral treatment provision in a tertiary referral hospital HIV clinic in Malawi. *BMC Health Services Research*.

189. Tran D.A., Shakeshaft A., Ngo A.D., Rule J., Wilson D.P., Zhang L. & C., D. (2012) Structural barriers to timely initiation of antiretroviral treatment in Vietnam: findings from six outpatient clinics. *PubMed*, PLoS One. 2012;7(12):e51289. doi: 10.1371/journal.pone.0051289. Epub 2012 Dec 11.

190. Uebel, K. E., Fairall, L. R., van Rensburg, D. H., Mollentze, W. F., Bachmann, M. O., Lewin, S., Zwarenstein, M., Colvin, C. J., Georgeu, D., Mayers, P., Faris, G. M., Lombard, C. & Bateman, E. D. (2011) Task shifting and integration of HIV care into primary care in South Africa: The development and content of the streamlining tasks and roles to expand treatment and care for HIV (STRETCH) intervention. *Implementation science : IS*, 6, 86.

191. UNAIDS (2013) *UNAIDS Report on the Global AIDS Epidemic (2013)*.

192. UNDP (2002) *The Impact of HIVand AIDS on Human Resources in the Malawi Public Sector*.Lilongwe: UNDP.

193. USAID (2011) *Community Health workers: Bringing family planning services to where people live and work.* USAID - Family Planning High Impact Practices (HIP).

194. UNAIDS (2016): Global AIDS Update

195. Van Damme, W., Colebunders, B., Huyst, V., Zolfo, M., Renggli, V., Assefa, Y., Lawson, L., Celleti, F., Holloway, J. & Samb, B. (2008) Classification of Task Shifting in the Delivery of HIV Services, *Unnamed (Presentation).* Geneva.

196. Van den Hof S., Mfinanga S.G., Kahwa A., Ngadaya E., Oey L. & M., D. (2012) Measuring workload for tuberculosis service provision at primary care level: a methodology. *Human Resources for Health*.

197. Van Rie A., Patel M.R., Nana, M., Vanden D.K., Tabala M., Yotebieng M. & Behets, F. (2014) Integration and task shifting for TB/HIV care and treatment in highly resource-scarce settings: one size may not fit all. *Journal of Acquired Immune Deficiency Syndrome*, 65(3).

198. VanCura B.J. & Gunchick D. (1997) Five key components for effectively working with unlicensed assistive personnel. *Journal of Medical Surgery and Nursing*, 5, 270-74.

199. Walsh, A., Ndubani, P., Simbaya, J., Dicker, P. & Brugha, R. (2010a) Task sharing in Zambia: HIV service scale-up compounds the human resource crisis. *BMC health services research*, 10, 272.

200. Walsh, A., Ndubani, P., Simbaya, J., Dicker, P. & Brugha, R. (2010b) Task sharing in Zambia: HIV service scale-up compounds the human resource crisis. *Human Resources for Health/BMC*, 2010: 10:272.

201. Walsh A., Ndubani P., Simbaya J., Dicker P. & R., B. (2010) Task sharing in Zambia: HIV service scale-up compounds the human resource crisis. *MC Health Services Research*.

202. Weisman C.S., Alexander C.S. & G.A., C. (Year: Not cited) Job Satisfaction among Hospital Nurses: A Longitudinal Study. *Health Services Research*.

203. Wet K, d., ., Wouters, E. & Engelbrecht, M. (2011) Exporing task shifting practces in antiretroviral treatment facilities in the Free State Province, South Africa. *Journal of Public Health Policy. 2011; 32 Suppl 1:S94-101*.

204. WHO (2006) *Working Together for Health: The World Health Report 2006*.Geneva.

205. WHO (2007) *Strengthening health systems to improve health outcomes*.

206. WHO (2008) *Treat, Train, Retain (TTR): Task Shifting Global Recommendations and Guidelines*.Geneva.

207. WHO & GHWA (2008) *Malawi's Emergency Human Resources Programme: Country Case Study* Organisation, W. H.

208. WHO & OGAC (2007a) *Report of a Joint WHO/OGAC Technical Consultation Meeting on Task Shifting: Key elements of a Regulatory Framework in support of in-country Implementation of "Task Shifting".* .Geneva.

209. WHO & OGAC (2007b) *Report of a Joint WHO/OGAC Technical Consultation Meeting on Task Shifting: Key elements of a Regulatory Framework in support of in-country Implementation of "Task Shifting".* .Geneva.

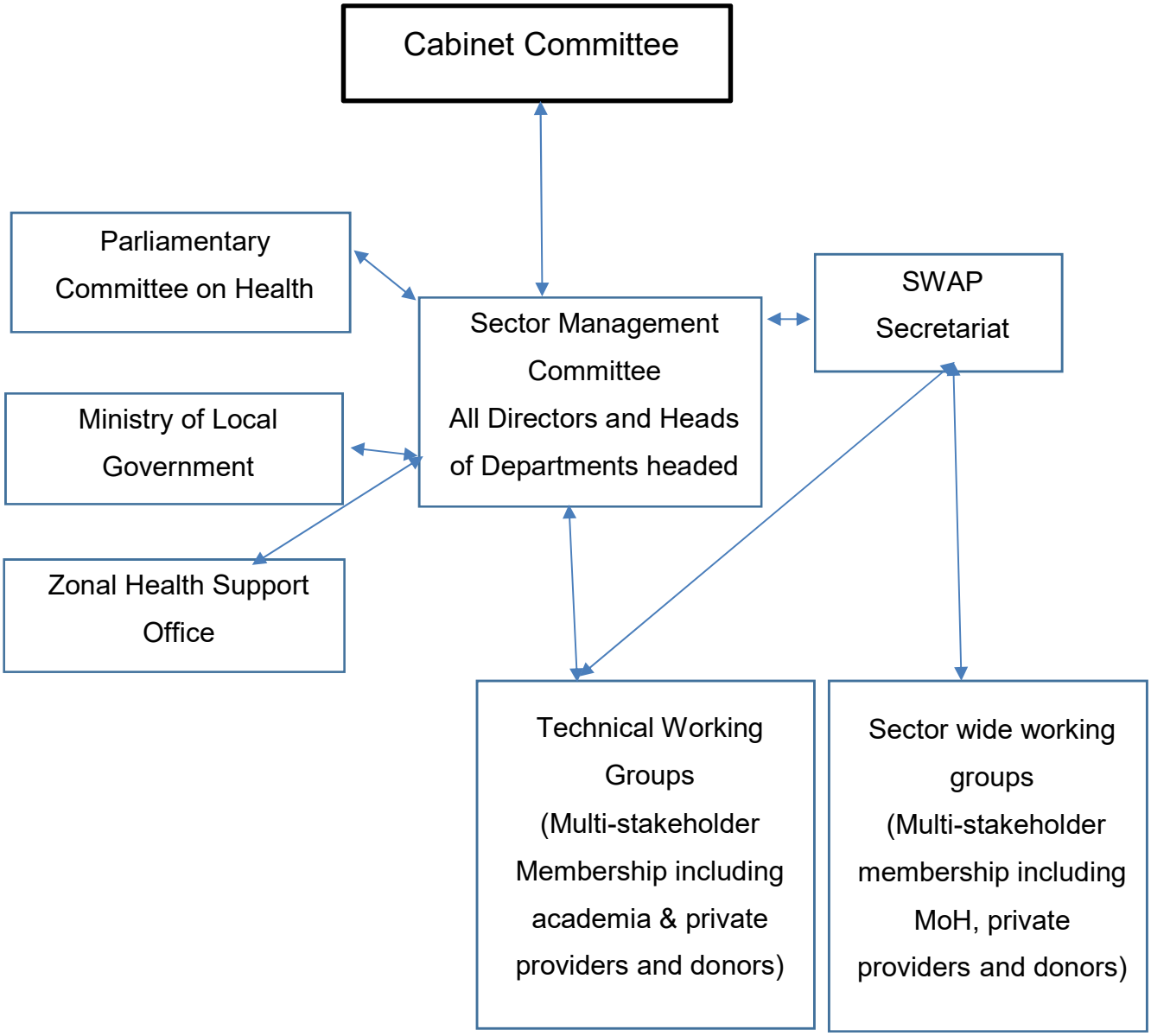
210. WMA (2009) World Medical Association Resolution on Task Shifting from The Medical Profession., *WMA General Assembly*. New Delhi, India.

211. Wouters, E., Van Damme, W., Rensburg, D. V., Musquillier, C. & Muelemans, H. (2012) Impact of community-based support services on antiretroviral treatment programme delivery and outcomes in resource-limited countries: a synthetic review. *BMC Health Services Research, 2012 - 12:194*.

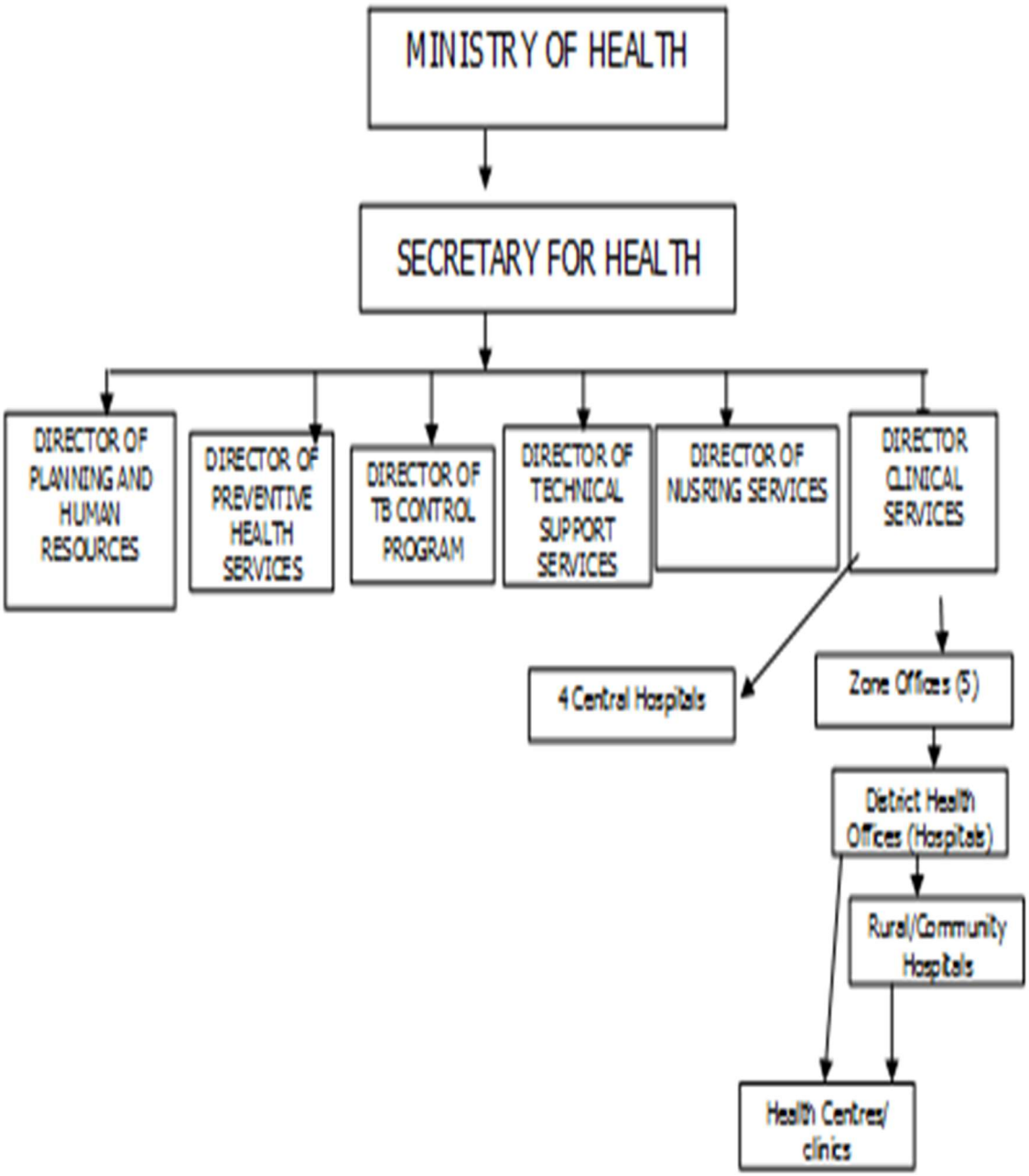
212. Yakam, J. C. & Gruénais, M. E. (2009) Involving new actors to achieve ART scaling-up: difficulties in an HIV/AIDS counselling and testing centre in Cameroon. *International Nursing Rev. 2009 Mar;56(1):50-7.*, 56(1), 50-57.

213. Zachariaha, R., Fordb, N., Philips M., Lynchb, S., Massaquoid, M., Janssensa, V. & Harriese, A. D. (2008): Task shifting in HIV/AIDS: opportunities, challenges and proposed actions for sub-Saharan Africa. *Transactions of the Royal Society of Tropical Medicine and Hygiene*.

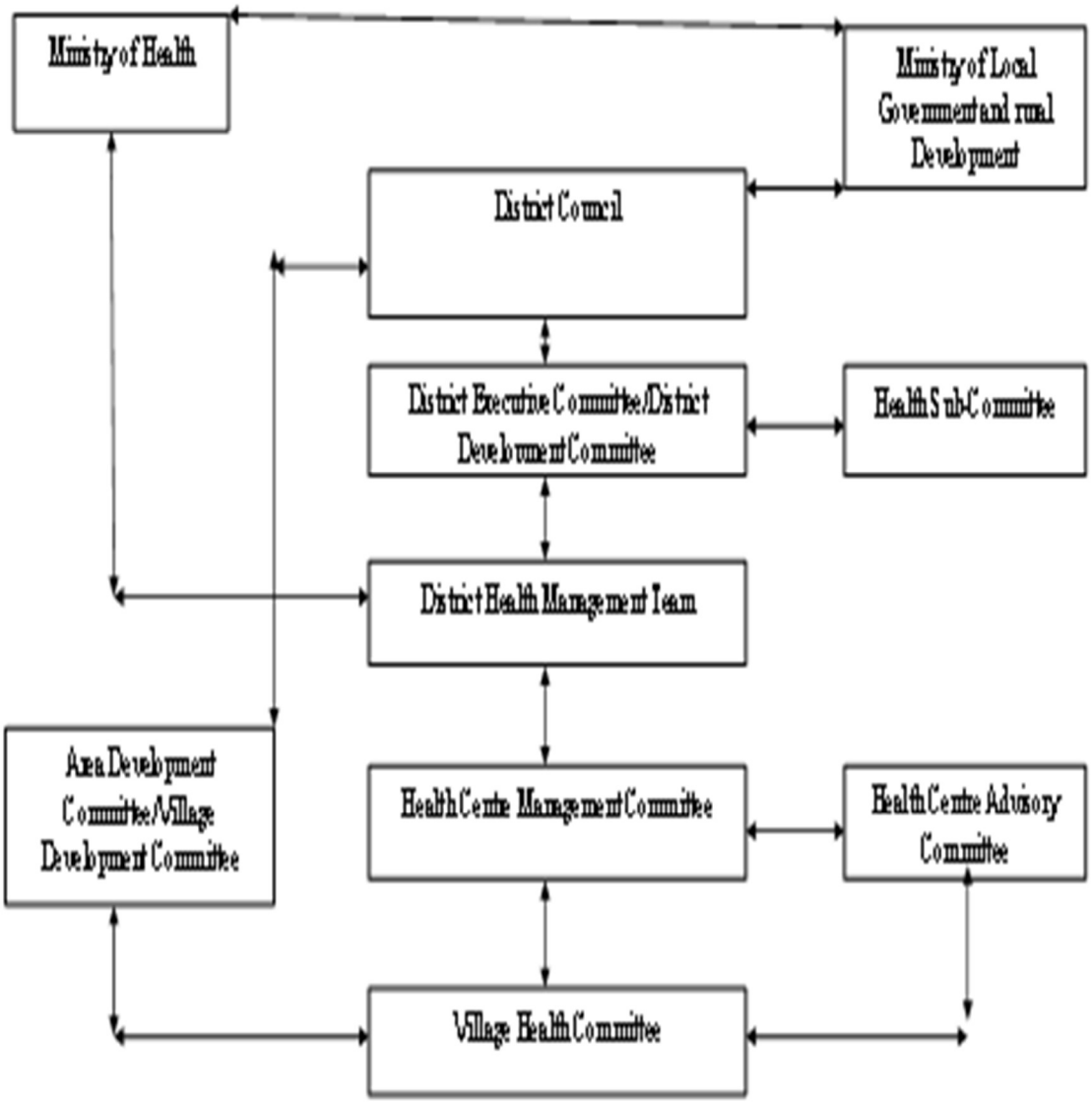
Annex 1: Governance Structure for the Health Sector: National Level



Annex 2: Organogram of the Ministry of Health showing levels of health care and policy making



Annex 3: Governance structure of the health sector: District level



Annex 4: Job description of a Health Surveillance Assistant (Subordinate Class –SC - II)

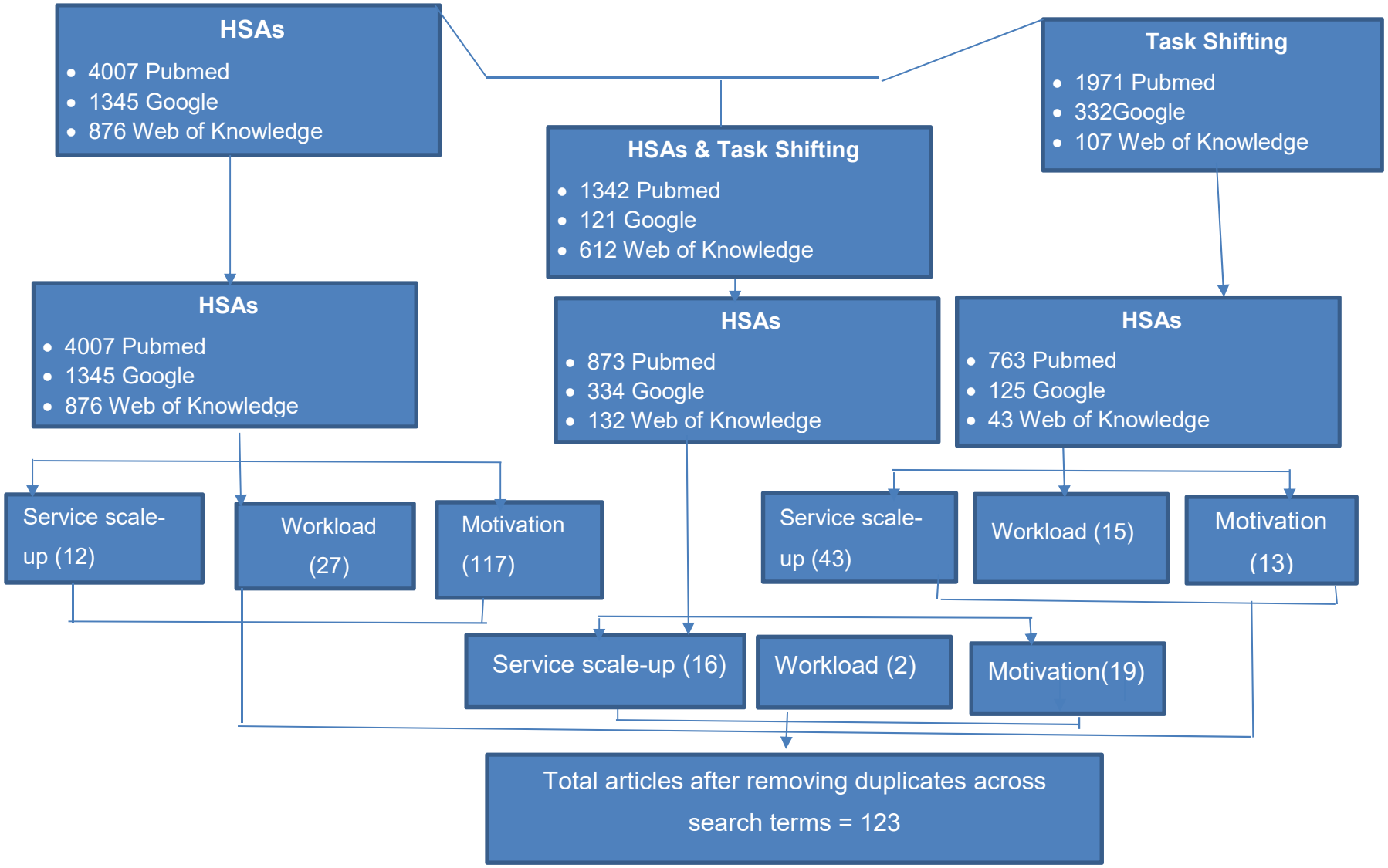
The HSA as a health worker serves as a linkage between fixed district health services and the community. The HSA works directly with village/ community leaders in identifying and providing services by the community/- works with community health workers and volunteers from other ministries in providing environmental and personal services; collaborates with Enrolled community Health Nurse, Medical Assistant and reports to Environmental Health Assistant.

In community settings according to an assigned catchment area [2000-2,500 population], the HSA

1. Conducts community assessment within his assigned catchment area;
2. Works with the community in solving community health problems
3. Conducts village inspections;
4. Observes for and reports disease outbreaks;
5. Works with others in providing immunisation;
6. Maintains equipment utilised on the job;
7. Facilitates formation and training of Village Health Committees [VHCs] and volunteers;
8. Improves the quality of water by protecting shallow wells & chlorinating untreated water;
9. Treats minor illnesses;
10. Conducts growth monitoring;
11. Supervises VHCs and volunteers;
12. Refers patients and suspects to nearest health unit;
13. Writes monthly work plans; and,
14. Carries out any other duties as may be assigned to him/her by his/her immediate supervisor

Source: (GOM, 1997)

Annex 5: Schema illustrating the search patterns for journals and articles from various databases



Annex 6: Recommendations made at the 2007 WHO/OGAC on implementing task shifting

The 22 Recommendations on the need for a regulatory framework on task shifting made by a consultative meeting of stakeholders organised by WHO and the Office of US Government AIDS Coordinator (OGAC) in Geneva (Source: (WHO, 2008)	
Recommendation 1: Countries, in collaboration with relevant stakeholders, should consider implementing and/or extending and strengthening a task shifting approach where access to HIV services, and to other health services, is constrained by health workforce shortages. Task shifting should be implemented alongside other efforts to increase the numbers of skilled health workers. **Recommendation 2:** In all aspects concerning the adoption of task shifting, relevant parties should endeavour to identify the appropriate stakeholders, including people living with HIV/AIDS, who will need to be involved and/or consulted from the beginning. **Recommendation 3:** Countries deciding to adopt the task shifting approach should define a nationally endorsed framework that can ensure harmonization	**Recommendation 11:** Supportive supervision and clinical mentoring should be regularly provided to all health workers within the structure and functions of health teams. Individuals who are tasked with providing supportive supervision or clinical mentoring to health workers to whom tasks are being shifted should themselves be competent and have appropriate supervisory skills. **Recommendation 12:** Countries should ensure that the performance of all cadres of health workers can be assessed against clearly defined roles, competency levels and standards. **Recommendation 13:** Countries should consider measures such as financial and/or non-financial incentives, performance-based incentives or other methods as means by which to retain and enhance the performance of health

The 22 Recommendations on the need for a regulatory framework on task shifting made by a consultative meeting of stakeholders organised by WHO and the Office of US Government AIDS Coordinator (OGAC) in Geneva (Source: (WHO, 2008)	
and provide stability for the HIV services that are provided throughout the public and non-state sectors. Countries should also explore a framework for the exploration of task shifting to meet other critical public health needs. **Recommendation 4:** Countries should undertake or update a human resource analysis that will provide information on the demography of current human resources for health in both the public and non-state sectors; the need for HIV services; the gaps in service provision; the extent to which task shifting is already taking place; and the existing human resource quality assurance mechanisms. **Recommendation 5:** Countries should assess and then consider using existing regulatory approaches (laws and proclamations, rules and regulations, policies and guidelines) where possible, or undertake revisions as necessary, to enable cadres	workers with new or increased responsibilities, commensurate with available resources in a sustainable manner. **Recommendation 14:** Countries should recognize that essential health services cannot be provided by people working on a voluntary basis if they are to be sustainable. While volunteers can make a valuable contribution on a short term or part time basis, trained health workers who are providing essential health services, including community health workers, should receive adequate wages and/or other appropriate and commensurate incentives. **Recommendation 15:** Countries and donors should ensure that task shifting plans are appropriately costed and adequately financed so that the services are sustainable. **Recommendation 16:** Countries should consider the different types of task shifting practice and elect to adopt, adapt, or to extend, those models that are best suited to the

The 22 Recommendations on the need for a regulatory framework on task shifting made by a consultative meeting of stakeholders organised by WHO and the Office of US Government AIDS Coordinator (OGAC) in Geneva (Source: (WHO, 2008)	
of health workers to practice according to an extended scope of practice and to allow the creation of new cadres within the health workforce. **Recommendation 6:** Countries should consider adopting a fast-track strategy to produce essential revisions to their regulatory approaches (laws and proclamations, rules and regulations, policies and guidelines) where necessary. Countries could also simultaneously pursue long-term reform that can support task shifting on a sustainable basis within a comprehensive and nationally endorsed regulatory framework. **Recommendation 7:** Countries should either adapt existing or create new human resource quality assurance mechanisms to support the task shifting approach. These should include processes and activities that define, monitor and improve the quality of services provided by all cadres of health workers.	specific country situation (taking into account health workforce demography, disease burden, and analysis of existing gaps in service delivery). **Recommendation 17:** Countries should ensure that efficient referral systems are in place to support the decentralization of service delivery in the context of a task shifting approach. Health workers should be knowledgeable about available referral systems and trained to use them. **Recommendation 18:** Non-physician clinicians can safely and effectively undertake a majority of clinical tasks in the context of service delivery according to the task shifting approach. **Recommendation 19:** Nurses and midwives can safely and effectively undertake a range of HIV clinical services in the context of service delivery according to a task shifting approach. **Recommendation 20:** Community health workers, including people living with HIV/AIDS, can safely and effectively

The 22 Recommendations on the need for a regulatory framework on task shifting made by a consultative meeting of stakeholders organised by WHO and the Office of US Government AIDS Coordinator (OGAC) in Geneva (Source: (WHO, 2008)	
Recommendation 8: Countries should define the roles and the associated competency levels required both for existing cadres that are extending their scope of practice, and for those cadres that are being newly created under the task shifting approach. These standards should be the basis for establishing recruitment, training and evaluation criteria. **Recommendation 9:** Countries should adopt a systematic approach to harmonized, standardized and competency based training that is needs-driven and accredited so that all health workers are equipped with the appropriate competencies to undertake the tasks they are to perform. **Recommendation 10:** Training programmes and continuing educational support for health workers should be tied to certification, registration and career progression mechanisms that are standardized and nationally endorsed.	provide specific HIV services, both in a health facility and in the community in the context of service delivery according to the task shifting approach. **Recommendation 21:** People living with HIV/AIDS who are not trained health workers can be empowered to take responsibility for certain aspects of their own care. People living with HIV/AIDS can also provide specific services that make a distinct contribution to the care and support of others, particularly in relation to self-care and to overcoming stigma and discrimination. **Recommendation 22:** Cadres, such as pharmacists, pharmacy technicians or technologists, laboratory technicians, records managers and administrators, could be included in a task shifting approach that involves the full spectrum of health services.

Annex 7: Examples of programmes demonstrating that task shifting has failed

Description of study	Country & Researchers	Why did task shifting fail?	Results
A community antiretroviral therapy and tuberculosis treatment programme using community workers where patients were allocated to different treatment groups that required to be visited daily or weekly or monthly or every 3-months had unsuccessful results in that	Uganda (Alamo et al, 2012a).	• Community health workers failed to maintain schedules for home visits	• Ability to follow-up with patients worsened from patients requiring daily, weekly, monthly, to three-monthly home visits. • Only 26% of the community treatment supporters correctly home visited patients with drug side effects and a missed clinic appointment. • Six hundred eighty of the 3650 (18%) patients were lost to follow-up during the study period
A country-wide evaluation of quality of care delivered by técnicos de medicina (non-physician clinicians) who	Mozambique (Brentlinger et al, 2010)	• The non-physicians did not understand the processes and decision making in WHO clinical staging	• Of the 127 directly observed patient encounters, the non-physicians assigned the correct WHO clinical stage in only 37.6% of the cases

Description of study	Country & Researchers	Why did task shifting fail?	Results
were trained in-house in ART provision for two weeks.			• They also correctly managed co-trimoxazole prophylaxis in 71.6% and ART in 75.5%. • Correct management of all the 5 main aspects of patient care (staging, co-trimoxazole, ART, opportunistic infections, and adverse drug reactions) was observed in only 10.6% of the encounters.
A TB-HIV co-infection project that sought to use counsellors and doctors in service provision	Kwazulu Natal Province of South Africa (Dong K. et al, 2007)	• Doctors were providing treatment readiness assessment in English and there was lack of communication between counsellors and doctors	• The programme was difficult to manage as it was difficult to bring patients to attend training sessions • Burnout among counsellors was very high
An HIV programme involving both doctors and nurses and non-physician clinicians	Mbeya, the Tanzania (Mbilinyi D. et al, 2011).	• Training seminars and workshops only involved doctors	• Lower cadres (nurses and non-physician clinicians) had high workload because the

Description of study	Country & Researchers	Why did task shifting fail?	Results
			other cadres were mostly out to workshops • Lower cadres got demotivated because they were not involved in the trainings and workshops
	Indonesia (Fachmi I., 2011)	• The programme did not define roles of various players and regulations and guidelines in the health system	
New cadres introduced hastily into an HIV programme abruptly	(Tantchou Y.J.C. & Gruénais M.E., 2009).	• Roles and limits of various cadres were not clearly defined	• There was confusion and role conflicts which led to frustration. • In some cases, the new cadres found their way into the system taking up important positions not suiting their professional training • The programme failed

Description of study	Country & Researchers	Why did task shifting fail?	Results
In a TB and HIV co-infection programme which involved traditional healers as a way of task shifting	Kwazulu Natal, South Africa (Njozing B.N. et al, 2011)	• Traditional healers started dissuading patients from seeking mainstream medical care	• Programme failed to continue • Most TB/HIV patients developed serious conditions

Annex 8 : Examples of programmes where task shifting was successfull in service scale-up

Description of programme and results	**Country, (Authors& year of publishing)**
The government of Haiti made a policy change to allow nurses and community health workers perform some selected HIV services. • The nurses performed most of HIV related tasks which resulted in service scale-up. • 'Loss to follow-up' of patients was reduced to less than 5% at 24 months of their introduction.	Haiti (Ivers et al, 2011)
ART initiation was shifted from doctors to nurses • The proportion of PLHIV who start the treatment very late (CD4 count of =<100 cells/mm^3) was reduced quite significantly from ~ 65% to less than 15% in six clinics drawn from 5 provinces in the country	Vietnam (Tran D.A. et al, 2012)
Groups of trained PLHIV groups in Kenya and self-formed groups in Mozambique who used their day-to-day experiences in living with and managing HIV and/or TB as expert patients were used to scale-up ART programmes and reduce psychosocial barriers to adherence. The researchers concluded that: • programmes involving expert patients have the potential to increase ART accessibility and reduce the costs of programme delivery.	Kenya and Mozambique (Decroo T. et al, 2012).

Description of programme and results	Country, (Authors& year of publishing)
• there is a need for careful design of models in which expert patients are involved in essential care functions, capacitated, and empowered to manage their condition and support fellow peers • these cadres should be adequately remunerated.	
An ART programme trained516 community health workers in adult HIV treatment; 270 in paediatric HIV treatment; 341 in adherence counselling; 91 in a specialty nurse "triage" course, and 93 in an intensive clinical mentorship • there was a demonstrated improvement across clinical care quality indicators, despite rapidly growing patient volumes through the use of community health workers.	Zambia (Morris et al, 2009)
Lay counsellors were trained to provide HTC services. An evaluation of the work showed that the counsellors: • were providing counselling and testing services of good quality • were providing up to 70% of all counselling services and that their involvement in the HTC programme helped to relieve the workload of the overstretched health care workers. • Were recognised and appreciated by their facility managers because of their good services • Had lower error rates in compiling HTC data compared to the other health care workers	Zambia (Sanjana et al, 2009)

Description of programme and results	Country, (Authors& year of publishing)
Researchers wanted to establish if people living with HIV/AIDS (PLWAs) delivering community-based care could replace clinic-based HIV care. Some PLHIV in the intervention group (community-based) received support through personal digital assistants by fellow PLHIV with 3-monthly hospital visits whereas those in the control group received standard care through clinic visits. After one year: • there were no significant intervention-control differences with regard to detectable viral load, mean CD4 count, decline in Karnofsky score, change in ART regimen, new opportunistic infection, or pregnancy rate	Kenya (Selke et al, 2010).
Community health workers were recruited and used in HIV service scale up starting in/around 2006. A review of client records in 52 health facilities in Malawi and 39 facilities in Zambia showed that: • in Malawi HIV services were successfully increased by more than 6 times and by almost three times in Zambia particularly in rural facilities even though there were modest increases in numbers of nurses and clinicians.	Zambia and Malawi (Brugha et al, 2010)
A study was conducted to compare compliance with national paediatric HIV treatment between nurse prescribers and doctors at a referral paediatric centre in Gaborone. • The study found higher social documentation among nurses compared to doctors but there were no significant differences in other documentation	Botswana (Monyatsi G. et al, 2012a).

Description of programme and results	Country, (Authors& year of publishing)
A study aimed at assessing the effects of task shifting on mortality, viral suppression, and other health outcomes and quality indicators of the Streamlining Tasks and Roles to Expand Treatment and Care for HIV (STRETCH) programme, through decentralization of ART provision through nurses involving 5390 patients in cohort 1 and 3029 in cohort 2 in the intervention group (using nurses), and 3862 in cohort 1 and 3202 in cohort 2 in the control group (using doctors and clinicians). The results: • did not show any significant differences between patients followed up by nurses and those followed by doctors. • In cohort 1, 997 (20%) of 4943 patients analysed in the intervention group and 747 (19%) of 3862 in the control group with known vital status at the end of the trial had died. • Time to death did not differ (hazard ratio [HR] 0·94, 95% CI 0·76-1·15)	South Africa (Fairall et al, 2012).
A cross-sectional observational study conducted in 2011/12 showed that: • health care workers (HCW) felt that community peer educators (PE) performed as well as HCWs in counselling patients (48 of 53; 90.6%) • having PEs conduct counselling enabled clinical staff to see more patients (44 of 53; 83%)	Zambia (Cumbi A. et al, 2007)

Description of programme and results	Country, (Authors& year of publishing)
• a majority of patients who were also interviewed (141 of 148; 95.2%) agreed or strongly agreed that PEs were knowledgeable about ART, and 89 of 144 (61.8%) expressed a high level of confidence with PEs performing counselling and related tasks. • the use of the PEs allowed the professional staff to attend to clinical duties as the PEs assisted in recording vital signs, filing charts, and labelling medicine bottles and there was also improved patient awareness of drug adherence, risky behaviour, and family involvement	
Expert patients were used as ART and HTC service providers and these were trained to assist with clinic tasks such as measurement of vital signs, anthropometry and counselling. The evaluation of their work showed that • there were minor differences in measurement of patients' weight, height and temperature between the expert patients and the nurses. they add value to the ART services as they carry out tasks that have been shifted to them in an acceptable way, saving formal health staff time. • the expert patients carried out 368 hours of nurse tasks each month, saving two and a half full-time nurse equivalents per month. they also act as 'living testimonies' of the benefits of ART and can be a means of achieving greater involvement of People Living with HIV in HIV treatment programs	Malawi (Tenthani et al, 2012).

Description of programme and results	Country, (Authors& year of publishing)
• expert patients felt valued by patients for being a 'role model', or a 'model of hope', promoting positive living and adherence to ART	
MSF simplified ARV care through the adoption of the 'public health approach', task-shifting, providing support to patients and engaging PLHIVs and as expert patients. This programme • enabled a four-fold increase in ART initiations despite the critical shortage of health workers • adherence on the programme was very high • programme approach was evaluated and recommended for scaling up nationally	Thyolo district, Malawi (MSF, 2010) (Singleton et al, 2007)

Annex 9: Consent Form

Introduction

We invite you to join a study. The study is being conducted by Mr. John Kadzandira, a Malawian studying for PhD in Health Systems Research at the Royal College of Surgeons in Ireland. This consent form explains the study you are being asked to join. Please, read it carefully and ask any questions about the study before you agree to join. You may also ask questions at any time after joining the study.

Purpose of Study

The main purpose of this study is to assess the impact that task shifting for HIV service delivery is having on the quality and coverage of HIV and PHC services in Malawi and to establish staff-kills-mix and conditions that determine successful task shifting. The study will generate information that will in addition to fulfilling the conditions for the award of his PhD, contribute to policy planning on human resources and task shifting in Malawi and the region.

Procedures

We will interview 384 HSAs and all nurses, clinical officers and medical assistants in the two sampled districts of Salima and Mangochi. Some staff and members of the general community will participate in in-key respondent interviews and individual interviews while others will take part in focus group discussions which will last for about 90 minutes. With respondents' permission, we will audio tape the focus group discussions and key respondent interviews.

We will also ask for permission to make observations of counselling sessions as they take place in their natural settings.

Before undertaking this study, we have sought permission from the Ministry of Health and CHAM and ethical approval has been provided by the National Health Sciences Research Committee. Please feel free to ask me (the Research Assistant) for copies of letters showing that approvals have been granted to conduct this study.

Risks/Discomforts

There are no physical risks in this study. However, you might feel upset or worried to reveal your personal information when answering some of the questions. To minimize this, please, feel free to choose not to answer any questions you do not want to answer. There is also the inconvenience of this interview taking about 90 minutes of your time.

Anticipated Benefits

If you decide to participate in this study, you will receive no direct benefits from answering our questions. However, your contribution may inform the Ministry of Health and partners on the best ways of managing task shifting for successful HIV service scale-up as well as PHC programmes and other health issues.

Confidentiality

All the information you give us will be kept strictly confidential. You are not obliged to provide your name in the questionnaire identification section. We will assign a unique identification number to each one of you. Your responses will be represented by the number. The audiocassettes of the interviews and transcripts will be kept until the end of the study. We also ask you to keep what you hear in the interview or discussion private.

Voluntariness

Your participation in this study is completely voluntary. You are not obliged to answer any or all the questions in this questionnaire (or interview). You are also free to skip any question that you do not want to answer. Please, feel free to ask any member of the study team any questions you may have about this study either before completing this questionnaire or after.

Persons to Contact

If you have any further questions or concerns about this study because you think you have not been treated fairly or think you have been hurt by joining the study, you can contact Mr. John Kadzandira of the Royal College o Surgeons in Ireland (and of the Centre for Social Research in Malawi, locally on 09-951 788 or 08-403 699, e-mail: johnkadzandira@rcsi.ie

If you agree or don't agree to participate in the study, please indicate your choice below:

Yes, I agree. No, I do not agree.

Signature of respondent Date Date

Annex 10: Questionnaire for HSAs

The Royal College of Surgeons in Ireland (RCSI)

Study on Task Shifting, Service Quality and Coverage

Questionnaire for Health Facility Staff

Section A: Questionnaire Identification Details

QN	Question or Variable	Response Column
1	**Date of Interview** (DD/MM/YYYY): *if multiple visits made, record last date of completing the interview*	DD/MM/YYYY): ____/____/_____
2	Category of staff being interviewed 1. Clinician (Clinical Officer/Medical Assistant/Health Assistant) 2. Nurse (all categories) 3. HSA 4. Lay Counsellor Other staff (specify) ……..	_____
3	Name of health centre or hospital to which Staff belongs	_____
4	Name of District 1. Salima 2. Mangochi	_____

BACKGROUND VARIABLES (WORK RELATED)

5	In what month and year **did you join the health sector?**	(MM/YYYY) _____/_____
6	In what month and year did you **join this health centre/hospital?**	(MM/YYYY) _____/_____
7	When you **first** joined this health facility, what were your primary function(s)/departments? *(Tick the type of work at which you spent most time)* 1. OPD 2. Maternity ward 3. Other wards 4. Environmental Health/Community PHC work 5. HIV services 6. Pharmacy department Other, specify _____	
8	Do you deliver HIV services? 1. Yes 2. No ➔***12***	
9	Which HIV services do you deliver? *Tick all that apply* 1. HIV counselling and testing 2. ART 3. PMTCT 4. Community/PLIV follow-up Other, specify _____	*Tick all that apply in column 2*
10	In what month and year did you start delivering HIV services?	(MM/YYYY) _____/_____

11	How did you start delivering HIV services? 1. I was recruited so as to deliver HIV services 2. I requested to be assigned to delivering HIV services 3. My managers told me to start providing HIV services 4. It was an instruction from a higher level Other, specify _____	
12	Do you deliver primary health care services? 1. Yes 2. No ➔ ***14***	
13	Which PHC services do you deliver? **TICK ALL THAT APPLY** 1. Immunisations 2. Growth monitoring 3. Nutrition 4. Community education 5. Water and sanitation and hygiene promotion 6. Antenatal health care 7. OPD/Pharmacy Other, specify _____	
14	Considering all the work that you do in a week (on average), what percentage of the time (roughly) do you spend doing HIV work and non-HIV work?	HIV_____% No-HIV _____%
15	Why do you spend more time on HIV (or non-HIV) services? 1. HIV work done in better environment/offices 2. PHC work done in better environment/venues	

	3. HIV work is very stressful 4. PHC work is very stressful Other, Specify	
16	All factors considered, what would you prefer delivering between HIV and PHC services? **[ONE RESPONSE ONLY]** 1. Same allocation (50%:50%) 2. More of HIV and less of non-HIV 3. More of Non-HIV work and less of HIV 4. Only HIV work 5. Only non-HIV work Other, specify _____	
17	What are the reasons for your choice? **TICK ALL MENTIONED** 1. HIV work is more rewarding (allowances, workshops etc) 2. PHC work is more rewarding (allowances, workshops etc) 3. HIV work more risky 4. PHC work too involving/long distances 5. HIV work too involving 6. HIV work conducted in conducive environment/Office 7. Personal conviction to serve life/offer counselling 8. I was recruited for this service Other, specify_____	**TICK ALL CITED IN COUMN 2**

18	Have you ever been assigned tasks for which you were not primarily recruited for (Not in original job description)? 1. Yes 2. No ➔ ***26***	

19	Which tasks have been assigned to you? 1. Family planning 2. Pharmacy 3. Drug administration/Drug prescription 4. HIV work (HTC, ART, PMTCT) 5. Laboratory work 6. Environmental health Other specify _____	
20	Who assigned you to do those tasks? 1. The ministry headquarters 2. The district health office 3. The health centre manager 4. My immediate supervisor(s) 5. Myself Other, specify _____	
21	Was there someone else providing those services? 1. Yes 2. No ➔ ***26***	
22	What category of staff was providing those services? (**Indicate position or professional qualification)**	

	1. Clinician (Clinical Officer/Medical Assistant/Health Assistant) 2. Nurse (all categories) 3. HSA 4. Lay Counsellor Other staff (specify) ……..	
23	Compared to your qualification level, how would you rate the level of this person (or people) who was performing the tasks? 1. Same level 2. Senior to me 3. Junior to me	
24	Why do you think were the tasks assigned to you? ***Circle all that apply*** 1. S/he had too much work to do 2. S/he felt the tasks were too junior/simple for him/her 3. S/he felt the tasks were too complicated to him/her 4. S/he was required to take on other duties 5. Shortage of staff Other, specify _____	
25	What are your views regarding the new tasks that were assigned to you? (Probe: About your skills, time, workload, incentives)	

26	Are there other services which you were providing but you are no longer doing so because they have been assigned to other categories of staff? 1. Yes 2. No ➔ ***32***	

27	What services have been assigned to other staff? • Community PHC work • OPD work • Working in wards • Growth monitoring • Wound dressing/drug dispersion • Record keeping Other specify_____	
28	How would you rate these other staff compared to your position? 1. Same level 2. senior to me 3. Junior to me	
29	Who made the decision that those services should be delegated to the other staff? 1. The ministry headquarters 2. The district health office 3. The health centre manager 4. My immediate supervisor(s) 5. Myself Other, specify _____	
30	Why do you think was the decision made to re-assign those services to the other categories of staff?	

31	What are your views regarding the change that you should delegate the other services?	

HTCTraining

	CHECK Q8 ON PAGE 2 IF THE RESPONDENT DELIVERS HIV SERVICES; IF NO ➔ *37*			
32	Please describe your basic HIV testing and counselling training	State year of training		
33		How many days of classroom training?		
34	**If None, Indicate N/A**	How many days supervised practice?		
35		How many times followed-up by trainer in **first 3 months of work?**		
36		How many times followed-up by trainer/supervisor **in the past 3 months?**		

	Satisfaction & "Burnout"				
	In your work, do you feel appreciated by:	**Always**	**Often**	**Occasionally**	**Never**
37	*Clients*				
38	*The hospital director/chief of section*				
39	*Colleagues*				

39b	**(IF NEVER IN 37-39) Why do you think your work is not appreciated?**				
40	*Do you feel that you receive support from the hospital administration?*				
41	*Are you given adequate time in your job to carry out your* ***counselling*** *duties?* IF RESPONDENT DOES NOT DO HTC, CIRCLE= 99				
42	*Are you given adequate time in your job to carry out your* ***PHC*** *duties* IF RESPONDENT DOES NOT DO PHC, CIRCLE= 99				

IF RESPONDENT DOES NOT DO HTC OR PHC 49➔

	Please indicate how you feel about the following statements:	**Always**	**Often**	**Occasionally**	**Never**
43	*"I feel emotionally drained by my work as a counsellor than in PHC work"*				
44	*"My work as counsellor is very stressful than PHC deliverer"*				
45	*"My work as counsellor is very rewarding than PHC"*				

46	*"My work environment as counsellor is very stressful than PHC"*				
47	*"I have no confidence in my HIV counselling and testing skills"*				
48	*"I have no confidence in my clinical skills"*				

48b. Explain responses to 43 - 48

_____

Q49 – Q69 for <u>HSAs only</u>, otherwise ➔*<u>70</u>*

		Response
49	When did you complete your HSA training (year)?	
50	Which category of HSAs do you belong to? 1. HSA's recruited by government 2. HSAs recruited using global funds 3. HSAs recruited by NGOs and placed in the health centre 4. Other, specify _____	
51	For how many years have you worked as a HSA?	
52	For how many years have you worked in your current work catchment area?	
53	Do you live in your catchment area of work? 1. Yes ➔***55*** 2. No	
54	What is the **main reason** that you don't live in your catchment area?	

	1. No house is available 2. It is too remote 3. Following spouse 4. Was ordered by bosses 5. Living in catchment area is very stressing/ quarrels with community Other, specify ……	
55	Roughly how far is it **from the <u>centre of your catchment</u>** area to where you live?	
56	Roughly how far is it **from your <u>health centre</u>** to where you live? *Record '0' if s/he stays at health centre*	
57	Roughly how far is it **from your <u>health centre/hospital</u>** to the centre of your catchment communities? *Record '0' if s/he stays at health centre*	
58	What is the **usual main** mode of transport that you use in your work? 1. Bicycle (personal) 2. Bicycle (official) 3. Motorbike (personal) 4. Motorbike (official) 5. Walking 6. Public vehicles e.g. Matola, minibuses Other, specify	
59	Do you have records of your catchment statistics? 1. Yes 2. No	
60	How many villages do you work in?	
61	How many households do you have in your catchment area?	

62	How far apart are the furthest villages in your catchment area? (km)	
63	Please estimate time taken (on average) **to cycle** to the furthest village from your house	____H____M
64	Please estimate time taken (on average) **to cycle** to your health centre/ hospital from your house	____H____M
65	How many village visits do you make in a month?	
66	How may village visits in a month did you use to make before you started providing HTC?	

Did you do the following functions in the last two weeks?

		Was this done in last 2 weeks? 1. **Yes** 2. **No**
67	**Primary Health Care Services**	
	Immunization	
	Village inspection and disease investigation	
	Growth monitoring	
	Community based treatment of minor illnesses	
	Water treatment	
	Sanitation (e.g. latrine and san plats construction)	
	Family planning	
68	**HIV Services**	
	HIV Counselling and testing	
	Other HIV work (Assisting in ART/PMTCT)	
	Supervising PLIV/TB Support Groups	

69	**Other**	
	Dispensing drugs at the HC	
	Assisting with other services at health centre	

Information on Salaries and Allowances

70	Are you willing to share with me information concerning your salary and other allowances that you receive? 1. Yes 2. No ➔**72**	
71	How much is your gross salary (excluding allowances) per month?	
72	How much do you get as allowances per month (allowances that appear on your pay slip)?	
73	How much do you get **as allowances** per month for delivering HIV services?	
74	How much **in additional salary** do you get for delivering HIV services?	
75	How much do you get **as transport/travel allowances** per month?	
76	How much do you get **as housing allowances** per month?	
77	How much do you get as additional salary/allowances per month for delivering integrated community management of childhood illnesses at the community level?	
78	Would you mention a rough figure of how much your salary and allowances in a month amount to?	

79. What suggestions do you have for the improvement of HSA work in Malawi?

1. Provide (hardship) allowances
2. Provide better housing

3. Make drug supplies regular
4. Reduce tasks for HSAs
5. Provide more supervision
6. Recruit new staff to take on some tasks currently delivered by HSAs
7. Provide more refresher courses
8. Provide better means of travel

_____

_____

80. Write any information given by the respondent in the course of the interview that have relevance to the study

_____

_____

_____

81. Where has the interview taken place?
    1. At HSA's home
    2. At the health centre/health post/hospital

    Other, specify _____

END THE INTERVIEW HERE. THANK THE RESPONDENT

<u>REMEMBER TO COLLECT STATISTICS FROM THE HSA</u>

Annex 11: Record Reviews for HSAs

Record Reviews

Name of HSA:

Sex: 1. Male 2. Female

Health Post

Health Centre/Hospital

Provide the following statistics done by you in 2011

	HTC	(Immunisations) DPT 3 OR Pentavalent	Community visits	Other (focus on FP)
January				
February				
March				
April				
May				
June				
July				
August				
September				
October				
November				
December				

Annex 12: In-depth Interview Guide for National, District & Facility Staff

1. **Identification details**
    1. Name of Health facility &/or District
    2. Name of respondent
    3. Professional qualification/position
    4. Position in facility/District
    5. For how long have you been in your position?

Knowledge and Views on Task Shifting

2. What is your understanding of task shifting?
3. At what level(s) is task shifting taking place in your district/facility?
   PROBE:
    a. Who is shifting tasks to who?
    b. Is there both horizontal and vertical task shifting? And for which tasks?
    c. Is task shifting happening upwards or downwards or both ways?
    d. Who determines what tasks have to be shifted and to who?

4. What specific tasks have been shifted to HSAs in this district/facility?

   PROBE FOR EACH SERVICE THAT HAS BEEN SHIFTED:
5. Overall, what would you say has been the effect of shifting these tasks to the HSAs?
    a. Coverage of those services
    b. Quality of services being provided *(consider if the same services were to be provided by nurses and clinicians and consider adherence to protocols)*
    c. Workload for nurses, clinicians and HSAs
    d. Time scheduling for both HIV and non HIV services
    e. Coverage and quality of PHC services

6. What comparative advantage do HSAs have in service scale-up and service provision in general?
7. What challenges/constraints are HSAs facing in their work?
8. In what other areas (technical) do you observe weaknesses among your HSAs? How about strengths?
9. How do you provide your supervision? (individually? During growth monitoring only? Are any reports submitted? Do they retain copies of the reports? etc.)

SHOW TRENDS IN HIV & NON-HIV FOR THE DISTRICT OR FACILITY

10. What could account for the increasing/declining trends in HIV or non-HIV or both services in your facility since 2006? (**Question to be phrased according to district or facility)**

11. Explain the HR situation in the district/facility (nurses, clinicians and HSAs since 2006) and how this relates to the observed trends

12. What factors do you think would be contributing to the general decline in the coverage of immunizations in Malawi? (problems with HSAs? Their workload? Mothers/caretakers? Supply of vaccines? Logistics? etc…)
13. Are there any NGOs that are working in your catchment area? How do they involve HSAs? What contributions do HSAs make to their activities? How is the HSA work related to the objectives of the NGOs? How are HSAs remunerated?
14. What suggestions would you have to improve task shifting?