Integration of national community-based health worker programmes in health systems

Lessons learned from Zambia and other low and middle income countries

Joseph Mumba Zulu
"We make a living by what we get, but we make a life by what we give."
- Winston Churchill
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Abstract

Background: To address the huge human resources for health (HRH) crisis that Zambia and other low and middle income countries (LMICs) are experiencing, most LMICs have engaged the services of small scale community-based health worker (CBHW) programmes. However, several challenges affect the CBHWs’ ability to deliver services. Integration of national CBHW programmes into health systems is an emerging innovative strategy for addressing the challenges. Integration is important because it facilitates recognition of CBHWs in the national primary health care system. However, the integration process has not been optimal, and a more comprehensive understanding of the factors that shape the integration process is lacking. This study aimed at addressing this gap by analysing the integration process of national CBHW programmes in health systems in LMICs, with a special emphasis on Zambia.

Methodology: This was a qualitative study that used case study and systematic review study designs. The case study focused on Zambia and analysed the integration processes of Community Health Assistants (CHAs) into the health system at district level (Papers I-III). Data collected using key informant interviews, participant observation, in-depth interviews and focus group discussions were analysed using thematic analysis. The systematic review analysed, using thematic and pathways analysis, the integration process of national CBHWs into health systems in LMICs (Brazil, Ethiopia, India and Pakistan)-(Paper IV). The framework on the integration of health innovations into health systems guided the overall analysis.

Results: Factors that facilitated the integration of CHAs into the health system in Zambia included the HRH crisis which triggered the willingness by the Ministry of Health to develop and support implementation of the integration strategy—the CHA strategy. In addition, the attributes of the CHA strategy, such as the perceived competence of CHAs compared to other CBHWs, enhanced the community’s confidence in the CHA services. Involvement of the community in selecting CHAs also increased the community’s sense of programme ownership. However, health system characteristics such as limited support by some support staff, supply shortages as well as limited integration of CHAs into the district governance system affected CHAs’ ability to deliver services. In other LMICs, as in Zambia, the HRH problems necessitated the development of integration strategies. In addition, the perceived relative advantage of national CBHWs with regard to delivering health services compared to the other CBHWs also facilitated the integration process. Furthermore, the involvement of community members and some politicians in programme processes enhanced the perceived legitimacy, credibility and relevance of programmes in other LMICs. Finally, the integration process within the existing health systems enhanced programme compatibility with health system elements such as financing. However, a rapid scale-up process, resistance from other health workers, ineffective incentive structures, and discrimination of CBHWs based on social, gender and economic status inhibited the integration process of national CBHWs into the health systems.

Conclusion: Strengthening the integration process requires fully integrating the programme into the district health governance system; being aware of the factors that can influence the integration process such as incentives, supplies and communication systems; clear definition of tasks and work relationships; and adopting a stepwise approach to integration process.

Key words: Human resources for health, National community-based health workers, Health Innovations, Integration, Health Systems, Low and middle income countries, Zambia.
Original papers

This thesis is based on the following four papers, referred to as Papers I-IV.


<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBHW</td>
<td>Community-Based Health Worker</td>
</tr>
<tr>
<td>CHA</td>
<td>Community Health Assistant</td>
</tr>
<tr>
<td>DHMT</td>
<td>District Health Management Team</td>
</tr>
<tr>
<td>FGD</td>
<td>Focus Group Discussion</td>
</tr>
<tr>
<td>GHWA</td>
<td>Global Health Workforce Alliance</td>
</tr>
<tr>
<td>HRH</td>
<td>Human Resources for Health</td>
</tr>
<tr>
<td>LMIC</td>
<td>Low and Middle Income Country</td>
</tr>
<tr>
<td>MoH</td>
<td>Ministry of Health</td>
</tr>
<tr>
<td>NHC</td>
<td>Neighbourhood Health Committee</td>
</tr>
<tr>
<td>NGO</td>
<td>Non-Governmental Organisation</td>
</tr>
<tr>
<td>PHC</td>
<td>Primary Health Care</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
</tr>
</tbody>
</table>
Prologue

“The best way to find yourself is to lose yourself in the service of others” - Mahatma Gandhi.

'We feel “happy” ; “satisfied” ; “blessed” ; “find purpose of life” when we help the less privileged in society access services’ are the common words that most of the community-based health workers (CBHWs) I have worked with would use whenever I asked them why they worked so hard despite not being entitled to monthly salaries. The inspiration that I gained through working with CBHWs at the SOS Children’s Villages of Zambia in 2006 motivated me to pursue further studies on community participation in health service delivery- the broader theme in which my PhD is nested.

Having graduated from the University of Zambia with Bachelor of Social Work in 2005, I was employed as an Outreach Social Worker at the SOS Children’s Villages Zambia. My work at the organisation involved going into the community to conduct household vulnerability assessments and implement activities aimed at strengthening the capacity of families and communities to respond to the educational, health, economic and psychosocial needs of orphans and vulnerable children.

I was inspired to work for the SOS Children’s Villages Zambia mainly by the values concerning what constitutes true happiness which I gained during my secondary school education at St Mary’s Junior Seminary School –the school which provides a foundation for Catholic priests. In the Seminary School, I learnt that we find true happiness through helping the less privileged in society meet their needs. In particular, I learnt about the importance of building the capacity of the less privileged by linking them to resources through sharing information as well as providing counselling services to them. These values were consolidated by the counselling and community development skills which I gained during the training in the Social Work Degree.

Moving from one household to another in the community was a regular feature of my job at the SOS Children’s Village. Effectively conducting this work required the support of the community members as the catchment areas were too vast for one Outreach Social Worker to handle. It was during this time that I first came in contact with CBHWs. Each time I went in the field, they accompanied me. Seeing CBHWs work beyond work hours or on weekends as well as effectively accomplishing their work despite not being entitled to monthly salaries and having limited training was not only remarkable, but also surprising. I always wondered what inspired them to keep on working.

It was in an attempt to gain further insight into the subject of community participation in primary health care that, during my fieldwork for the Master of Social and Cultural Anthropology in 2009, I decided to explore the subject further. One of the key issues that I focused on during the Master Degree training at the Virje University Amsterdam was the role of community participation in HIV prevention, testing, treatment and care programmes in Zambia. Undertaking this study helped me know more about not only the relevance of CBHWs in public health but also the challenges that CBHWs face in undertaking their duties. However, this study raised several questions that needed answers, for example: Who exactly are CBHWs? What are their main duties? How are they managed? How can their work motivation be improved? How can CBHWs be helped to perform better? These questions increased my interest in the subject and by the time I was completing my thesis, I was determined to conduct further studies on the subject at PhD level. However, the puzzle was where to find resources to conduct such a study, the institution from which to conduct the study, and the supervisors for the PhD programme.
Meeting Anna-Karin Hurtig, a Professor of Public Health at the Umeå University, in Mombasa, Kenya in one of the workshops for a multi-country research study on priority setting in the health sector in Kenya, Tanzania and Zambia, opened the way towards answering the questions about CBHWs. I was introduced to Anna-Karin (who later became my main PhD supervisor) by my supervisor at the University of Zambia, Associate Professor Charles Michelo (who became my PhD co-supervisor). These two supervisors and another co-supervisor Associate Professor John Kinsman (from Umeå University) significantly helped me in developing the PhD plan and conducting the study that sought to answer some of the above questions.

At the time when I was developing the PhD study plan in 2011, a huge transformation in the policy and programme processes for CBHW workforce had taken place in Zambia. The National Community Health Assistant Strategy, which aimed at integrating CBHWs into the health system, was launched. The Ministry of Health (MoH) in Zambia assumed that the integration process would help address the huge human resources for health gap in Zambia and also improve the performance of CBHWs by addressing the challenges that CBHWs faced, such as inadequate supervision, incentives and training. Considering that the strategy intended to address most of key issues that affect CBHW programmes, the implementation of this strategy presented a perfect opportunity for us to explore factors that shaped the integration of national CBHWs into health systems. The issues that emerged from the case study of the integration process of Community Health Assistants in Zambia inspired us analyse the integration of national CBHW programmes into health systems in other low and middle countries (LMICs). The analysis of the integration process of CBHWs in LMICs provided additional insights into the factors that shape the integration process of national CBHW programmes at a global level.

Through use of case study and systematic review approaches, this work provides comprehensive lessons on the factors that shape the integration process of national CBHW programmes into the health system. I feel happy that we had the opportunity to move beyond Zambia and also provide lessons for strengthening the integration processes in other LMICs. By providing recommendations focusing on strengthening integration process, I believe that this study can contribute towards enhancing the performance of CBHW in delivering primary health care in communities which are in need of the services.
Chapter 1 | Introduction

1.1. National CBHW programme, an innovative approach to addressing the HRH crisis

Integration of national community-based health worker (CBHW) programmes into health systems is an emerging innovative approach to addressing the human resources for health (HRH) crisis that most low and middle income countries (LMICs) are experiencing. Brazil, Ethiopia, India, Pakistan and now Zambia are some of the countries that have implemented the integration strategies (Table 1) [1-3]. In addition to addressing the chronic shortage of HRH, the need to address the challenges which most of non-national CBHW programmes are experiencing in several LMICs also motivated the implementation of strategies. The challenges include inadequate supervision, training and insufficient incentives. Unlike other CBHW programmes which are often formed and operated by private health providers such as non-governmental organisations (NGOs), national CBHW programmes are formed and operated by governments and are integrated into the health system through standardising the scope of training, payment and responsibilities as well as through placing the programmes into the formal government health systems (training, supervision, financial, governance and service delivery health system elements). Integration is important because it facilitates recognition of CBHWs in the national health care planning, regulation, monitoring, implementation and financing frameworks [4].

Table 1: Some of the countries implementing national CBHW programmes

<table>
<thead>
<tr>
<th>Country</th>
<th>CBHW programme</th>
<th>Number</th>
<th>Year launched</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil</td>
<td>Community Health Assistants (CHAs)</td>
<td>About 240,000</td>
<td>1991</td>
</tr>
<tr>
<td>Pakistan</td>
<td>Lady Health Worker (LHWs)</td>
<td>About 90,000</td>
<td>1992</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>Health Extension Workers (HEWs)</td>
<td>About 34,000</td>
<td>2003</td>
</tr>
<tr>
<td>India</td>
<td>Accredited Social Health Activists (ASHAs)</td>
<td>About 800,000</td>
<td>2005</td>
</tr>
<tr>
<td>Zambia</td>
<td>Community Health Assistants (CHAs)</td>
<td>About 600</td>
<td>2010</td>
</tr>
</tbody>
</table>

Despite many countries implementing strategies aimed at integrating the national CBHWs into health systems and massively deploying national CBHWs within a short period of time, their integration process has not been optimal [4]. Different aspects of the programmes are integrated in different ways into one or more elements of the health systems. While some aspects are fully integrated in the elements, others are partially integrated and some are completely not integrated. This ‘mosaic’ type of integration has limited national CBHWs’ ability to deliver health services at community level and the acceptability of some of their services to community members.

Meanwhile, a more comprehensive understanding of the factors that shape the integration process of national CBHWs into the health systems in Zambia and other LMICs is lacking. The need to understand what influences the integration process is critical in order to be able to optimize national CBHW programmes’ contribution towards meeting the health needs. In Zambia, for example, being a recent programme, to the best of our knowledge, no study examined the integration process of the CHAs into the health system. In-depth focus on the experience of integration in a country that is in the early stages of a national CBHW programme (in this case Zambia), complemented by insight into the process of integration in countries where national programmes are more established (for example Brazil, Ethiopia, India and Pakistan) is
essential for providing knowledge that may guide policy makers and other actors in effectively developing and implementing strategies aimed at integrating national CBHWs into health systems.

Thus, this thesis aims at addressing this knowledge gap by analysing the integration process of national CBHW programmes into health systems in LMICs, with a special emphasis on Zambia, by exploring the factors that shape the integration process. This was done through case study and systematic review study designs. The case study focused on integration of CHAs into the health system at district level in Zambia (Papers I-III). The systematic review analysed the factors that have shaped the integration process of national CBHWs into the health systems in Brazil, Ethiopia, Pakistan and India (Paper IV). By providing a comprehensive understanding of the factors that shape the integration process, this thesis intends to inform policy makers in countries implementing or that plan to integrate CBHWs into the health systems on the strategies for strengthening the integration process so as to enable national CBHWs meet the goals they are intended to meet.

In order to provide a detailed overview of the CBHW programmes, we focus in the subsequent sections of this chapter on the situation of HRH crisis in LMICs, historical development of national CBHW programmes and implementation of national CBHW programmes.

1.2. An overview of the human resources for health crisis

About 57 of the countries in the world are facing HRH crisis. This shortage has affected the delivery of quality health services in these countries [5]. The majority of these countries (47) are located in Sub-Saharan Africa. The shortage of health workers in Africa and Asia was estimated to be 4.25 million workers [6]. Human Resources for Health refers to all people engaged in actions whose primary intent is to enhance health [7]. In general, the proportion of health workers in Sub-Saharan Africa is far below the World Health Organization’s minimum of 23 doctors and nurses per 10,000 people [7, 8]. Table 2 below compares the proportion of health workers in the United States of America (USA), Europe Africa, and Zambia.

<table>
<thead>
<tr>
<th>Type of health worker</th>
<th>Continent/country</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>USA</td>
</tr>
<tr>
<td>Doctors</td>
<td>19</td>
</tr>
<tr>
<td>Nurses/Midwives</td>
<td>49</td>
</tr>
</tbody>
</table>

Causes of human resources for health shortages

This HRH shortage has been caused by several factors. The countries’ limited capacity to train staff and international migration by staff in search of professional development and a better quality of life are some of the factors that have contributed to this HRH crisis [8, 9]. These shortages have increased workloads and contributed towards de-
motivation of the remaining staff [9]. This low HRH work motivation has also affected effective delivery of services [10].

This HRH shortage has necessitated the implementation of new strategies for improving health outcomes in the affected countries. These strategies include extending the role of some professional staff to undertake extra duties, and involving the private sector in the training of health workers [11]. Overall the strategies aimed at addressing HRH crisis focused on increasing: coverage (promoting numeric adequacy, appropriate skill mixes, and outreach to vulnerable populations); motivation (adequate remuneration, a positive work environment, opportunities for career development, and supportive health systems); and competence (educating HRH in appropriate attitudes and skills, creating conditions for continuous learning) [12, 13].

These HRH strategies, however, proved difficult to implement for several reasons. First, there was limited capacity in most LMICs to train and retain highly skilled health workers [14]. Further, some of the workers were not willing to work in rural areas due to poor basic facilities and amenities in these areas. Due to the difficulties in implementing the policies, many LMICs realised that it was difficult to have enough professional health workers within an acceptable time frame [14]. As a result, there was a shift in strategies for addressing the HRH shortage towards developing and implementing community-based health worker (CBHW) programmes [15].

1.3. Historical development of national CBHW programmes

Below we present the historical development of national CBHWs. The first part of the section starts by providing a broad overview of who CBHWs are. This overview is followed by a discussion on how the CBHWs emerged and participation of CBHWs in primary health care. The last part of the section focuses specifically on development and integration of national CBHW programmes into health systems in LMICs.

Who are community-based health workers?

The term CBHW is broad in scope and includes home-based care providers, community health workers (CHWs), treatment supporters, and traditional birth attendants [15]. In general CBHWs (both national and non-national CBHWs) are members of the communities where they work, are selected by their communities, and answerable to the communities for their activities. Although they may be supported by the health system as they perform a wide range of tasks that can be preventive, curative and developmental in nature, they have less training than professional workers [16]. As outlined in Table 3, which provides an overview of non-national CBHWs, CBHWs have many titles. The titles vary within and across the countries. In addition, in some cases there is also variation in the number of CBHWs across the titles.
Table 3: An overview of non-national CBHW programmes

<table>
<thead>
<tr>
<th>Country</th>
<th>Name of CBHW</th>
<th>Number of CBHWs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>Four cadres of CBHWs: Gizi (nutrition); Kesehatan (health); KB (family planning); Mental health</td>
<td>1,500,000</td>
</tr>
<tr>
<td>United States</td>
<td>Community Health Workers</td>
<td>175,000</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>Family Welfare Assistant, Shasthya Shebika, Health Assistant, Community-Based Skilled Birth Attendant, Community Health Care Provider</td>
<td>23,500, 91,000, 4,500, 6,155, 12,991</td>
</tr>
<tr>
<td>Nigeria</td>
<td>Community Health Worker (including Health Extension Worker and Village Health Worker)</td>
<td>86,600</td>
</tr>
<tr>
<td>Uganda</td>
<td>Village Health Teams</td>
<td>83,396</td>
</tr>
<tr>
<td>Thailand</td>
<td>Village Health Volunteer</td>
<td>80,000</td>
</tr>
<tr>
<td>South Africa</td>
<td>Home-Based Carer, Lay Counsellor, Adherence Counsellor, Directly Observed Therapy Supporter for TB, Peer Educator</td>
<td>47,121, 9,243, 2,010, 2,740, 1,810</td>
</tr>
<tr>
<td>Rwanda</td>
<td>Village Health Worker</td>
<td>60,000</td>
</tr>
<tr>
<td>Nepal</td>
<td>Female Community Health Volunteer, Maternal Child Health Worker, Village Health Worker</td>
<td>49,000, 2,500, 3,000</td>
</tr>
<tr>
<td>Iran</td>
<td>Behvarz</td>
<td>31,000</td>
</tr>
<tr>
<td>Nicaragua</td>
<td>Brigadista, Volunteer Midwives, Volunteer Collaborators, Health Promoters</td>
<td>12,700, 7,200, 7,100, 2,800</td>
</tr>
<tr>
<td>Afghanistan</td>
<td>Community Health Worker</td>
<td>22,000</td>
</tr>
<tr>
<td>Ghana</td>
<td>Community Based Agent</td>
<td>16,812</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>Community Health Worker</td>
<td>15,000</td>
</tr>
<tr>
<td>Malawi</td>
<td>Health Surveillance Assistant</td>
<td>10,500</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>Community Health Worker</td>
<td>4,449</td>
</tr>
<tr>
<td>Niger</td>
<td>Agent de Santé Communauaire</td>
<td>2,560</td>
</tr>
<tr>
<td>Haiti</td>
<td>Accompagnateur</td>
<td>2,378</td>
</tr>
<tr>
<td>Mozambique</td>
<td>Agentes Polivalentes Elementares</td>
<td>2,726</td>
</tr>
<tr>
<td>Mali</td>
<td>Agent de Santé Communauaire</td>
<td>2,052</td>
</tr>
</tbody>
</table>

Source: Perry et al. [14].

How did the CBHW programmes emerge?

The current CBHW programmes have their origins in Ding Xian, China, in the 1920s [14]. The “barefoot doctor” programme in China is the pioneer of modern CBHW programmes. This programme grew rapidly in the 1950s and by 1972 there were about one million barefoot doctors. The barefoot doctors were peasants who divided their time between health-related duties and agricultural work [17]. Following the inability of the Western Medical model of trained physicians to address the health of people, particularly in rural communities in most LMICs in the 1960s, the barefoot doctor concept attracted attention around the world as one possible approach to addressing the gap in health care [14, 18].

During this period, several CBHWs programmes emerged in many countries such as Indonesia, India, Tanzania, Venezuela, Honduras, and Guatemala [19]. This first group
of CBHWs had minimal or no formal education at all and in most cases had training which lasted no more than 3 months. Their training encompassed basic health issues which included providing basic medical care, keeping record births and deaths, vaccinating communities against diseases, giving first aid and conducting health promotion campaigns such as educating community members to maintain clean water [20].

From the early 1970s to mid-1980s, there was a proliferation of small and large scale CBHW programmes operated mainly by NGOs in LMICs [14]. Examples of these CBHWs included those in Bangladesh and Nepal which have been outlined in Table 3 [14, 21-24]. The Declaration of Alma Ata in 1978 regarding the role of CBHWs in primary health care (PHC) contributed to this proliferation [1, 25]. Article VII.7 of the Declaration recognised CBHWs as being vital to improving access to PHC as follows:

“Primary health care “relies, at local and referral levels, on health workers, including physicians, nurses, midwives, auxiliaries and community workers as applicable, as well as traditional practitioners as needed, suitably trained socially and technically to work as a health team and to respond to the expressed health needs of the community” [26].

The time when there was a proliferation in CBHW programmes was when there was a change within the broader global political situation, with USSR and China leading a large group of newly independent nations along a socialist path. This socialist path created favourable global political structure within which the concept of CBHWs could thrive [14].

**Participation of CBHWs in primary health care**

Although CBHWs had been involved in providing primary care for many years in some countries, the Alma Ata declaration further emphasised the role of CBHWs in PHC [6]. The Alma Ata declaration in 1978 proclaimed PHC as the strategy to achieve “Health for all by the year 2000”. The declaration stated a set of values and principles that placed health in a right-based approach, which promotes universal coverage health systems with an emphasis on health equity [26].

Primary Health care is “essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individual and families in the community through their full participation and at a cost that the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination” [26].

Primary health care aims to address community health problems through providing promotive and preventive activities. The focus of PHC is preventing and controlling locally endemic diseases. Furthermore PHC care also encompasses providing curative services, which include providing appropriate treatment of common diseases and provision of essential drugs and rehabilitative services.

The specific PHC activities performed by CBHWs vary from one place to another. The CBHWs are involved in promoting nutritional status of children, they participate in community case management of childhood illness, as well as in interventions for reducing neonatal mortality, for reducing under-5 mortality as well as improvement of women’s health [27-30]. Other activities performed by CBHWs include controlling
tuberculosis and malaria, HIV prevention, testing and care as well as general health promotion activities in the community [31-33]. Table 4 shows some of the PHC activities performed by CBHW programmes and achievements in different countries.

Table 4: Selected PHC activities performed by CBHW programmes and successes

<table>
<thead>
<tr>
<th>Type of activity</th>
<th>Description of CBHW activity/success</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reducing under nutrition</td>
<td>Contributed to improving childhood nutrition through promotion of exclusive breastfeeding care and support as well as providing micronutrients to pregnant women (e.g. in Mozambique).</td>
<td>[14]</td>
</tr>
<tr>
<td>Community case management of childhood illness</td>
<td>Effectively diagnose and treat serious childhood illnesses, such as pneumonia, diarrhoea, and malaria (e.g. in Bangladesh, Nepal, Pakistan, the Philippines, and Tanzania).</td>
<td>[34] [27]</td>
</tr>
<tr>
<td>Interventions for reducing neonatal mortality</td>
<td>Helped reduce newborn deaths by identifying pregnant women and providing them with relevant health education during home visits; promoting clean delivery and essential newborn care within the home or health post environment; assisting with hygienic care of the umbilical cord and with healthy practices after birth (e.g. in Bangladesh, Malawi, and Nepal).</td>
<td>[28] [35] [29]</td>
</tr>
<tr>
<td>Interventions for reducing under-5 Mortality</td>
<td>Contributed towards reducing under-5 mortality through implementing integrated programs. For example through Child Health Days, CBHWs provide supplemental polio and measles immunizations. The CBHWs provide a package of services which includes deworming tablets, vitamin A, ORS, and water treatment tablets (e.g. in Somalia).</td>
<td>[30]</td>
</tr>
<tr>
<td>Improvement of women’s health</td>
<td>Helped reduce maternal mortality through promoting safe deliveries (by undertaking referrals and in some cases assisting in deliveries) and also expanding access to family-planning services (e.g. in Uganda, Bangladesh, Ethiopia, India, Malawi, Nepal and Afghanistan).</td>
<td>[29] [36] [14]</td>
</tr>
<tr>
<td>HIV/AIDS related issues</td>
<td>Participated in sensitisation campaigns on prevention of HIV, promoting HIV testing and adherence to HIV treatment and also providing care to people living with HIV (e.g. in Haiti, South Africa, and Uganda).</td>
<td>[37] [38] [33]</td>
</tr>
<tr>
<td>Malaria Control</td>
<td>Actively participated in controlling malaria through promoting the use of treated mosquito nets, conducting rapid diagnostic tests and providing treatment (e.g. in Zambia).</td>
<td>[31] [39]</td>
</tr>
<tr>
<td>Tuberculosis Control</td>
<td>Played a critical role in managing tuberculosis by visiting homes to detect symptomatic patients, facilitate sputum testing, and promoting treatment compliance (e.g. in Bangladesh).</td>
<td>[32]</td>
</tr>
</tbody>
</table>

Towards integration of national CBHW programmes into health systems

In the late 1980s, several CBHW programmes encountered serious difficulties in delivering health services. These challenges caused a decline in interest in CBHW programmes. The difficulties were mainly due to inadequate training, insufficient remuneration, lack of supervision, inadequate logistical support for supplies and
medicines, lack of career progression, lack of standardised reporting systems and acceptance by higher-level health care providers, inappropriate selection of CBHWs due to lack of appropriate selection standards and systems [40]. Furthermore, the global political and economic forces reduced governments’ ability to support these programmes. For example, the oil crises of the 1970s led to a global recession and a debt crisis in the 1980s that limited the capacity of many developing countries to provide or finance social and health services, including PHC-driven CBHW programmes [40]. Due to these economic pressures, many governments were forced to adopt free market systems which meant less involvement of government in PHC delivery [22]. During this period, there was also a rise of liberal economic theory and a global weakening of the communist ideal [14].

The global economic and political forces, together with the rising prominence of selective approaches to health service provision, resulted in a loss of momentum with regards to the involvement of CBHWs in the PHC movement in the late 1980s [14, 22]. In addition to these challenges, priority was given to investments in secondary and tertiary levels of care, which often benefitted primarily urban and elite populations [41]. Furthermore, the monitoring and evaluation systems of CBHW programmes were weak, and there was limited evidence of their effectiveness in addressing health problems at community level [42].

In the early 1990s, CBHW programmes regained prominence globally, with some countries developing national scale CBHW programmes. We define national programmes as CBHW programmes that are formed and operated by the government; have training, supervision and incentive structures that are standardised and well-defined by the government; and have been scaled nationally. This resurgence of CBHW programmes was partly due to WHO’s promotion of a task shifting approach to health service delivery in order to alleviate the HRH crisis [43]. Task shifting includes delegating tasks away from professional staff to non-professional staff such as CBHWs, thereby enabling professional staff to concentrate on their specific areas of expertise [7, 18, 44]. Increasing internal and external pressures and funding for HIV/AIDS prevention, testing, care and scale up of ART programmes, necessitated substantial task shifting and provided a conducive environment for CBHW programmes to thrive [45, 46]. The demands imposed by the rising burden of non-communicable diseases, as well as general health coverage inequalities (for example, in maternal and child health services) also contributed to this renewed interest in large scale CBHW programmes [1, 47]. Further, the availability of evidence on the effectiveness of CBHWs in delivering health care generated enthusiasm among many LMICs to strengthen existing large scale CBHW programmes and develop new ones [14].

However in order to be effective and sustainable, there was a realisation that there was a need to integrate national CBHW programmes into health systems. Evidence suggests that lack of integration into the national health system is one of the main challenges that affected the effectiveness of several CBHW programmes [4]. Integration is important because it facilitates recognition of the national CBHWs in the formal health systems functions. Further, it provides possibilities for enhancing health system performance by strengthening human resources. According to van Olmen et al., the elements of the health system, namely governance, resources, service delivery, and population, are highly interconnected with each other, such that what happens in one element often has ripple effects on the others (Figure 1) [48]. Integration may improve health systems performance by strengthening referral systems and supervision for CBHW services, reporting processes for CBHWs as well as the support provided by facility-based care providers and policymakers to CBHWs.
As part of efforts to address the global health worker shortage, the WHO has continued to recommend implementation of CBHW programmes, with an emphasis on the need to integrate the programmes into the health system [49]. For example, in 2010, the Global Health Workforce Alliance (GHWA) organised the Global Consultation on Community Health Workers. One key issue during this conference was to develop ways to improve the performance of CBHWs. One of the key recommendations from the consultation was that the integration of CBHWs into national health systems was key for addressing the challenges which current CBHWs were experiencing and improving the performance of CBHWs. Part of this integration process was to include a regular and sustainable remuneration stipend for CBHWs. The GHWA is an innovative partnership under the WHO, which is aimed at coordinating solutions to the global health workforce crisis and has a membership of over 400 organisations. One approach through which GHWA tries to address the various HRH crises is through using the Country Coordination and Facilitation (CCF) approach. This CCF approach requires establishing and supporting the necessary governance structures within the different countries that are facing the HRH crisis for inter-sectoral coordination and collaboration in order to plan, implement and monitor health workforce development and retention at the country level. Furthermore, the approach helps priority countries work with different partners to ensure that motivated and skilled health workers as well as funding and technical expertise are available for meeting health care needs at the community level [50].

Recent examples of national CBHW programmes include the Health Extension Workers in Ethiopia developed in 2004, the Lady Health Worker Programme in Pakistan launched in 1992, the Accredited Social Health Activists in India initiated in 2005, Community Health Agents in Brazil developed in 1991 [15], and the Community Health Assistants in Zambia. These programmes are described in detail in the subsequent chapters.
Chapter 2 | The Health System in Zambia

This chapter describes the Zambia health system, providing a broader overview of the context in which the case study was done. The chapter outlines the country profile and health challenges, the health sector structure, the HRH situation in Zambia, and the National Community Health Assistants Strategy.

2.1. Country profile and health challenges

Zambia is a landlocked country located in the southern part of Africa (Figure 2). It has a total area of 752,618 square kilometres. The country is a lower middle income country. In 2013, the country had a GDP of about 17,375.82 million (USD), and a GDP per capita of 1,115 (USD). The country has a population of about 14.5 million. About 60% of the population was below the international poverty line of USD 1.25 per day in 2011.

The Zambian health system faces multiple challenges. HIV prevalence in the adult Zambian population stands at 12.7%. The average life expectancy in Zambia is 51.2 years, while the neonatal mortality rate is 35 per 1,000 live births. Infant and under-five mortality are also high, at 86 and 141 per 1,000 live births, respectively [51]. The Total Fertility Rate for Zambia was 5.9 in 2010 while the population grew at a rate of 2.8 percent per annum during the 2000-2010 [52]. Other additional PHC related problems include malnutrition, malaria, tuberculosis and seasonal epidemics. Malnutrition is the primary cause of under-five deaths in Zambia, and is attributable for up to 52%. Malaria accounts for over 40% of all visits to health facilities. Tuberculosis continues to be a major public health problem in Zambia partly due to the high HIV/AIDS prevalence. Common seasonal epidemics experienced in Zambia include cholera. Cholera is mainly caused by inequitable access to improved water sources (only 41% of the households have access to improved sources of water), and insufficient sanitation services (25% of households have no toilet facilities) [45].

Figure 2: Map of Zambia
2.2. Health sector structure

The health system consists of formal and informal sectors. The formal health sector, which is the main provider of health care services, is made up of different service providers, namely state-owned health facilities, faith-based health facilities and the private sector. The state-owned facilities are mostly owned by the Ministry of Health (MoH). A few of these health facilities are under the Ministries of Defence and Home Affairs. The faith-based health facilities are owned by various religious organisations and are under the Churches Health Association of Zambia (CHAZ). The faith-based health facilities are the second largest provider of health care services in Zambia, after the public health facilities. The clinics and hospitals under CHAZ are spread over the entire country, and are predominantly in rural and hard-to-reach areas. They work closely with the District Health Management Team (DHMT). The DHMT is responsible for planning and coordinating the implementation of health services in the districts. The DHMT also monitors and evaluates the processes of delivering health services in the country. The private health sector includes hospitals, health centres/clinics, drug stores, and diagnostic centres owned by private individuals and institutions. These are mainly in urban areas and make up around 10% to 15% of the health sector [53].

The informal health sector is unregulated and it consists of a wide range of CBHWs, such as trained and untrained traditional birth attendants who attend pregnant mothers in the community. The traditional healers who are also part of the informal sector and providers mainly offer herbal remedies and spiritual healing services. The traditional providers are coordinated by the Traditional Health Practitioners of Zambia [53].

In the mid-1990s, the country implemented the Decentralisation Policy which delegated power to the DHMT to coordinate and plan health services at the district level. Under the policy, annual work plans and budgets are initiated first at the community and health centres, aggregated and approved by the District Board of Health before being submitted to the provincial and finally national health offices. The DHMT works closely with health facilities and community structures such as the Neighbourhood Health Committees (NHCs) in coordinating tasks. The NHCs comprise community members and the committees are responsible for supervising the implementation of health activities at the community level and providing vital statistics or data to the DHMT. These statistics are used for guiding the priority setting processes at the district level. The NHCs are also responsible for mobilising people in the community for different health prevention programmes [45].

Levels of care in Zambia

There are five levels of care in the public sector and corresponding facilities in Zambia. These are health post, health centre, 1st Level Referral Hospitals, 2nd Level Hospitals and 3rd Level Hospitals (Figure 3). In 2012, the country had six 3rd level hospitals, 19 second level hospitals; 84 first level hospitals; 1,540 health centres and 307 health posts [53]. We conducted this study at the health post level. Below we explain these levels in detail.

- **Health Posts:** This is the lowest level of health service provision. They serve small communities with populations of approximately 500 households (3,500 people) in the rural areas, and 1,000 households (7,000 people) in the urban areas. The health posts are supposed to be established within 5Km radius for sparsely populated areas. With regard to staffing, a health post is supposed to be managed by one trained nurse. The nurses are supported in delivering PHC
services, such as immunisations for children under 5 years as well as screening of patients, by support staff (for example cashiers and cleaners). Support staff learn how to conduct these duties through the experience they gain by working with and under the supervision of nurses. However, due to the shortage of nurses, some health posts are managed by support staff. The government plans to build 650 health posts in addition to the currently existing 307 [53].

- **Health Centres:** This is the second level of health service provision after health posts. The health centres act as referral centres for the health posts. In the urban area, these are intended to serve catchment populations of between 30,000 and 50,000 people. In the rural areas the health posts service a catchment area of 29 Km radius or a population of 10,000 people. The health centre is supposed to be managed by the clinical officer. The clinical officer works closely with nurses in providing services [53].

- **1st Level Referral Hospitals:** These hospitals are located at district level and are intended to provide referral services for health centres in medical, surgical, obstetric and diagnostic services. The hospitals serve catchment populations of between 80,000 and 200,000 people [53].

- **2nd Level Hospitals:** These are provincial general hospitals and are intended to provide subspecialised referral services for 1st Level Referral Hospitals. The hospitals provide services in internal medicine, general surgery, paediatrics, obstetrics, gynaecology, dental, psychiatry and intensive care services. The hospitals provide services to populations of between 200,000 to 800,000 people [53].

- **3rd Level Hospitals:** This is the highest level of health service delivery in Zambia. The hospitals are also known as central hospitals and are meant to provide specialised services in internal medicine, surgery, paediatrics, obstetrics, gynaecology, intensive care, psychiatry, training and research. As shown by the arrows in Figure 3, the 3rd level hospitals act as referral centres for 2nd level hospitals. The catchment population for this level of hospitals is 800,000 people and above [53].

**Figure 3 : Levels of care in Zambia**
Number of health facilities

In 2012, Zambia had 1,956 health facilities. The highest proportion of health facilities are the rural health centres representing about 58 percent (i.e. 1,131) of the facilities, followed by urban health centres at 23 percent (i.e. 409) and health posts at 15 percent (i.e. 307). Eighty-eight (88) percent of the facilities in the country are Government owned, 13 percent are owned by private health facilities and 6 percent are owned by faith-based health facilities [54].

2.3. Human resources for health situation in Zambia

Having provided a broader overview of the organisation of health services in Zambia, the last section of this chapter discusses the HRH situation in Zambia. In addition, this section provides more details on the Community Health Assistant Strategy, which guides the integration process of Community Health Assistants (CHAs) in Zambia, who are the main focus of this thesis.

Human resources for health crisis in Zambia

Zambia is facing an HRH crisis. The country has only about half the health workforce that it needs in all the major categories of health workers. As of 2010, vacancies among nursing cadres in Zambia stood at 55%, clinical officers 63%, and doctors 64% [55]. Overall, there were about 646 doctors and 6,096 nurses. The proportion of vacant posts was higher in the rural areas than urban areas. It was estimated that vacant posts stood at 42% in rural health centres compared 22% in urban health centres. The vacant positions in the hospitals were estimated at 41%. Compared to the urban area, rural areas faced a more significant shortage of HRH which has greatly affected health service delivery at the community level [55].

What are the causes of the human resources for health crisis in Zambia?

Several factors have contributed to these significant gaps in HRH. The following are the main factors that have contributed to the crisis:

- The country has had limited capacity to train health workers. The intake or enrolment of students in the medical schools has not matched the rising population. From 1972 to 2008, there was only one medical school in Zambia which enrolled an average of fifty doctors per year. From 2008, three new medical schools have been established in the country namely Copperbelt University School of Medicine which is a public institution and two private medical schools, Lusaka Apex Medical University and Cavendish University Zambia.
- Brain-drain of health workers to developed countries has also been a contributing factor. Some health workers have migrated to other countries due to low salaries and poor working conditions in Zambia. Others have moved to other non-clinical positions or jobs within country.
- The HIV/AIDS burden has also affected the availability of health workers in public facilities. The HIV/AIDS pandemic has resulted in deaths of many health workers as well as reallocation of current staff to well-funded HIV initiatives.
- Some health workers do not want to live and work in rural areas where about 60.5% of the total population in Zambia is based. The refusal by some health
workers to work in rural areas is mainly due to poor social and economic amenities compared to the urban areas and has resulted in inequalities in the distribution of health workers.

**Community-based health workers in Zambia and their role in PHC**

Because of this critical shortage of HRH, about 23,500 CBHWs have been providing PHC since the 1980s. The first CBHW pilot programme was launched in Zambia in Kalabo district of Western Province in 1983 [56]. In Zambia, CBHWs are conceived as “members of communities who work either for pay or as volunteers in association with the local health care system and usually share ethnicity, language, socio-economic status and life experiences with the community members they serve. They have many titles, including home-based care givers (often work with faith based programmes), health promoters, community health advisors, lay health advocates, community health representatives, and peer health educators” [46].

The CBHWs in Zambia work with health programmes which are implemented either by the government or NGOs. The PHC activities performed by CBHWs in Zambia include managing malaria fevers, promoting proper food production, basic sanitation, and detecting risk groups for the prevention of common illness [57]. The CBHWs are also involved in HIV prevention, care and treatment programmes at the community level [58]. Although the CBHWs have been working for some time in the country, they have been experiencing difficulties in effectively delivering health services. These difficulties include fragmentation in their operation, low work motivation, inadequate supervision from professional health workers, insufficient compensation or incentives, high turnover, and low recognition of CBHWs by professional health workers [46].

2.4. The National Community Health Assistant strategy

In order to address the challenges which the CBHWs faced in Zambia (e.g. recruitment, deployment, supervision and remuneration challenges) the MoH developed the National Community Health Assistant strategy in 2010. This strategy attempted to address challenges faced by CBHWs by formalizing the position of CBHW through creating a new group of workers called Community Heath Assistants (CHAs) and integrating them into the health system [46].

Compared to the other CBHWs, CHAs are different in a number of ways: For example compared to other CBHWs, CHAs have a longer, standardised training of one year, which is provided by the MoH, while the training duration for other CBHWs varied from two weeks to three months. Furthermore, compared to other CBHWs, CHAs have standardised monthly salary and are on the government payroll. In addition, while the other CBHWs are not supported by professional health workers, CHAs are supported by professional health workers at the health post [46].

The MoH started implementing the strategy in June 2011. The implementation process started with a pilot phase which was coordinated by the MoH. Several stakeholders supported the development and piloting process of the CHA strategy with the main sponsor being the UK Department for International Development. The Clinton Health Access Initiative (CHAI) provided technical support to the MoH during the pilot phase of the CHA strategy. According to the strategy, the MoH aims to train 5,200 CHAs by
By the end of 2013 about 600 CHAs were trained and deployed in the health posts [46].

**How was the CHA strategy developed?**

The process of developing the CHA strategy started in 2006, under the coordination of the MoH. Through the Permanent Secretary, the MoH appointed a strategic team whose role was to manage the process of developing the strategy as well as the pilot phase. The team was comprised of four subcommittees, namely curriculum, logistics, monitoring and evaluation, and budgeting. Most of the members of the committees were drawn from the departments at the MoH headquarters. In addition to the other organisations and institutions outlined above, the financial and technical support were also provided by the Global Health Workforce Alliance (GHWA), a global initiative for addressing human resources for health crises.

A situation analysis was held in 2009 to inform the CHA development process, which involved 18 partners working with CBHWs, 76 CBHWs and all the District Medical Officers. This situation analysis focused on understanding the roles, scope and challenges that CBHW-driven programmes faced in Zambia. The challenges that were highlighted in the situation analysis were similar to those outlined above and included for example poor incentives, inadequate training and supervision process. In addition, the analysis also brought out recommendations for addressing the challenges faced by CBHWs. It was recommended that there was a need to standardise training, remuneration and supervision for CBHWs. The District Medical Officers and CBHWs who participated in the study suggested that CBHWs should be given monetary incentives. However, the implementing partners were silent on the type of remuneration that should be given to CBHWs [46].

**Recruitment process of CHAs**

The recruitment process for the position of CHAs was open to all members of the community regardless of whether or not one had worked as a CBHW. However, preference was given to those who had previously worked as CBHWs. In addition, to be selected as a CHA, one needed to meet the following conditions:

- minimum Grade 12 and 2 “O” levels
- 18 to 45 years old
- Zambian citizen
- living in the catchment area
- endorsed by their NHC
- pass personal interview with a panel composed of the NHC, health centre staff, and a member of the DHMT.

**CHA recruitment, training and deployment**

The implementation of the CHA programme started with the process of building colleges for training CHAs and also developing training curriculum. The first school was built in Ndola district, Copperbelt province and the second in Chiombo district, Central Province. The CHA curriculum was developed by the major institutions responsible for training HRH in Zambia. The curriculum covered topics which would enable the CHAs perform basic functions of a nurse, environmental health technician and clinical officers.
Once training systems were in place, an advertisement was placed at the health posts, requesting eligible individuals to apply for the position of the CHA. A team consisting of representatives from the DHMT, in-charge at the health post and the NHCs was established to shortlist and interview applicants.

Piloting of the CHA strategy started in 2011. The first in take of CHAs for training was 307. Upon completion of their training, the first group of CHAs was deployed in health posts in August 2012. On average, two CHAs were deployed in each health post in seven out of the nine provinces in the country (48 districts and 161 health posts). Prior to being deployed, CHAs were registered with the Health Professional Council of Zambia. Registration was done to facilitate adherence by CHAs to the practices of other professional health workers.

The roles of CHAs at the health post and in the community

There is a standardised work schedule which is supposed to guide the operation of the CHAs. According to this schedule, CHAs are expected to spend 80% of their work time (four days in a week) in the community and 20% (one day in a week) in the health posts.

In the community, CHAs are expected to conduct sensitisation campaigns on disease prevention and control. Some of the diseases that CHAs deal with at the community level include prevention of and testing for HIV /AIDS, STIs, malaria, diarrhoea, as well as providing treatment for T.B. and acute respiratory illness. They are also supposed to handle environment health related matters such as infection prevention, insect and rodent control, and promotion of home, personal, and food hygiene, as well as sensitizing the community on excreta disposal, solid and liquid waste disposal and water safety. Other activities at community level include promoting and monitoring maternal and child health issues such as antenatal care, postnatal care visits, nutrition support during and after pregnancy, prevention of mother-to-child HIV transmission, nutrition and growth monitoring, and immunizations. CHAs also promote access to and provide sexual reproductive health services. CHAs are also expected to develop registers on socio-demographic data and common health problem in community or households which should guide the process of developing health interventions or setting health priorities.

Both at the health post and in the community, CHA are supposed to help deliver pregnant mothers, and test and treat minor conditions such as malaria, eye infections,
diarrhoea, respiratory tract infections, burns and sores. In addition, at health post CHAs are expected to screen patients (that is, taking vital signs).

**Monitoring of CHA activities at the health post and in the community**

A CHA strategic team was put in place at the national level to monitor the CHA strategy implementation process. The strategic team was appointed by the Permanent Secretary for the MoH and consisted of mainly representatives from following directorates under the MoH headquarters: Human Resources and Administration, Public Health and Research, Technical Support Services, Nursing Services, Planning, Health Promotion, and Child Health Services. The strategic team was expected to monitor the implementation process of the CHA strategy by visiting CHAs at the health post. At the health post, the members of the strategic team were intended to assess the CHA reports, supervision processes as well as general performance of CHAs in the community.

Regular monitoring of CHA activities at the community and health posts levels was intended to be conducted by nurses and the NHC members. For those health posts that did not have nurses, supervision was supposed to be conducted by nurses at the nearest health facilities. The supervision process at the local level was expected to take the form of checking the reports prepared by CHAs and also mentorship processes. Through community meetings at the local level, NHCs were expected to review the different issues that affect the work of CHAs.
Chapter 3 | Study justification

Although there has been an increase in the number of countries developing and integrating national CBHWs into their health systems, evidence suggests that the integration process of these programmes has not been optimal [1-3]. Limited integration of national CBHW programmes into health system is problematical as it inhibits the programmes’ ability to meet the goals and expected outcomes of the nationwide primary health care system. Furthermore, limited integration has the potential to undermine recognition of national CBHW programmes in the national health care planning, regulation and implementation systems. Such limited recognition has the potential to negatively affect the work motivation of CBHWs and the performance of national CBHW programme. Non-integrated national CBHW programmes are also often characterised by weaker referral systems which negatively impacts effective meeting of people's health needs [4].

Despite evidence that integration of national CBHW programme into health systems in LMICs has not been optimal, there is limited knowledge of the factors that shape the acceptability and adoption of such strategies. In Zambia, for example, recent studies on the CHA strategy have been limited to focus on the recruitment processes of the CHAs [59]. As for the other LMICs, recent studies on CBHW programmes have mainly focused on the CBHW’s role in improving disease-specific outcomes [60-63]; the cost control and logistical constraints of implementing the national CBHW programmes [64]; the national CBHW programme management processes [1] as well as analysis of the factors that affect the implementation process of national CBHW programmes for maternal and child health [25].

We decided to undertake this study to fill the existing knowledge gap on integration process of national CBHWs into the health system because integration is critical for strengthening CBHW performance as well as overall health system performance. The study intended to fill this knowledge gap by exploring the factors that shape the acceptability and adoption of national CBHW programmes into health systems in LMICs, with a special emphasis on Zambia.

This knowledge is relevant for optimising the contribution of national CBHW programmes. In Zambia, understanding the integration process of CHAs is essential for guiding effective scale up of the integration of CHAs in all districts in Zambia. The information from the study of CHAs can help strengthen the scale-up process by providing lessons to MoH on the aspects of the integration process which need to be maintained as well as those issues which need further modification or strengthening. At the global level, understanding the factors that shape the integration of the CHA strategy in Zambia is also relevant for orienting other LMICs which plan to develop and implement similar strategies to potential facilitators and inhibitors. Whereas the systematic review of integration process of national CBHWs in LMICs can provide important lessons for countries that are starting the integration process as well as those that are already implementing similar strategies.
Chapter 4 | Objectives

General objective

To analyse the integration process of national community-based health worker programmes into health systems in low and middle income countries, with a special emphasis on Zambia, by exploring the factors that shape the integration process in order to inform existing and future policies as well as programmes.

Specific objectives

- To analyse the integration processes of community health assistants into the health system at the district level in Zambia (Papers I-III).
- To analyse the integration of national community-based health workers into the health systems of low and middle countries (Paper IV).
Chapter 5 | Conceptual framework

5.1. Introducing the field of health policy and systems research

The study was framed within the field of health policy and system research. Health policy and systems research is an emerging field which seeks to understand and improve how societies organize themselves in achieving collective health goals. Further, health policy and system research tries to understand how different actors interact in the development and implementation of health policies and how the implementation processes contribute to achievement of the planned policy outcomes. It further seeks to provide a comprehensive picture of how health systems in different contexts respond and adapt to the developed health policies, and how the health policies shape—and are shaped by—health systems in which they are introduced as well as the broader determinants of health. Health policy and system research uses an interdisciplinary approach in understanding interaction between actors, health polices and health systems. Basically, health policy and systems research encompasses two main elements. The first element is policy change—i.e. how health policies, strategies and programmes such as the national CBHW programmes are developed and implemented and the influence that policy actors have over the outcomes of the policies, strategies and programmes. The second element is research addressing health system function, including health services and wider activities to promote health [65]. This thesis is focused on the first element.

Development of new policies in health systems results in the introduction of ideas, initiatives, and strategies which are perceived as new by different system actors. Because they are new, initiatives and strategies are usually viewed or classified as innovations by the actors in the adoption system. The integration of such innovations in the health systems necessarily requires changes in the systems. Similarly, following the development of new policies aimed at integrating national CBHW programmes into health systems in LMICs—the innovations that such programmes introduce require adjustments in the health systems in order for them to be effective. Below we discuss the conceptual framework for analysing the integration process of innovations in health systems.

5.2. Conceptual framework for analysing integration of innovations in health systems

The national CBHW programme as an innovation

There has been increasing interest in the field of innovations among scholars. Innovation in health systems refers to introduction of ideas, initiatives, strategies, practices and health technologies which are perceived as new by the adopting individual, institution or unit within the health system [66-69]. Innovations exist in different forms. For example some innovations are in the form of hardware, such as new technologies (e.g. long-lasting insecticidal nets) [15, 69], while others, such as new HRH approaches (e.g. national CBHW programmes) represent critical changes in the health system’s software [70].

In this study, we classified the national CBHW programme as an innovation because the programme possess some attributes which are new compared to other non-national
CBHW programmes. Compared to non-national CBHW programmes, national CBHW programmes are formed and operated by the MoH or the formal government health system. In addition, the national CBHW programmes have standardised aspects, including supervision by professional health workers, monthly incentives and national training institutions, which are not present in non-national CBHWs programmes.

In this study, we conceive integration of innovations into health systems as the process, pattern and extent of acceptability and adoption of new strategies – in this case a CBHW programme – into critical health system functions. These functions include governance and leadership, service delivery, population and resources i.e. finances, human resources, infrastructure, supplies, knowledge and information [48]. The analysis of the integration process of innovations into health systems focuses on the critical assessment of how conditions increase or decrease the possibility that the actors involved in the functions of the system will adopt an innovation [71]. Rogers identified five key attributes of an innovation which are likely to facilitate its acceptability by the adopting systems [71]. These, attributes, which have been adopted and explained further by Greenhalgh et al.[67] and Atun et al. [72], include relative advantage, compatibility, trialability, observability and perceived simplicity. Table 5 explains in detail the attributes of innovations which shape their integration in the adopting system.

Table 5: Key attributes of innovations

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Explanation of attribute</th>
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<tbody>
<tr>
<td>Relative Advantage</td>
<td>Innovations that have a clear, unambiguous advantage in either effectiveness or cost-effectiveness are more easily adopted and implemented.</td>
</tr>
<tr>
<td>Compatibility</td>
<td>Innovations that are compatible with the intended adopters' values, norms, and perceived needs are more readily adopted.</td>
</tr>
<tr>
<td>Complexity</td>
<td>Innovations that are perceived by key players as simple to use are more easily adopted.</td>
</tr>
<tr>
<td>Trialability</td>
<td>Innovations with which the intended users can experiment on a limited basis are adopted and assimilated more easily.</td>
</tr>
<tr>
<td>Observability</td>
<td>If the benefits of an innovation are visible to intended adopters, it will be adopted more easily.</td>
</tr>
</tbody>
</table>

Source: Rodgers [69, 71].

**Conceptualising integration of national CBHWs into health system**

In analysing the factors that influence the integration process of national CBHWs into health systems, we adopted the conceptual framework by Atun et al. [72]. According to this framework, the integration of new interventions into health system functions is influenced by the nature of the problem being addressed, the attributes of the intervention such as its relative advantage and comparability, the adoption system, the health system characteristics, and the broad context (Figure 4) [72]. This framework has been adopted because it provides a comprehensive overview of the aspects which influence the acceptability and adoption of innovations into health systems. It includes some of the major aspects highlighted by other authors such as Greenhalgh et al. [67] and Rodgers [71] which are perceived relative advantage, compatibility, trialability, observability and perceived simplicity. In their conceptual framework, Atun et al. [72] classify these aspects as attributes of the intervention /innovation. The authors note that the nature of these attributes will determine the rate and pattern of integration of the intervention/innovation into the health system.
This framework guided the analysis of integration of CHAs in Zambia and also national CBHW programmes into the health systems in other LMICs. In applying this framework as an analytical lens, we developed the following assumptions:

- the nature of the problem, such as the magnitude of the HRH crisis in both Zambia and other LMICs and discourse about the impact of this crisis on primary health care and solutions to the HRH gap at national and global level, may influence actors’ perspectives towards national CBHW programmes, and these in turn may shape the integration process;
- the attributes of the intervention, such training of national CBHWs, scope of responsibilities and the quality of service delivery by national CBHWs, may also influence the integration process;
- the level of the national CBHW programme’s compatibility with health system characteristics, such as resources, information systems, as well as the broader context which includes, for example, demographic, economic, political and socio-cultural factors may also influence the integration process; and
- the perceptions of national CBHW programmes held by actors within the adopting system who include policy makers, managers, health workers, patients and communities may either facilitate or inhibit the integration of CBHWs into health systems [73].

Meanwhile, the integration status of health interventions into health systems can take different forms, which include being fully, partially or not integrated with different elements or functions of the health system [73, 74]. Table 6 shows how we have defined the terms the terms “fully integrated”, “partially integrated”, and “not integrated,” which are used in the results section and discussion.
Table 6: Definition of integration status

<table>
<thead>
<tr>
<th>Integration Status</th>
<th>Health systems elements</th>
<th>Full integration</th>
<th>Partial integration</th>
<th>Not integrated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Governance and leadership</td>
<td>Management and supervision of CBHWs is conducted by professional health workers and institutions in the ministry of health.</td>
<td>Management and supervision of CBHWs is not completely conducted by professional health workers and institutions in the ministry of health. Private stakeholders such as NGOs are also involved.</td>
<td>CBHWs do not receive any supervision from professional health workers and institutions in the ministry of health.</td>
<td></td>
</tr>
<tr>
<td>Financial resources</td>
<td>CBHWs are part of the civil service and are paid standardised monthly salaries by the government.</td>
<td>CBHWs are not part of civil service, but receive standardised incentives from the government.</td>
<td>CBHWs are not part of the civil service and do not have standardised incentives from the government.</td>
<td></td>
</tr>
<tr>
<td>Human resources</td>
<td>CBHWs receive standardised training from the ministry of health and are fully accepted as well as supported by professional health workers.</td>
<td>CBHWs receive standardised training from the ministry of health but are not fully accepted by some professional health workers.</td>
<td>CBHWs do not receive any form of standardised training from the ministry of health and are not recognised by other professional health workers.</td>
<td></td>
</tr>
<tr>
<td>Service delivery</td>
<td>CBHWs perform standardised tasks; stakeholders recognise, accept and utilise the services provided the CBHWs.</td>
<td>CBHWs perform standardised tasks; but some stakeholders do not recognise, accept and utilise the services provided the CBHWs.</td>
<td>CBHWs do not have standardised tasks and duties.</td>
<td></td>
</tr>
<tr>
<td>Population</td>
<td>CBHWs are recruited from the community and are recognised and accepted by the community.</td>
<td>CBHWs are recruited from the community but are discriminated or not accepted by part of the community.</td>
<td>Not all CBHWs are recruited and work within their community and most community members do not recognise or accept CBHWs.</td>
<td></td>
</tr>
<tr>
<td>Outcomes and Goals</td>
<td>CBHW services and duties are in line with all outcomes and goals of the national primary health care system.</td>
<td>CBHW services and duties are in line with some outcomes and goals of the national primary health care system.</td>
<td>CBHW duties and services are not in line with outcomes and goals of the national primary health care system.</td>
<td></td>
</tr>
</tbody>
</table>

Source: Zulu et al. [73].
Chapter 6 | Methodology

This chapter presents the methodology used for this study and for all the papers (I-IV). The first part of the chapter presents information on the study context - the Kapiri Mposhi district where most of the data collection was done. The following section deals with the methodological approaches, and describes the study design, data collection and analysis for the case study of the CHAs in Zambia and the systematic review of national CBHW programmes in LMICs. Finally we present the handling of ethical issues in the study.

6.1. The study context

Kapiri Mposhi district was the main study site (Figure 5). The study participants for studies I-III were drawn from Kapiri Mposhi district. However, some of the study participants for study I were drawn from Lusaka city, the capital city of Zambia. Lusaka was included because this is where the strategic team members responsible for developing the CHA strategy were based. Furthermore, this is where the MoH Headquarters – the body responsible for coordinating all health policies – is located.

Kapiri Mposhi district is in the Central Province of Zambia. It is a rural district located 185 kilometres north of the capital, Lusaka. In 2010, it had a population of 240,841, with an average annual population growth rate of 2.1% [52]. The district consists of two main ethnic groups, namely Bemba and Lamba. Bemba and Lamba are the main local languages in the district though a few people speak either Nyanja or Tonga languages. The main economic activity is subsistence agriculture. The district has one hospital, four health centres and 22 health posts [75]. The district is divided into four main zones, each zone having one health centre. The health facilities operate several outreach health services in surrounding communities where they provide health promotion and preventive activities which include maternal and child health services such as antenatal services, family planning and under-five clinics. These outreach activities are mainly provided by CBHWs.

Kapiri Mposhi district was purposively chosen for this study because it is one of the rural districts where the CHA strategy has been piloted, and it has easy access from Lusaka. The programme was being implemented here in six health posts. The distance from the district hospital to the six health posts ranged from 25 to 250 kilometres.
6.2. Methodological approaches

Overview of study designs

In collecting data for this study and the papers (I-IV), we used the case study design and the systematic review research design. The first approach was the case study design (Papers I-III), which is an empirical approach that investigates contemporary phenomena within a real-life context, where the boundaries between phenomena and context are not clearly evident and in which multiple sources of evidence are used [76]. In this study, the case was the integration of CHAs into the health system in Zambia [73]. A systematic review is a literature review focused on a research question or objective that tries to identify, appraise, select and synthesize relevant quality research evidence. In conducting the systematic review, we were guided by the description by van der Knaap et al. [77]. Table 7 shows an overview of the studies conducted, their titles, aims, study designs, data collection methods and data analysis approach, which will be presented in the following sections.

Table 7: Overview of the papers I-IV

<table>
<thead>
<tr>
<th>Study designs</th>
<th>Case study</th>
<th>Systematic review</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aim</strong></td>
<td>To analyse the integration processes of community health assistants in the health system at district level in Zambia (Papers I-III)</td>
<td>To analyse the integration of national community-based health workers in the health systems in low and middle countries (Paper IV)</td>
</tr>
</tbody>
</table>
| **Data collection** | Key informant interviews with nine members of the CHA strategic team and two senior health officials in Kapiri Mposhi district  
  In-depth Interviews with 12 CHAs  
  Observation of CHA activities at the health posts  
  Key informant interviews with two staff at the DHMT, six CHA supervisors, four CHA trainers  
  Six focus group discussions with NHC members | Conceptual framework on the integration of health innovations into health systems guided the review  
  Identified 3410 records, of which 36 were finally included in the study |
| **Analysis** | Thematic analysis  
  Analysis of themes that affect the integration of CHAs into health system in Zambia  
  Analysis guided by the conceptual framework on integration of innovations into health systems | Thematic and pathways analysis  
  The themes and pathways associated with different factors that may influence the integration process were deduced  
  Analysis guided by the conceptual framework on integration of innovations into health systems |
Conceptualising the case study on CHAs in Zambia

The case studies help in understanding and explaining pathways resulting from a new policy initiative or service development [78]. The case study approach also helps in capturing information on how and why the new policy initiative or innovation such the national CBHW programme is being implemented and received on the ground or within the adopting unit. Other important features of the case study include each case having a pre-defined boundary which clarifies, for example, the time period covered by the case study, the relevant social group and geographical area of interest [78]. In conceptualising the case study, we focused on collecting evidence on the factors that shaped integration process of the new CHA strategy into the health system in Zambia. We also explored the pathways through which the factors shaped the integration process of CHAs into health system. This study was therefore a case study of the integration process of CHAs into the health system at the district level.

Image 4. Joseph Zulu in the field during data collection for the case study

The fieldwork for this case study (papers I-III) was conducted between January 2012 and September 2013. The social group for this case study included stakeholders involved in developing and integrating the CHA strategy and the CHAs. The main geographic area for data collection for this case study was Kapiri Mposhi district and data was collected using observations, review of documents, FGDs as well as key informant and in-depth interviews.

Data collection for the case study of the integration process of CHAs into health system was conducted in phases. The first phase of the field work took place from January 2012 to November 2012. During this period, I collected data for paper I, which focused on the CHA development process, the context, the actors involved and how these influenced the CHA policy. In collecting data for this paper, I conducted key interviews with nine members of the CHA strategic team and with two senior health officials in Kapiri Mposhi district. The participants were selected from a list of CHA strategic members. Although I had managed to make appointments with all 15 CHA strategic team members, only nine were available for the interviews. The use of the key informant
interviews enabled the study participants to freely express their views on key research issues, such as actor involvement in the CHA development process and power differentials during this process, while still giving enough structure so that the data collected should be relevant for the data analysis process. I was also conducted one participant observation through attending a workshop on 1st November 2011 at Kingfisher Lodge in Lusaka district. This workshop was attended by staff from the Human Resources Department at the Ministry of Health and other NGOs working with CBHWs. During this workshop the CHA strategy content was presented and I held informal discussions with some of the workshop participants regarding their views on the policy content.

Field work for papers II and III was done in 2013. Data for paper II, which focused on CHA experiences of working at the health post, was collected through in-depth interviews. I conducted 12 in-depth interviews with all the CHAs in the district, and I observed the CHA activities at health posts. Each health post was observed on three different occasions and each observation lasted for about half a day. While sitting at the health post and discussing with CHAs and other staff, I paid attention to involvement of CHAs in the activities such as screening process of patients and participation in weekly and technical support meetings as well as the availability of supplies at the health posts. During the data collection for the second paper, I was supported by two of my supervisors. Participation of my supervisors brought additional insights to data collection due to our complimentary backgrounds (anthropology and public health).

Images 5 and 6. Anna-Karin Hurtig & John Kinsman in the field during data collection

In paper III, which focused on analysing the integration of CHAs into the health system at district level, data was collected using focus group discussions and key informant interviews. I conducted six focus group discussions with members of the neighbourhood health committees (NHCs) who represent the community, one at each of the six health posts where CHAs have been deployed in the district; as well as 12 key informant interviews with four CHA trainers, the CHA supervisor at each of the six health posts, and two staff in charge of implementing the CHA programme and other health services at the District Health Management Team (DMHT) level in Kapiri Mposhi district.

My experience of working with CBHWs in Zambia and conducting action research with the NHCs as well as the DHMT in Kapiri Mposhi district in another research programme positively facilitated the data collection process by enabling me effectively develop rapport and trust with the research participants. To ensure that no key information was lost, all the interviews were recorded. Further, I also took notes which I reviewed every evening after returning from the field. Reviewing of the notes was essential for planning the next interview and also summarising preliminary key points.
from the interviews. I also regularly listened to the recordings and was able to seek clarifications from the respondents whilst still in the field on issues that were not very clear. During the period when my supervisors visited me, we held meetings every evening to review the key issues that emerged during the interviews that we had conducted and also plan field work processes for the next day.

Data for the three papers were also collected through review of documents and reports related to the implementation of CHAs in Zambia, which were identified and actively searched for by the authors at national and district offices the health post level as well as from web-based sources. These documents included the following: CHA national strategy, newsletters, job descriptions, reports and CHA implementation guides as well as three recent studies on CHA programme in Zambia.

**Data analysis for the case study**

Data on the case study of the integration process of CHAs into the health system at district level in Zambia was analysed using thematic analysis. Thematic analysis ‘is a method for identifying, analysing and reporting patterns (themes) within data. It organizes and describes data sets in (rich) detail and goes further to interpret various aspects of the research topic’ [79].

For papers I-III the first step in analysing data was the development of codes. The initial codes were developed after reading the transcripts several times to develop a sense of the whole dataset. The coding process was carried out with the use of NVIVO version 7 (QSR Australia). The second step in data analysis was the development of categories which are groups of content that share a commonality. These categories were then developed into broader themes. The process of developing the themes involved interpreting the categories for their underlying meaning, and grouping categories according to patterns.

The themes were finally cross-checked with the interview transcripts in order to ensure that they were applied to relevant responses found within and across the interviews. The focus was on identifying, summarising and retaining the patterns and similarities, differences and new emerging themes. Data from in-depth interviews were then triangulated with other sources such as the information gathered through observations and review of documents. The triangulation involved assessing the consistency and potential variations of findings by comparing data patterns across the material generated by different methods. Data analysis was guided by key components of the Atun et al [72] conceptual framework on integration of innovations into health systems as shown in Table 8.

**Table 8: Selected factors influencing the integration process**

<table>
<thead>
<tr>
<th>Integration condition</th>
<th>Factors influencing integration process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristics of the problem</td>
<td>Human Resource for Health problem</td>
</tr>
<tr>
<td>Attributes of the intervention</td>
<td>Service delivery</td>
</tr>
<tr>
<td></td>
<td>Performance of CBHWs</td>
</tr>
<tr>
<td>Adopting system</td>
<td>Perceptions from health workers</td>
</tr>
<tr>
<td></td>
<td>Perceptions from community members</td>
</tr>
<tr>
<td>Health system characteristics</td>
<td>Training systems for CBHWs</td>
</tr>
<tr>
<td></td>
<td>Supervision process for CBHW</td>
</tr>
<tr>
<td></td>
<td>Incentive structure for CBHWs</td>
</tr>
</tbody>
</table>
Conceptualising the systematic review

When we started the data collection process in Kapiri Mposhi, we planned to have three papers, one focusing on the integration process of CHAs into the health system (which is now paper III) and then divide paper II on CHA experiences in two papers: one focusing on CHA experiences at the health post and another CHA experiences in the community. However, having collected and analysed the data, we observed that health post and community data were closely intertwined. Based on this observation, we decided to combine the two perspectives into one paper (which is now paper II). By the time we had drafted the two manuscripts, we realised that we had comprehensively addressed issues regarding experiences of CHAs and in particular the integration process of CHAs at the district level. As we reviewed the literature for papers I-III, we saw the importance of integration in the previous studies. However we found out that although a number countries have implemented strategies aimed at integrating national CBHWs into health systems, a comprehensive review of the factors that shape the integration process was lacking. Thus we decided to conduct a systematic review of the integration process in order to provide a more comprehensive overview that, together with the lessons from the Zambian case study of the CHA strategy, can be used to inform the development process or strengthening of similar strategies in LMICs. Below is an outline of the systematic review process.

The systematic review of integration of national CBHWs in LMICs

The fourth study used a systematic review study design, and it focused on the factors that shaped the integration process of national CBHWs into health systems in LMICs. This review adopted the Atun et al.[72] framework as a lens for analysis. A systematic review is a literature review focused on a research question or objective that tries to identify, appraise, select and synthesize quality research evidence relevant to the question or objective. In conducting the review, we were guided by the description by van der Knaap et al. [77] and Petrosino et al. [80] of the main aspects of a systematic review. These include formulation of a research question or objective; determination of the inclusion and exclusion criteria; description of the search for potential studies; screening of relevant studies that have been identified for eligibility according to the inclusion and exclusion criteria; determination of the quality of the selected studies; and production of data extracts, analysis and interpretation of the results [73].

Search strategy

We systematically searched the following websites for literature about national CBHW programmes between November 2013 and March, 2014: CINAHL, Medline, PubMed, Science direct, Web of science, Biomed Central, and the Cochrane Collaboration. For a programme to qualify to be included in the study, it had to meet the following criteria: the programme must have been formed and operated by the government; it should have training, supervision and incentive structures that are standardised and well-defined by the government; it should have been developed in or after the 1990s (the period when there was renewed enthusiasm for CBHW programmes in LMICs); and it should have been in operational for not less than five years [73].

Only four programmes met the inclusion criteria: Accredited Social Health Activists in India, Community Health Agents in Brazil, Health Extension Workers in Ethiopia, and Lady Health Workers in Pakistan. Other large CBHWs that did not fit within this inclusion (for example the Bangladeshi programme, with about 80,000 CBHWs, and
that was initiated and is operated by BRAC, a national Bangladeshi NGO) were excluded from the study [73].

Having selected the programmes, we then searched the websites using specific programme names as follows: “The Community Health Agents in Brazil”, or “Health Extension Workers in Ethiopia”, or “Accredited Social Health Activists in India”, or “The Lady Health Workers in Pakistan”. Relevant literature was also identified by checking references of the articles and the websites of the WHO. A total of 3410 documents were identified, as reflected in Table 9 [73].

Table 9: Search outcomes for literature about national CBHW programmes

<table>
<thead>
<tr>
<th>Data Source</th>
<th>Brazil</th>
<th>Ethiopia</th>
<th>India</th>
<th>Pakistan</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Cochrane Collaboration</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>48</td>
</tr>
<tr>
<td>Web of science</td>
<td>5</td>
<td>43</td>
<td>21</td>
<td>31</td>
<td>100</td>
</tr>
<tr>
<td>PubMed</td>
<td>245</td>
<td>38</td>
<td>13</td>
<td>58</td>
<td>354</td>
</tr>
<tr>
<td>Medline</td>
<td>8</td>
<td>40</td>
<td>35</td>
<td>44</td>
<td>127</td>
</tr>
<tr>
<td>Biomed Central</td>
<td>194</td>
<td>56</td>
<td>45</td>
<td>39</td>
<td>334</td>
</tr>
<tr>
<td>CINAHL</td>
<td>32</td>
<td>9</td>
<td>2</td>
<td>18</td>
<td>61</td>
</tr>
<tr>
<td>Science direct</td>
<td>15</td>
<td>1115</td>
<td>33</td>
<td>350</td>
<td>1513</td>
</tr>
<tr>
<td>References and WHO websites</td>
<td>426</td>
<td>243</td>
<td>37</td>
<td>167</td>
<td>873</td>
</tr>
<tr>
<td>Sub Totals</td>
<td>925</td>
<td>1544</td>
<td>186</td>
<td>707</td>
<td>3410</td>
</tr>
</tbody>
</table>

Source: Zulu et al.[73].

**Study selection and quality assessment**

To ensure inclusion of relevant, high quality papers in this review, our inclusion criteria for documents comprised: peer-reviewed publications only; conducted in Brazil, Ethiopia, India and Pakistan; and including a focus on the integration of national CBHW programmes into health systems. We included papers with different study designs, including qualitative, mixed-methods, reviews, and programme evaluations [73].

With these inclusion criteria in mind, we then followed the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) guidelines by Moher et al. [81] in selecting the studies. In accordance with the guidelines, we first excluded all duplicates (479) from the 3,410 search outcomes initially identified. Then we reviewed all the titles of the remaining 2,931 research papers and reports, of which we excluded 2,605, because they focused either on the wrong topic or region or both. We then remained with 326 outcomes. Subsequently we retrieved and assessed the abstracts of the 326 papers, of which we excluded 230 because they did not address the subject of integration of CBHWs into health systems. Finally, we retrieved 96 full-length papers that were shortlisted after abstract review, in order to screen them in accordance with the inclusion criteria. At this stage, we also subjected the papers to the main elements of the Critical Appraisal Skills Programme (CASP) quality assessment that has been used to appraise studies, and especially those that use qualitative approaches [30]. This process resulted into the final 36 papers as shown in Figure 6 [73].
The Critical Appraisal Skills Programme (CASP) quality assessment tool has been used in other syntheses of primarily qualitative evidence, such as Munro [82] and Glenton et al. [25]. Below is an overview of the quality criteria we used [73]:
- Are the research questions or objectives clearly stated?
- Is the approach appropriate for the research question?
- Is the study context clearly described?
- Is the role of the researcher clearly described?
- Is the sampling method clearly described?
- Is the sampling strategy appropriate for the research question?
- Is the method of data collection clearly described?
- Is the data collection method appropriate to the research question?
- Is the method of analysis clearly described?
- Is the analysis appropriate for the research question?
- Are the claims made supported by sufficient evidence?

Figure 6: Search strategy and paper selection flow chart

Data analysis for the systematic review

We analysed and synthesised data in the 36 selected papers using a thematic analysis approach. Thematic analysis is one of the data analysis approaches recommended by the Cochrane Qualitative Review Methods Group [83]. The first step involved familiarisation with the included studies. During this process, themes regarding factors that could enable and/or inhibit the integration process were inductively developed,
based on key components of the conceptual framework on integration of innovations into health systems [72, 73]. The themes were then separately reviewed by all authors, after which final agreement on the themes (shown previously in Table 8) was achieved.

Having developed the themes, we described pathways on how and why factors relating to the nature of the problem, intervention, adoption system, health system characteristics, and the broad context may influence the integration of national CBHW programmes into health systems. This was necessary because the national CBHW programmes are introduced into health systems with dynamic and complex feedback loops, alongside non-linear relationships which extend beyond the health system and which are intricately linked to the context within which the system is embedded [73].

6.3. Ethical issues

Ethical clearance to conduct the study was obtained from the University of Zambia Biomedical Research Ethics Committee (IRB 0001131 of IORG 0000774, reference number 009-10-11). Having been granted ethical approval by the Committee, I wrote to the MoH requesting permission to conduct the study in Lusaka and Kapiri Mposhi districts. Once permission was granted, I arranged a formal meeting with the Assistant Director Human Resources for Health at the MoH to explain the objectives of study and target group. The meeting with Director facilitated access to the list of stakeholders who were involved in developing the CHA strategy. I then conducted another meeting with District Medical Officer in Kapiri Mposhi to explain the objectives, the benefits of the study and also to explain how confidentiality for study participants was going to be guaranteed. In the meeting with the District Officer, we agreed to invite all CHAs to a meeting where all details of the study would be explained as well as respond to the questions that the CHAs may have. This meeting was organised, and to ensure free participation of CHAs, the staff from the DHMT did not attend. This process helped generate trust between the study participants and the research team.

During the interviews, we sought verbal consent from all study participants to conduct the interview and also record it. Further, detailed explanation of the research objectives was given to the participants, and they were informed that they were free to withdraw from the study at any point. Confidentiality during and after the study was assured to the study participants. Anonymity was achieved by withholding respondents’ personal details. To further enhance anonymity, we also withheld the details of health posts in all the publications as well as final data analysis outputs.
Chapter 7 | Findings

This chapter presents the findings of the study. The findings have been divided into two sections. The first section focuses on the integration of Community Health Assistants (CHAs) into the health system in Zambia. The second section presents the findings of the systematic review of factors that shaped the integration of national community-based health workers (CBHWs) into the health systems in low and middle income countries (LMICs).

7.1. The case study: The CHA strategy in Zambia

The launch of the CHA strategy represented a major policy shift in the responsibilities, supervision, training and incentives of CBHWs in Zambia. In this section, we present the factors that shaped the pattern and process of the integration process of CHAs into the health system in Zambia.

7.1.1. Factors facilitating the integration process of CHAs in Zambia

Review of data showed that several factors shaped the process and pattern of integration of CHAs into the health system in Zambia. Below the factors have been discussed in detail. These factors have been organised around the major components of the conceptual framework on the integration of health interventions into health systems by Atun et al. [72]. The components of framework are the nature of the problem being addressed, the intervention, the adoption system, the health system characteristics and the broad context. Based on the framework, we developed the following four major themes: the human resources for health crisis, attributes of the CHA strategy, perspectives of actors in the adopting system, and health system characteristics. The broader context was analysed within the four themes.

7.1.1.1. The human resources for health crisis

The rationale for developing the CHA strategy was to address the shortages of human resources for health (HRH) in Zambia and also the challenges that existing CBHWs were experiencing in delivering primary health care (PHC). The challenges included poor incentives as well as limited supervision and training. Interviews with the CHA strategic team showed that the shortage for HRH greatly affected accessibility to health services for community members, in particular the old, women and young people in rural areas. It was reported that people often travelled long distances to access health services, a situation which was especially problematic for them. In some cases, people had to wait for a long time in the queue to be attended due to the limited number of health workers.

Stakeholders at the MoH supported the integration process of CBHWs into the health system, based on the CHA strategy, because they were convinced that it was one of best options for addressing the HRH shortage and other problems that CHBWs were facing.
The strategy was an attractive option for the MoH because the shorter training duration for CHAs compared to other professional health workers, such as nurses, offered the potential of rapidly increasing the number of health workers in the country. CHAs were trained for one year while the minimum training period for nurses was two years. Integration of CHAs was further supported because the CHAs were expected to help address the limited accessibility to services in rural areas, as CHAs would work within the communities from which they were selected. Integration was also expected to address the other challenges that existing CBHWs faced such as poor training and incentives through integrating the CHAs into the formal or government health systems. The inspiration to support the integration process was based on the findings of the study tour that the MoH undertook to Ethiopia where a similar strategy had been implemented as a way of addressing the HRH crisis. Furthermore, the recommendation by the Global Health Workforce Alliance (GHWA) that the integration of CBHWs into the health system was an innovative approach to addressing the HRH crisis also motivated the Ministry of Health to implement the process.

“We initiated and supported the process of developing the CHA Strategy because we were sure that the strategy would help address the problems that our current community health workers were facing such as lack of proper incentives ...... Based on what we learnt from the other countries... we were sure that the best way to handle the problems and improve service delivery in the community was by placing community health workers under the Ministry of Health through the development of this CHA strategy.” (Strategic team member).

7.1.1.2. Attributes of the CHA strategy and integration process of CHAs

The attributes of the CHA strategy which facilitated the integration process of CHAs into the health system included the capacity of CHAs to perform more duties than other CBHWs. Furthermore, compared to other CBHWs such as the traditional birth attendants, CHAs were registered with bodies that are responsible for professional health workers. In addition, when conducting their duties, CHAs were supervised by professional health workers, unlike other CBHWs, such as home based care providers. These attributes of the CHA strategy facilitated the integration process of the CHAs into the health system because they made the CHAs be perceived by the community as being more advantageous than the other CBHWs. Below, these factors are discussed in detail.

The ability by CHAs to perform more tasks than the other CBHWs in the community positively facilitated the integration process of CHAs at community level. Compared to other CBHWs who performed only few tasks, CHAs were equipped with skills to undertake basic tasks usually conducted by nurses, clinical officers and environmental health technicians. The CHAs were able to perform more duties because, compared to other CBHWs, the training for CHAs was longer and standardised. In addition, while other CBHWs only specialised in few topics such as focusing on delivering mothers or treating and testing malaria, the training process for CHAs was broader. The CHAs were trained on how to promote behaviour that would prevent occurrence of different diseases at community level, deliver pregnant mothers and test for as well as treat basic diseases including diarrhoea, malaria and respiratory tract infections. The ability by CHAs to perform more tasks made the community members to prefer CHAs over other CBHWs.

“One of the important reasons CHAs are liked by the community and why their services have been accepted -is that unlike the training for the other community health
workers, the training period for CHA’s is longer.... It runs for one year. The other community health workers are trained in a few topics and also a few weeks, for example in some cases, the training may even be for two weeks only or just a month.” (Neighbourhood health committee FGD 1, female participant 2).

In addition, the acceptance or recognition of CHAs by the bodies responsible for managing the professional health workers also facilitated the integration of CHAs into the health system. The CHAs were recognised by the professional health bodies such as the Zambia Nursing Council following a series of negotiations among stakeholders during the CHA development process. This recognition made it possible for CHAs to be examined by the Examination Council of Zambia, an institution which also examines the professional health workers. In addition, the recognition also made it possible for CHAs to be awarded with professional practicing certificates upon graduating from the college. Unlike other CBHWs who are not recognised by these bodies, the recognition of CHAs by professional bodies and the subsequent awarding of practising certificates to CHAs made the community and some professional workers perceive the CHAs as more competent than the other CBHWs. This positive perception of CHAs enhanced the acceptability and adoption of CHAs into the health system at district level.

“People have accepted the services provided by CHAs because the CHAs have been awarded certificates to conduct their work by the same the bodies and institutions that give practice certificates to nurses. The acceptance of the CHAs by these bodies has given us assurance and confidence that the CHAs are well equipped with skills and will be able to conduct their work in a professional way.” (Neighbourhood health committee FGD 3, female participant 1).

Furthermore, the regulation in the CHA strategy that CHAs would be supervised by nurses, which was not the case for other CBHWs, also facilitated integration process of CHAs into the health system at the district level. It was reported that supervision by nurses was vital as it enabled the nurses to monitor and mentor CHAs as the CHAs conducted their duties. It was envisaged that the monitoring and mentorship processes would enable CHAs uphold professional ethics in their duties as well as improve their skills. Enhancement of skills had the potential of promoting quality of health services provided by CHAs and acceptability of CHA services by the community.

“As a district, we are happy that nurses will supervise the CHAs. We think that this is important for ensuring quality in service provision. A situation which we think will result in improved health outcomes and also in enhancing acceptability of the CHAs in the community.” (DMHT staff).

In addition, the community appreciated and accepted the CHAs because they were able to deliver health services as close as possible to their households. One of the key attribute of the CHA strategy was the standardisation of work schedule. According to the schedule, the CHAs were supposed to spend about 80% (four days in a week) of work time in the community, and the remaining time at the health post. Interviews with the NHC members, showed that they appreciated this approach because it made possible for those who were disadvantaged, for example the young, the disabled, and the elderly, to access health services.

“I am happy to work in the community. We feel accepted in the community. The people are helped since we have brought service as close as possible to their houses. It is very nice to sit and work with the people in the community.” (CHA 4, female ).
However, some CHAs could not adhere to the schedule as it was not possible for them to spend four days in the field. Difficulties in adhering to work schedule was due to the reality of limited number of trained staff at the health post. Due to the shortage of health workers, in particular nurses, some supervisors did not allow CHAs to have more work time in the community. In some cases, CHAs spent either 50% or more of their work time delivering health services at the health post. The community was not happy with CHAs spending more time at the health post as it denied them access to health services.

“Considering that I am the only professional health worker at this health post, I decided that CHAs should spend 80% of their work time at the health post and the remaining 20% in the community.” (CHA supervisor 1, male).

Overall, the study showed that the attributes of the CHA strategy such as CHA’s better competence and ability to perform more duties than other CBHWs facilitated the integration into the health system. These attributes facilitated integration by triggering confidence and trust in community members and professional health workers regarding the services provided by CHAs. In addition, the registration of CHAs by the professional health bodies and supervision of CHAs by professional health workers facilitated the integration process as it triggered a sense of the legitimacy of CHA services among the community and professional health workers.

7.1.1.3. Perspectives of actors in the adopting system and integration process of CHAs

The participation of actors at the district level in recruiting CHAs, the selection of local people as CHAs, as well as the ability of CHAs to deliver services as close as possible to the community positively shaped the actors’ (staff at the DMHT, nurses and community members) views towards CHAs, and subsequently facilitated the integration of CHAs into the health system. Below the perspectives of the actors in the adopting system with regard to acceptability of CHAs in the health system are discussed in detail.

Involvement of the different stakeholders in the adopting system in selecting CHAs positively affected the integration of CHAs in the health system at the district level. The committee that selected the CHAs consisted of staff from the DMHT, nurses at the health posts and community members who were part of the NHCs. Analysis of data showed that this local involvement triggered the acceptability of CHAs by the NHC members and some supervisors, because it made the actors feel their own contribution was valued and recognised. This recognition facilitated the integration process by triggering a sense of programme ownership among the actors.

“We see the CHA initiative as our own initiative because we the local stakeholders are involved in selecting the CHAs. Because we select them, we do not want them to fail. We shall always support them. We are committed to seeing the CHAs succeed.” (CHA supervisor, 2).

The selection of local people as CHAs positively facilitated the acceptability of CHAs at the community level as CHAs were familiar with the local environment and had good connection with the community structures and the community members in general. The familiarity and good connection facilitated acceptability processes and most CHAs were
able to use the existing community structures to mobilise and deliver health services to the community.

“Because we the local people were involved in selecting the CHAs, we ensured that we choose people that are hardworking, are well behaved and are socially accepted--- all these features are important in positively facilitating the acceptability of CHAs at the community level.” (Neighbourhood health committee FGD 3, female participant 1).

Furthermore, the involvement of community structures such as the NHCs and leaders in supervising the CHAs also facilitated the acceptability of CHAs at community level. Community involvement facilitated the integration process because it strengthened the legitimacy of the CHA concept among community members. Being part of the supervisory process made the community view CHAs as not only loyal to the formal health system but also to community leadership and stakeholders.

At the health post, some supervisors were happy with the deployment of CHAs as it reduced their workload. The CHAs helped nurses perform some basic tasks both at the health posts and in the community. It was noted that before the deployment of CHAs, the health workers conducted their duties on their own or had to depend on the services of support staff such as clerks, cashiers or cleaners.

Meanwhile, the integration process of CHAs into health systems was limited by inadequate involvement of some CHAs in performing duties in health posts. In some health posts, the CHAs did not fully perform their duties because they were not fully accepted by the support staff who had been helping nurses deliver services before CHAs were deployed to the health posts. Despite the involvement of nurses in selecting the CHAs, some nurses did not fully involve the CHAs in delivering health services. Interviews with both the CHAs and NHCs members showed that some support staff had continued performing duties that were supposed to be conducted by CHAs and restricted the involvement of CHAs in such tasks at health posts. In other health posts, the CHAs reported that they were never invited to attend the staff meetings as well as technical support meetings. This affected their ability to freely bring out or discuss their work challenges with the support staff and supervisors.

“I think that the staff at this health post think that we are not competent to correctly prescribe the medicines to patients. Because of lack of trust in our skills, we are not allowed to administer medicines to patients. But the support staff do administer the medicines.” (CHA 6, male).

The NHCs members complained that this limited involvement of CHAs at the health post would negatively affect acceptability of CHA services in the community if not quickly addressed. They explained that the limited involvement could affect accessibility to services provided by CHAs as it had the potential of making some people think that CHAs are less competent than the support staff.

“What has surprised us is that we have two CHAs who were trained but, they are not allowed to give medicines. On the other hand, the support staff do give medicines- while the CHAs just watch.” (Neighbourhood health committee FGD 2, male participant 1).
7.1.1.4. Health system characteristics and integration process of CHAs

Analysis of data showed that health systems characteristics also influenced the integration process of CHAs into the health system. Some of the key health systems characteristics included supplies, incentives, information, and governance system.

With regard to supplies, in the CHA strategy, it was proposed that a separate package or kit of medicines would be provided for CHAs to use in the community. This package was proposed because the MoH anticipated that the demand for medicines in the community would increase as a result of health promotion activities conducted by the CHAs and this would worsen the existing shortage of some essential drugs in most health posts. However, while some CHAs received the package of drugs, others did not. Those who received the kits reported that it made their work easier as they did not have to rely on drugs from the health posts.

“The first few months, we received some drug kits from the MoH. This was good as we were able provide essential drugs to most community members in need of the drugs—a thing which most of the community members appreciated very much.” (CHA 1, female).

The situation was however difficult for most of those who did not receive any kits as they could not always carry drugs from the health posts to the field due to limited drug supply. In some cases, supervisors, especially those who had not been trained in CHA duties, did not allow the CHAs from carrying drugs from the health posts to the community because they were not confident that the CHAs would administer them effectively. The inability by CHAs to carry drugs made it impossible for CHAs to treat common illnesses in the community. Inability to treat some illness affected the community members’ support of the CHAs and also the integration process of CHAs into the health system.

“But the complaint in the community is that CHAs are unable to treat some illnesses like malaria or diarrhoea as they do not have drug kits.” (Neighbourhood health committee FGD 5, male participant 1).

Concerning monthly incentives, while it was resolved in the CHA strategy that CHAs would be paid monthly incentives, not all CHAs were paid the incentives by the Ministry of Health. Out of the 12 CHAs in district, five CHAs had never received any payments over the previous 9 months. The other seven CHAs had been paid only for four months. The non-payment of CHA salaries happened despite the CHAs having signed contracts which indicated that they are entitled to monthly incentives. While the incentives were among some of issues which contributed to facilitating work motivation among some CHAs, payment of incentives to CHAs also resulted in some CBHWs not supporting the CHAs. It was reported that some CBHWs withdrew their services because they were not happy that CHAs, some of whom had been selected from existing CBHWs, were being paid monthly salaries.

“But some community health workers help us conduct community mobilisation activities such as mobilising people for immunisation. However, others have withdrawn their services. They refuse and say they cannot help us because we are paid monthly salaries while they are not paid. Now this is a challenge because some of the areas are too vast for one CHA to cover alone.” (CHA 7, female).
For those CHAs who were not being paid their monthly incentives, no proper reasons could be provided by staff at the district or health post level. The failure by the district to effectively explain the reasons for non-payment was due to limited integration of CHAs into the district health governance system. While the CHA strategic team and a new formal position, the CHA national coordinator were created at the national level to spearhead the piloting and monitoring of the CHA strategy, no formal structure or position was put in place at the DHMT level.

Lack of full integration of CHAs into the governance system at the district level also affected the integration process of CHAs into the health system. Because of this limited integration, it was difficult for the DHMT to respond to emergent challenges such as the need to train some supervisors who had not been trained in CHA duties. Following the transfer of some supervisors who had been trained in the CHA programme to other sites, and the district was not able to train new supervisors in the CHA strategy due to limited integration of the CHA strategy in the district governance system. Furthermore, the limited number of nurses at the health posts made it difficult for supervisors to regularly monitor the CHA activities. In addition, while routine monitoring was the responsibility of the national committee, the committee had not yet visited some of the health posts from the time CHAs were deployed.

“It has been difficult for me to follow the CHAs in the community and see how they are working. I would like to do that but as you can see I am the only trained health worker at this health post - so I can't go into the community. Another problem is that I was not trained in CHA work.” (CHA supervisor).

In addition, although CHAs contributed positively to documentation of health information at the national level, the extent to which information was utilised in planning and decision making processes at the district level was limited. The limited utilisation of the information was a result of lack of integration of CHA reporting system into the information health system at the district level. CHAs provided data through their daily and monthly reports to the health posts and directly to the national level without the information going through the district information system. Information that was collected and submitted by CHAs included the number of antenatal visits, detections of respiratory tract infections, treatment of TB cases and malaria, use of bed nets and community sanitation standards, as well as reductions in infant and maternal mortality rates within the catchment areas.

7.1.1.5. Synthesis of integration process of CHAs into the health system in Zambia

The pattern and extent of integration of the CHAs into health system at district level in Zambia varied across the health systems elements. While some attributes of the CHA strategy were fully integrated into some health systems elements, other attributes were partially integrated in some elements (kindly refer to Table 6 for definitions of ‘full’, ‘partial’, and ‘non-integration’). For example the CHAs were fully integrated into the financial resources health systems elements as they were placed on the government payroll. However, the CHAs were partially integrated into the HRH elements since while they were registered with national health professional bodies, some support staff did not fully accept the CHAs at the health post.

Overall, the case study showed that the HRH crisis in the country triggered the desire and willingness of the MoH to support the integration of CBHWs into the health system.
through the development of CHA strategy. In addition, the attributes of the CHA strategy such as better competence of CHAs compared to other CBHWs enhanced the acceptability and adoption of CHA services by triggering sense of confidence in the CHA services by community and health workers. Furthermore, community involvement in selecting CHAs increased the sense of programme ownership and support at the community level. However, health system characteristics such as limited supplies and acceptance by some support staff affected the CHAs’ ability to deliver services and the subsequent acceptability of services provided by CHAs. Finally, the limited integration of CHAs in the district governance system affected the district’s ability to respond to the challenges which emerged during the process of piloting the CHA strategy such as limited supervision of CHAs.

7.2. The systematic review: national CBHWs in low and middle income countries

In this section we present the findings of the systematic review of the integration process of national CBHW programmes in health systems in LMICs. The review was conducted in order to draw lessons on factors that shaped the integration process in countries that had implemented the national CBHW programmes for a much longer period than the Zambia. In particular, we focused on the period after the 1990s. We assumed that selecting such programmes would provide more comprehensive lessons on integration which Zambia and other LMICs would benefit from. Four countries Brazil, Ethiopia, Pakistan and India were included in the study. The findings have been organised around the following major headings: description of the national CBHWs programmes, integration status of national CBHW programmes; and the factors that shaped the integration of CBHWs into the health systems.

7.2.1. Description of the national CBHW programmes

Community Health Agents in Brazil

The Community Health Agents, or Agentes Comunitários de Saúde, programme in Brazil was developed in 1991. This programme falls under Brazil’s Family Health Strategy [3]. The Community Health Agents operate within the family health care teams which are managed by the municipalities. These teams are comprised of dentists, a dental hygienist, and a social worker. They are about 33,000 family health care teams with each team including about 4–6 Community Health Agents [14]. Community Health Agents are recruited by municipal councils and are full time workers [73, 84].

Lady Health Workers in Pakistan

The Lady Health Workers were launched in 1994 and they operate within the National Programme for Family Planning and Primary Health Care [2]. The Lady Health Workers are full time workers. They are attached to a local health facility, though they mostly work from their homes [14, 73, 85].

Health Extension Workers in Ethiopia

The Health Extension Workers were introduced in 2004 in Ethiopia. They operate within the Health Extension Programme. Health Extension Workers are formal
government workers and are usually adult women who have completed the 10th grade [14, 73].

**Accredited Social Health Activists in India**

The Accredited Social Health Activists were launched in India under the Rural Health Mission programme in 2005 [14]. The Accredited Social Health Activists are supposed to have a minimum of at least of eighth-grade education and they receive outcome-based remuneration mainly for facilitating institutional deliveries and immunisation. The programme is mainly funded by the Ministry of Health and Family [1, 14, 73].

Table 10 summarises the attributes of the national CBHW programmes, including the names of the CBHW programme, the number of the CBHWs, their roles, type of incentives and mode of supervision.

**Table 10: Summary of national scale CBHW programmes**

<table>
<thead>
<tr>
<th>Country</th>
<th>Type of community-based health worker</th>
<th>Roles</th>
<th>Incentives</th>
<th>Supervision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil</td>
<td>Community Health Agents - About 240,000 Community Health Agents - Launched in 1991</td>
<td>Promoting breastfeeding, providing prenatal and child care, immunizations; and participating in the screening, providing treatment of infectious diseases, as well as linking people to the formal health system</td>
<td>From $100 to $228 per month</td>
<td>Nurses and physicians from the local clinics</td>
</tr>
<tr>
<td>Pakistan</td>
<td>Lady Health Workers - About 90,000 Lady Health Workers - Launched in 1992</td>
<td>Supporting maternal and child health services, which include family planning, HIV/AIDS and treatment of minor illnesses. Providing health education, making referrals, providing essential drugs for minor ailments, contraceptives and vaccinations</td>
<td>$343 per year</td>
<td>Lady Health Worker supervisor</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>Health Extension Workers - About 34,000 Health Extension Workers - Launched in 2004</td>
<td>Providing basic first aid, contraceptives, immunizations, as well as conducting diagnosis and treatment of malaria, diarrhoea, and intestinal parasites</td>
<td>About $84 monthly</td>
<td>A team consisting of health officer, public health nurse, environmental health technician and health education expert</td>
</tr>
</tbody>
</table>
India
Accredited Social Health Activists - About 800,000
Accredited Social Health Activists - Launched in 2005
Community mobilisation, motivating women to give birth at health posts, promoting immunisations, family planning, treating basic illness, keeping demographic records, and improving village sanitation
About 600 rupees for facilitating an institutional delivery and 150 rupees for immunisation session
Facilitators

Source: Zulu et al. [73].

7.2.2. Integration status of national CBHW programmes into health systems

Overall there were variations across and within the programmes with regard to the extent and pattern of the integration process of national CBHW programmes in health systems functions. Below we discuss in detail the integration status of each programme.

Community Health Agents in Brazil

The Community Health Agent programme in Brazil operates within the Brazil’s Family Health Strategy [3, 73]. Review of data showed that the management and financial resources aspects of the programme appeared to be fully integrated in the governance, training and financial resources as well as the goals and outcomes elements of the health system. Supervision is done by professional health workers through family health care teams while standardised training for Community Health Agents is provided by the Ministry of Health. Community Health Agents receive monthly salaries and are fully integrated in the civil service system [3, 11]. Community Health Agents seemed to be fully integrated in the population function of the health system as community members and municipal councils are involved in the recruiting and managing the Community Health Agents [84, 86]. However, the Community Health Agents’ integration status in the human resources and service delivery appear to be partial due to resistance of Community Health Agents by other health workers. One of the reasons for this resistance was the lack of clarity between the roles of CBHWs and nurses [3].

Lady Health Workers in Pakistan

The Lady Health Worker programme in Pakistan operates within the National Programme for Family Planning and Primary Health Care [2, 73]. The programme appeared to be fully integrated in the goals, outcomes, governance, financial resources and human resources training elements of the health system. The Lady Health Workers are fully integrated in the civil service and receive a monthly salary. The Ministry of Health is fully involved in developing and approving of the training material for the Lady Health Workers [25, 85]. The programme exhibits some level of partial integration in the population, health service delivery and human resources health system elements. Discrimination based on social, gender, and economic status, as well as resistance to Lady Health Workers by other health workers limited full integration of Lady Health Workers in the service delivery and human resources health system elements [87, 88]. In addition, the national CBHWs are not directly supervised by professional health
workers. Meanwhile, the management information system is completely not integrated with the overall health system [2].

**Health Extension Workers in Ethiopia**

The Health Extension Workers in Ethiopia work within the Health Extension Programme [14, 73]. The programme appeared to be fully integrated in the governance, training, financial resources as well as the goals and outcomes elements of the health system. Health Extension Workers are supervised by professional health workers. The national CBHWs receive standardised training which is offered by Ministry of Health in collaboration with the Ministry of Education. Health Extension Workers are fully integrated in the civil service [14]. Integration of Health Extension Workers in the population and service delivery functions of health system appeared to be partial since not all community members are utilising the services [89].

**Accredited Social Health Activists in India**

The Accredited Social Health Activists operate in the Rural Health Mission programme [14, 73]. The programme appeared to be fully integrated in the goals and outcomes functions of the health systems as Accredited Social Health Activists duties are in line with the goals of the national primary health care systems. The Accredited Social Health Activists are partially integrated in the financial resources, population, service delivery and human resources functions of the health system, as they are not part of the service but receive standardised outcome-based remuneration mainly for facilitating institutional deliveries and immunisation and also for each child that successfully completes immunisation session. In addition, they were often selected by auxiliary nurse midwives with limited community consultation [49]. Further, discrimination against the Accredited Social Health Activists based on social, gender and economic status affected the acceptability of the services they provided [1, 14]. Although their training is standardised, in some states the training is outsourced to NGOs while in other states the MoH conducts the training. Similarly for supervision, although there are national guidelines, Accredited Social Health Activists are not directly supervised by professional health workers, but rather by Accredited Social Health Activists facilitators.

**7.2.3. What factors shaped the integration of CBHWs in the health systems in LMICs?**

Having provided an overview of the integration status of national CBHWs, we now focus on the factors that shaped the integration process of the national CBHW programmes into health systems. The results have been organised around four major themes based on the components of the conceptual framework on integration of health interventions into health systems by Atun et al. [72]. These major themes include: characteristics of the problem, attributes of the intervention, the adoption system, and the health system characteristics.

**7.2.3.1. The HRH crisis in LMICs and integration process**

The huge HRH problems prevailing in Brazil, Ethiopia, India and Pakistan precipitated the development and integration of national CBHWs into health systems [25, 90]. CBHW programmes became a viable option after the failure of other approaches to reduce this HRH gap, such as increasing the capacity of training institutions to train professional health workers [1, 14]. The difficulties that most non-national CBHW
programmes faced played a critical role in facilitating policy change for CBHWs from small scale and non-integrated programmes towards national programmes that are integrated into health systems [73]. The policy change towards integration of national CBHWs was supported by both local and international organisations, such as the Global Health Workforce Alliance [1, 14, 25, 61, 62, 91].

7.2.3.2. Attributes of national CBHW programmes and integration process

Good performance of tasks by national scale CBHWs compared to existing similar health workers was one of the key issues which positively shaped the integration process of national CBHW programmes into the health systems [70]. This good performance, which was attributed to the improved training, incentives and supervision associated with national CBHWs, facilitated acceptability and adoption of national CBHWs services at the community level [1, 11, 61, 70]. For example, in Ethiopia, the Health Extension Workers were more preferred by the community for delivering pregnant mothers than traditional birth attendants [70]. In Pakistan, studies showed that the areas covered by Lady Health Workers recorded better health outcomes compared to non-covered areas. Good health outcomes recorded included reduction in infant mortality rate, maternal mortality ratio, increased contraception prevalence rate, improved tetanus toxoid coverage, children fully immunized and levels of exclusive breastfeeding [2, 87]). In Brazil, the Community Health Agent programme contributed to improved adherence to hypertension and diabetes treatments, increase in the use of prenatal services as well as coverage of children’s immunization [3]. In Ethiopia, Health Extension Workers increased institutional deliveries [49].

7.2.3.3. Actors’ perspectives and integration process

The involvement of actors in the adoption system in developing and implementing the national CBHWs positively facilitated the integration process of CBHWs into the health systems in LMICs. For example, the involvement of government officials, health service providers, professionals and citizens in the municipal health councils in Brazil in implementing the CBHW programme facilitated the integration of the Community Health Agents into the council’s financial systems for PHC [3]. In Ethiopia and Pakistan, the participation of, for example, politicians in the development of national CBHW policies facilitated the integration of the CBHWs into the PHC health system, governmental training and financial elements of health systems [2, 89]. At the community level, the involvement of local structures in recruiting the CBHWs as well as recruitment of local people as CBHWs in all the four counties also facilitated the integration process of the CBHWs into the health systems [1, 11, 49, 61, 85, 92]. The election of local people facilitated acceptance of CBHW services by the community because the CBHWs were often trusted individuals and were familiar with the norms and values of the community and thus were able to observe these factors as they provided the services [73, 93, 94].

On the other hand, limited recognition and acceptance of the CBHWs by some professional health workers in some countries limited the acceptability and adoption of CBHWs into the health system. For instance the Community Health Agents in Brazil...
faced resistance to acceptance mainly by nurses, due to unclear roles [3]. Similarly, in Pakistan, some professions did not accept the Lady Health Workers [2]. In India limited participation of the community in selecting the Accredited Social Health Activists – and more involvement of auxiliary nurse midwives – resulted in mistrust and conflict between villagers and Accredited Social Health Activists [49, 73].

In addition, social and cultural factors also affected the integration process of national CBHW programmes into the health systems in LMICs. For instance, discrimination against CBHWs based on social class and gender within the adopting systems compromised service delivery and the accessibility of the services provided by CBHWs in communities in India and Pakistan [73]. In India, lower caste Accredited Social Health Activists were discriminated against by the higher castes when delivering services [95]. Similarly, in Pakistan caste-based village hierarchies discouraged visits beyond biradari boundaries (or group of male kin -the patrilineage), thus other social classes did not adequately benefit from the services [2, 88]. Apart from the issue of class, cultural perspectives of gender also affected service delivery and the acceptability of national CBHWs. The impact of gender dynamics included conflict between work and household responsibilities as well as restriction of the movement of the CBWHs in spaces occupied by unrelated males [73, 88, 96].

7.2.3.4. Health system characteristics and integration process

The change in the national policy on HRH in these LMICs towards standardisation of training, supervision, roles and incentives of CBHWs facilitated adjustments in different elements of the health systems such as training and financial resources elements. In Brazil, training of CBHWs was placed under the MoH, which offers training through regional health schools. In Ethiopia, the MoH took up the responsibility of training of Health Extension Workers [11]. In Brazil, supervision is conducted through the family health teams, which include about four to six Community Health Agents under one nurse [3, 11]. In Pakistan supervision is provided by another mobile female cadre of health worker, which is a formal position created in the Ministry of Health [2, 85]. With regard to incentives, in Brazil, Community Health Agents are full time workers and are paid on a monthly basis [3]. Similarly, Health Extension Workers are on the government payroll [11, 14]. The Lady Health Workers in Pakistan are also government paid workers [14, 85]. These national CBHWs have a fixed monthly salary [73].

Although the standardisation in training, incentives and supervision improved community health worker motivation, there were some limitations. In India for instance, the outcome-based payment structure limited work output by the Accredited Social Health Activists[95]. Due to this remuneration structure, the Accredited Social Health Activists were more keen to undertake those tasks which attracted payment at the expense of other activities which did not attract payment. This selective performance of tasks affected accessibility to some of the services by the community and thereby limited community acceptability as well as connectedness [1, 49, 95]. Inadequate inclusion of some skills, such as communication skills, in the training programme in India as well as in Pakistan affected the CBHWs’ ability to mobilise the communities for health promotion activities [1, 85, 88, 92, 93]. Limited supervision in Ethiopia, mainly due to long distances to the health posts and the huge numbers of Health Extension Workers affected their work performance [70, 89]. In Pakistan and Brazil, there is a limited number of professional workers to supervise the national CBHWs [2, 3, 73].
Further inadequate infrastructure and supplies in most of these countries affected the integration process. For example limited referral systems, transportation, and communication systems to health posts in Ethiopia affected accessibility, utilisation and acceptability of some of the services provided by Health Extension Workers in the community [89, 97]. Similarly, in India, the Accredited Social Health Activists had difficulties encouraging institutional births in the community due to inadequate supplies and medicines in the health facilities [1, 25, 49, 62, 92]. In Pakistan, irregular or inconsistent drug supply as well as poor referral process at the district level affected utilization of the services provided by the Lady Health Workers [1, 2, 14, 25, 62, 85, 88]. In India, effective communication was affected by the hierarchical structure and subsequently limited improvements in service delivery [49]. In Brazil, communication gaps between the municipal bureaucracy and communities affected effective participation by the community in the CBHW programmes [3]. In Pakistan, the limited integration of the Lady Health Workers with the management health information system created a vacuum in the decision making process because the problems at the grassroots level could not be effectively communicated to the decision makers for consideration [2, 73].

7.2.3.5. Synthesis of factors that facilitate the integration process

The systematic review of the four national CBHWs programmes from Brazil, Ethiopia, India and Pakistan showed that different aspects of each of these programmes were integrated in different ways into the health systems of these countries. Factors which facilitated the integration process included the huge HRH problems which necessitated the development of strategies aimed at integrating national CBHWs into the health system as a way of resolving these problems. Other factors included the perceived relative advantage of national CBHWs with regard to delivering health services over the other CBHWs. The perceived better services provided by these programmes increased utilisation of the services provided by CBHWs and the acceptability of national CBHW programme by some community members and professional health workers. In addition, the involvement of some politicians and community members in recruiting the national CBHWs as well as implementing the programmes made these people perceive the programme as legitimate, credible and relevant. Finally, change of national-CBHW policy to provide for the integration of CBHWs within the existing health systems enhanced the programme compatibility with health systems elements such as financing, training, supervision. On the other hand, a rapid scale-up process or expansion of CBHW programmes; resistance from other health workers; ineffective incentive structures; discrimination of CBHWs based on social, gender and economic status; as well as inadequate infrastructure and supplies inhibited the integration process of national CBHWs into the health system.
Chapter 8 | Discussion

This study analysed the integration process of national CBHW programmes into the health systems in Zambia and other LMICs. Factors that facilitated the integration process of the programmes into the health systems included the need to address the shortage of human resources for health (HRH), the challenges that CBHWs faced as well as the support from actors. Furthermore, change of the policy framework on training, supervision and incentives of national CBHWs also facilitated the integration of national CBHWs into the training, financial and human resources elements of the health system. On the other hand the integration of national CBHW programmes into the health systems was inhibited by resistance from other health workers, social and cultural factors as well as limited supplies and infrastructure. Specifically for Brazil, Ethiopia, India and Pakistan, the rapid scale up affected planning and management processes of national CBHWs. Based on the findings of the study, we summarise the key factors that determine the integration of national CBHWs in the health systems under the following four broad headings: adaptive nature of health systems, interdepartmental collaboration, local actor involvement and integration of national CBHWs in the governance health system.

8.1. Adaptive nature of health systems and integration process

The case study in Zambia showed that the implementation of the Community Health Assistants (CHAs) strategy in the health system had an effect on the other elements of the health system (i.e. resources, governance, service delivery), which in most instances triggered the need for modifying these elements or functions. For example the implementation of the CHA strategy triggered the need for making changes in the governance, training and financial systems at the national level. Regarding the governance system, a CHA strategic team or structure was developed in order to support the developing, implementation and integration of CHAs in to the health system. In addition, staff in charge of the health post were trained on how to supervise the CHAs. To support successful training of CHAs, adjustments were made in the government departments responsible for training professional health workers so as to formally include CHAs in the training schedule. For the financial system, the policy framework was changed in order to facilitate the inclusion of CHAs on the payroll. Changes in training and responsibilities of CHAs positively facilitated acceptability of CHAs at the community level by making the CHAs compatible with existing health system practices as well as community expectations.

Similarly, our systematic review showed that implementation of national CBHWs in other LMICs triggered some adjustments in the health systems functions in order to support the integration of national CBHW programmes into health systems. These modifications, for example in Brazil and Ethiopia, took the form of developing the supervisory teams. In Pakistan and India, new groups of workers (the Lady Health Worker supervisor and Facilitators respectively) were created and tasked with responsibility of supervising the national CBHWs. In addition, in all the countries, adjustments were made to the training structures within the government departments to facilitate the integration of national CBHWs in the national training system. Furthermore, the Ministries of Finance and Health in Brazil, Ethiopia and Pakistan enacted strategies which facilitated inclusion of national CBHWs in the civil service. These changes probably best illustrate the complex adaptive nature of health systems, i.e. health systems consist of a set of connected or interdependent actors and functions.
who often adjust their interaction based on characteristics of the other parties, and who, based the communication from the other parties, may effect changes within their organisation systems and structures or alter themselves in response to communication received [98].

On the other hand, the inadequate adaptation by some actors or functions of the health system tended to limit the integration process of national CBHWs in health systems. For example, in Zambia limited acceptance of CHAs by support staff at the health post affected CHAs’ ability to deliver services. Whereas in Zambia resistance was mainly from support staff, in Brazil, Pakistan and India, the integration of national CBHWs in health systems was mainly affected by resistance from the professional health workers. In all the countries, limited supplies and structure affected the ability of the national CBHWs to deliver health services and their integration into health systems.

This scenario, where what happens in one function of health system affects integration process in other health system functions, suggests the need for adopting a systems thinking approach to analysing and strengthening the integration process of national CBHWs. This approach is essential as it offers a comprehensive way of anticipating synergies and mitigating the negative emergent behaviours in the integration process of health innovations [99].

This is possible because systems thinking is about anticipating how an innovation might flow through, react with, and impinge on these sub-systems or elements of the health system [69]. Using such an approach, one is able to forecast how the innovation will trigger reactions in the different functions of the health system, and develop assumptions of how the system itself might respond [99]. Through these predictions or mapping of conceptual pathways, innovations such as the national CBHWs as well as their implementation process may be re-designed so as to strengthen the positive elements or synergies and mitigate potentially negative effects.

8.2. Interdepartmental collaboration and integration process

This study further showed that interdepartmental collaboration and networking is crucial for successful integration of national CBHW programmes into health systems. In Zambia, collaboration among departments and institutions in the Ministries of Health and Education facilitated the development of CHA policy and curriculum as well as conducting of CHA training. Furthermore, this collaboration facilitated the acceptability and recognition of CHAs by health professional bodies and the Examination Council of Zambia. On the other hand, limited collaboration between the Ministry of Health and Finance in Zambia resulted into challenges in paying the CHA monthly allowances.

Our systematic review confirmed the relevance of collaboration in facilitating the integration process. Like the case of Zambia, interdepartmental collaboration between the Ministries of Education and Health in Brazil, Ethiopia, Pakistan and India facilitated the integration process of national CBHWs into the national training systems for professional health workers. Whereas the collaboration between the Ministries of Health and Finance in Brazil, Ethiopia and Pakistan facilitated placing of national CBHWs on the government payroll.

Interdepartmental collaboration and networking is vital for facilitating the integration process of national CBHW programmes as the programme is comprised of different
aspects or elements which are often beyond the scope of one department of the health system. This feature qualifies the national CBHW programmes to be classified as complex innovations, as such innovations are made up of a wide variety of elements [98]. Our findings therefore supports the view by Greenhalgh et al. [67] that the introduction and diffusion of complex innovations in organisations may trigger collaboration and networking by creating purposeful construction of a shared and emergent organizational story among the actors in the organisation about how successful integration of the innovations is dependent on their effective collaboration. This story is shared among actors through effective communication across organisations’ departments through the policy documents or strategies.

8.3. Local actor involvement and integration process

In Zambia, one of the key issues that triggered the integration process of national CBHWs into the health system was the participation of local people in CHA programme. The community participated in the CHA programme through being selected as CHAs and being involved in the selection process and management of CHAs. This local actor participation facilitated the integration process by triggering a sense of ownership and connectedness with the programme. In the other countries, involvement of the local people also facilitated the acceptability and adoption of national CBHWs at the local level. Community connectedness is also relevant for the integration process as it may promote “a sense of relatedness with the local public health services, and thus accountability towards the system, an anticipation of being valued by the local public health services as well as an assurance that there is a system for back-up support [61].

Furthermore, involvement of local actors in programme implementation as well as other actors such as politicians and policy makers in developing and implementing the innovation is vital as it may also trigger perception of programme legitimacy, credibility and relevance by the actors [61, 69, 73]. These issues may be possible as participation may result in development of programmes that are compatible with local health care expectations as well as the goals of the major key stakeholders and institutions[75]. In addition, participation may also trigger notions of programme legitimacy as it may enable stakeholders to understand why and under what conditions priorities or decisions regarding the development and implementation process of the programmes were made [73].

Although the selection of local people as CBHWs and involvement of local actors may facilitate acceptability and adoption of the programme by actors, the study showed that emphasising or placing all CBHWs into the civil service maybe problematic as it can reduce the motivation by other CBHWs that are not on the payroll in delivering services. For instance, in Zambia the receipt of monthly incentives by CHAs made some of the existing CBHWs who were not entitled to the monthly incentives not to support the CHAs in conducting community health sensitisation and immunisation activities. Considering that CHAs are fewer than the other CBHWs, prioritising CHAs more than other CBHWs (those not on government payroll) may have a negative effect on other community public health programmes such as malaria and HIV prevention, testing and treatment programmes that engage the services of other CBHWs. This scenario, if not handled well, may impact negatively on health gains with regard to malaria and HIV related matters in rural areas where other CBHWs have been vital in providing these services. Similarly, in India the receipt of monthly salaries by national CBHWs affected the integration process of CBHWs as some community members tended to view them as
being more accountable to auxiliary nurse midwives. We therefore agree with Schneider et al. [10] that “it is also not clear that the solution to the difficulties associated with CBHWs lies in incorporating them wholesale into the civil service.” Placing all CBHWs in the civil service may limit the possibilities for more inclusive participation. Second, this can also limit the expression of a range of different motivations or non-financial incentives such as clearly defining responsibilities, appropriate job aides, resources/supplies, and community connectedness [100].

Based on these findings, we recommend the need for having comprehensive approaches to provide baseline contextual data at the beginning of an integration process, about which stakeholders should be aware as they integrate CBHW programmes into the health systems [73]. Such baseline data can help bring out a broad range of ways of motivating CBHWs which can be manageable by both the private and public organisations and institutions that engage the services of CBHWs. Furthermore, such approaches have the potential of bringing out other key community dynamics which inhibited the integration process, such as discrimination based on gender and social classes as seen in the Pakistan and India.

8.4. Integration process into the health governance system and public private partnership

Limited integration of the CHAs in the district governance system was one of the major issues which constrained effective acceptability of CHAs at the local level in Zambia. Failure to fully integrate the CHA strategy into the district governance system limited the sense of programme ownership at the district level and the district’s ability to respond to emergent implementation challenges. Some of these challenges were the inability by the district to continuously train supervisors following the transfer of trained supervisors to other health posts. In addition, as in the cases of Pakistan and India, limited programme integration into the district governance system in Zambia resulted into the creation of parallel information systems which caused insufficient documentation of programme outcomes at the DHMT level.

Integration of national CBHW programme in local health governance is vital for implementation of the programme as health system governance is one of major factors that determine the performance of the health systems. Health system governance affects health systems performance because it is concerned with the capacity to formulate policies, manage resources and provide services [101]. Studies conducted for example in Zimbabwe and Kenya have demonstrated the link between governance and health systems performance. The studies showed that ineffective consideration of certain health strategies within the district health management teams resulted in underperformance by the health system in those areas [102, 103]. Specifically for Zambia, this limited integration of CHAs into the district health governance system may not only affect the implementation and monitoring process of the CHA strategy but can also probably limit the realisation of the objectives of the health sector decentralisation policy which was implemented in the 1990s. Decentralisation aimed at transferring the responsibilities and authority to the local level and thus increasing local governance capacity and the health systems’ ability to meet the local health needs [104, 105]. Decentralization by devolution is the transferring of power of decision making, functional responsibilities and resource from central government to local government authority [106]. This limited integration of CHAs at the district level may limit the
efficiency and quality of health services delivered by CHAs and the ability of the district to own and sustain the programme.

However, full integration of national CBHWs into the health system, especially the issue of paying monthly salaries to CHAs may affect private public partnership in health service delivery, in particular the performance of private sector programmes that engage the services of CBHWs. Integration may affect private sector performance through, for example, the reported withdrawal of services by some of the CBHWs who were not entitled to monthly salaries in Zambia. Such withdrawal of services may reduce health service coverage by the organisations which rely on the services of these CBHWs in providing health services. Addressing this situation may require taking into account the potential effect of the integration process on primary health care programme strategies that are being operated by other organisations, such as NGOs.

Based on the findings, we built on the original conceptual framework of integration of national CBHWs into health systems to develop a conceptual model for analysing the integration process of national CBHWs into the health system as reflected in Figure 7. According to this model, once a national CBHW programme is developed, the degree of integration of the programme into the health systems is likely to be shaped by the interaction between the attributes of national CBHW programme (such as its relative advantage, compatibility) and the factors within the context in which the programme is introduced. The factors which may shape the integration process are problem characteristics (HRH crisis, discourses for addressing problem, scale-up pace for CBHWs); health system characteristics (national training systems, national financial systems, national supervisory systems, district governance system); actors (community members, health workers, policy makers) and socio-cultural and economic factors (discrimination based on gender and discrimination based on caste).

Figure 7: Towards a conceptual model for analysing integration of national CBHW programmes
8.5. Methodological considerations

This section discusses the strengths and limitations of the study. The first part of the section focuses on the case study while the second part addresses the systematic review study design. However before proceeding into the limitations of the specific studies, it is important to note that one of the overall limitations of the study was that we did not focus on the actual performance of the CBHW programmes. This denied the study information on how integration process and or the levels of integration might influence the performance of national CBHW programme. Such information would have strengthened the analysis of relevance and shortcomings of the integration process in meeting the health needs at the community level. However, the information provided by this study on factors that may shape integration provides a good foundation for further studies on analysing the influence of integration process on the performance of CBHWs.

8.5.1. The case study: trustworthiness

Trustworthiness of the case study was enhanced through attending to aspects of the credibility, dependability and transferability of our findings [107, 108]. The credibility and dependability of findings were strengthened through systematically and comprehensively reviewing the data that was collected using multiple data collection methods. Data were collected using key informant interviews, participant observation, in-depth interviews, focus group discussions and review documents. Furthermore, credibility and dependability were enhanced through inductively coding and categorizing the data [109]. In addition, the use of the different data collection methods helped in strengthening credibility and dependability of data by allowing us to triangulate the data. Triangulation involved assessing the similarities and differences in the data collected by different methods. In addition, credibility and dependability of findings was enhanced by separately sharing the codes and categories with my PhD supervisors, and individually reviewing them, and discussing the individual insights regarding the codes before developing the final themes. My experience in qualitative research as well as the complementary backgrounds and qualifications of my PhD supervisors (anthropology and public health) helped in strengthening trustworthiness of data analysis and interpretation. Transferability of data was strengthened through providing a rich description of the phenomena (CHA strategy development and integration), the context, the informants, procedures of data collection and analysis as well as by providing quotations in the text representing a variety of informants [110].

Some of the study limitations included conducting only one FGD per health post with the neighbourhood health committees (NHCs). Since the majority of the members of the NHCs had previously worked as CBHWs, focusing only on the NHCs excluded the views of the general community members. Not including other community members who were not part of the NHCs in the discussions denied the study of some important community perspectives on the CHA work processes and integration process. The missed perspectives could have provided information on the relationship between CHAs and community members who do not play any roles in the supervision or recruitment of CHAs. Another limitation is that we did not interview other CBHWs – i.e. CBHWs who are not part of CHAs. Lack of inclusion of other CBHWs denied the study additional understanding on how payment of monthly salaries to CHAs affected other CBHWs’ ability to deliver health services in the community, especially those services which are being provided by private sector organizations such as NGOs. Understanding the effect of the integration process on the performance of other CBHWs who work with the private sector is important because there are several NGOs who use the services of other CBHWs in providing health services in the community. The services provided by these
NGOs include prevention of HIV and tuberculosis as well as providing care to people living with HIV.

Considering that knowledge in qualitative research is generated through interaction between the researcher and study participants, reflexivity on the role of the researcher in data collection process and interpretation is vital. Throughout the research period, I reflected on my role in the research process and my pre-understanding of the study. My previous experience of working with CBHWs and knowledge of CBHWs may have influenced my interpretation of the data. To avoid this, I tried to remain open during the analysis process of the data and not rely on my pre-understanding of CBHW programmes in collecting and analysing the data on the experiences of CHAs. I reminded myself each time I was about to conduct a new interview or analyse the data that the CHA programme was a new CBHW programme. The recognition that this was a new programme helped me to be as open as possible to learning from the study participants during the interview process as well as from the transcribed data during the analysis process. Use of several probes during the interview process was vital in helping me draw the attention of the study participants, remain focused during the interview process and gain new insights regarding the subject.

8.5.2. The systematic review: strengths and limitations

The inclusion of papers utilising different methodological approaches was one of the major strength of the study. Through an extensive search of the literature, conducted over a period of time, studies with different methodological approaches including mixed-methods papers and reviews were included in the study. Inclusion of these studies was important because they provided in-depth insights into factors influencing the integration of national CBHWs into health systems in LMICs [73]. As for the case study, the use of a multi-disciplinary team in the review as well as synthesis of data enriched the study. The team was relevant as it enabled us to integrate the team members’ interpretations of the findings.

One of the limitations of the review was the possibility of missing out on some publications during the data search process. The study may not also have included other national CBHW programmes which were developed in the recent years as we only included programmes that had been scaled nationally in or after the 1990s (the period when there was renewed enthusiasm for CBHW programmes in LMICs); and had been in operation for not less than five years. In addition, it is also possible that some national CBHW programmes were not included in the analysis because such programmes may not have been published in peer reviewed journals. Furthermore, some programmes could have also been left out because they were not effectively defined in the publications as having been formed and operated by the government; and that the training, supervision and incentive structures were standardised and well-defined by the government. In order to mitigate this limitation, we conducted several searches between November 2013 and March 2014. In addition, references of publications were also reviewed for other possible relevant publications. Inclusion of only studies conducted in English was another limitation. We included only studies conducted in English as this is the main language in which we were conversant. Meanwhile the inclusion of studies that had used the systematic reviews in our data synthesis helped us capture some studies that we may have missed out due to language barriers. Finally, despite the limitations, we believe that this study, through the review of multiple studies and national CBHW programmes in LMICs, provides a valuable contribution to the knowledge base on factors which may shape the integration process of national CBHW programmes into the health systems.
Chapter 9 | Conclusions

This study focused on analysing the integration process of national community-based health worker (CBHW) programmes into the health systems in low and middle income countries, with a special emphasis on Zambia. The study showed that the integration process was a complex, multi-functional and dynamic process. Implementation of the national CBHW programmes had an effect on the different elements and functions of the health system, and in some cases triggered or necessitated modifications in the functions. Interdepartmental collaboration and networking was one of the key issues in supporting the integration process as the attributes of the national CBHW programmes were beyond the scope of one ministry or department. In addition, the participation or support from local actors in programme process triggered the perceived legitimacy and credibility of CBHWs as well as community connectedness which positively facilitated the integration process. However, social-cultural factors such as discrimination based on gender and social class, resistance from other health workers, existence of parallel communication systems and limited capacity by the district to manage the CBHW programmes in some countries affected integration of national CBHW programmes into health systems. Addressing challenges to the integration process requires strengthening the integration of national CBHW programmes into the district governance system, providing comprehensive contextual baseline data at the beginning and adopting a stepwise approach to integration of national CBHW programme.

9.1. Recommendations

The study contributes to the knowledge base for on-going debates on integration of national CBHWs into the health system in low and middle income countries. Below we present the recommendations based on the findings of the study.

Policy related recommendations

1. Put systems in place for ensuring continuous orientation and training processes for other professional health workers on the roles of national CBHWs and supervision processes in order to reduce misunderstanding or conflict when performing tasks.

2. Strengthen integration of national CBHW programmes in the district governance systems in order to facilitate effective programme ownership at the local level as well as effective decision making processes, feedback and capacity to respond to emergent implementation challenges.

3. Include several work motivational packages for the national CBHWs such as career path, refresher courses, effective transport system and support systems from the community during the integration process, and do not emphasize only monthly salaries as this has the potential to distort some of the key principles of the CBHW approach, including community participation and connectedness. Furthermore, it is equally important to pay CBHWs when they have been promised to be paid.
4. Follow a gradual process when scaling up the national CBHW programmes in order to reduce managerial and planning challenges which most of the national CBHWs programmes experienced.

5. Promote the integration process of national CBHW programmes into the health systems through strengthening the various functions of health systems since limitations in one aspect of the health system has the potential to affect the integration process of national CBHWs in other health systems functions. Alternatively, CBHWs could also be seen as an instrument specifically for strengthening various aspects of the health system such as service delivery.

6. Consider developing complementary strategies for motivating other CBHWs who may not qualify to be recruited as national CBHWs. These strategies are important for facilitating continuous participation of CBHWs in providing primary health care and also the co-existence or co-operation between the national CBHWs and other CBHWs.

**Recommendations for further research**

While we attempted to identify the key factors that shape the integration of national CBHWs in the health system, we acknowledge that we were not able to cover certain aspects of the integration process due limited time and resources. Below we highlight some of the issues for further research.

1. The influence of the integration process and levels of integration of national CBHWs in the health system on the performance of national CBHWs in delivering primary health care. It may be important to compare the health outcomes between the areas where national CBHWs are involved in delivering primary health care and those where only other CBHWs are available.

2. Considering that the case study in Zambia did not include the other non-governmental organisations working with CBHWs as well as community members who are not part of the NHCs, it would be important to analyse the views of these stakeholders regarding the integration process of national CBHWs into the health system.

3. Considering that payment of monthly salaries to CHAs resulted into some existing CBHWs withdrawing their labour, it is important to comprehensively understand the effects that the integration process may have on the delivery of health services by the private sector programmes that use the services of other CBHWs.

4. Gender-based discrimination was one of the major limitations to acceptability of national CBHWs in other LMICs, especially in relation to their role in providing family planning methods. Since delivering sexual and reproductive health services is one of the core responsibilities of the CHAs in Zambia, it would important to explore the influence of gender on the acceptability of such services at the community level.
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