HEALTH RESEARCH KNOWLEDGE TRANSLATION INTO POLICY IN ZAMBIA: POLICY MAKERS AND RESEARCHERS' PERSPECTIVES

By

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DECLARATION

I **Annie Malama** hereby do declare that the work presented in this dissertation is for the award of Master of Public Health in Health Policy and Management. This report has not been presented entirely or in any part for any other degree nor is it being submitted for any other course at any University.

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CERTIFICATE OF APPROVAL

The University of Zambia approves this dissertation by Annie Malama as fulfilling part of the requirements for the award of the Master of Public Health in Health Policy and Management.

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ABSTRACT

Translation of public health research evidence into policy is critical to strengthening local health systems capacity to respond to eminent health challenges. However, limited public health research evidence generated in developing countries is translated into policy because of various factors. This study sought to explore the process of health research knowledge translation into policy through mapping of key actors, assessing the policy environment for knowledge translation, exploring the engagement between health researchers and policy makers, as well as identifying factors that shape the uptake of health research into policy in Zambia.

This study was an exploratory qualitative research comprising two phases. Firstly, a document review of health policies and strategic frameworks was undertaken to understand the macro environment for knowledge translation. Secondly, key informant interviews with those responsible for health research and policy formulation were conducted. The study interviewed 15 key informants, and thematic analysis approach was used.

The main actors in the process of knowledge translation include funders, health researchers and policy advocates, media, Ministry of Health and the community as beneficiaries. They are policy efforts to promote knowledge translation through improvement of the research environment, health research regulation and capacity building. However, coordination of the knowledge generation and policy making process remains a challenge because of inadequate research systems, as well as lack of research knowledge translation capacity. Engagement between policy makers and researchers comprised direct engagement and knowledge brokering. However, inadequate engagement, weak research infrastructure and financing systems are some of the barriers to knowledge translation. Emerging local research leadership and the existing stock of underutilized local research data were identified as enablers to knowledge translation into policy efforts in Zambia.

Public health research knowledge translation into policy remains a challenge in Zambia. To enhance the uptake of research evidence in policy making, this study recommends the need for improved coordination, financing and capacity building in knowledge translation processes for both health researchers and policy makers.

Key Words: Knowledge translation, policy makers, researchers, Zambia

DEDICATION

I dedicate this dissertation to my family; my husband Dr Julius Kapembwa for the continuous encouragement, as well as my daughters Mika and Frida, and my son Kandewa. I hope this dissertation motivates you to achieve greater heights in your academic endeavours.

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LIST OF ABBREVIATIONS

AGREE II	Appraisal of Guidelines Research and Evaluation
CHW	Community Health Worker
CIDRZ	Centre for Infectious Disease Research in Zambia
CIHR	Canadian Institute of Health Research
FGD	Focus Group Discussion
HiAP	Health in All Policies
ICCM	Integrated Case Management of Malaria, Pneumonia and Diarrhoea
INESOR	Institute of Economic and Social Research
KB	Knowledge Brokering
KT	Knowledge Translation
KTA	Knowledge to Action
KTNET	Knowledge Translation Network
LIC	Low Income Countries
MoH	Ministry of Health
MRT	Middle Range Theory
NAC	National HIV/AIDS/STI/TB Council Zambia
NGO	Non-Governmental Organisation
NHRA	National Health Research Authority
PAC	Policy Analysis and Coordination
PMTCT	Prevention of Mother to Child Transmission
RAGS	Research to Action Groups
RDT	Rapid Diagnostic Test
SAfAIDS	Southern Africa HIV and AIDS Information Dissemination Service
SATORI	Self-Assessment Tool for Research Institutions

TWG	Technical Working Group
UML	Unified Modelling Language
UTH	University Teaching Hospital
UNZA	University of Zambia
UNZASoPH	University of Zambia School of Public Health
UNZABREC	University of Zambia Biomedical Research Ethics Committee
WHO	World Health Organisation
ZIMMAPS	Zambia Integrated Management of Malaria and Pneumonia
ZNPHI	Zambia National Public Health Institute
ZIPAR	Zambia Institute for Policy Analysis

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CHAPTER 1: INTRODUCTION

1.1 Background

Health research knowledge translation into policy and practice is immensely impacted by scientific health research knowledge generated in countries where good health systems exist. Thus, there is need to ensure that quality health research is conducted, and the knowledge generated translated into policy (El-Jardali, et al., 2014).

The World Health Organisation (WHO) (2004) defines knowledge translation as "the exchange, synthesis and application of knowledge by relevant stakeholders to accelerate the benefits of global and local innovation in strengthening health systems and improving people's health". The focus is on promoting interaction among the producers and users of research, removing the barriers to research use, and tailoring information to different target audiences so that effective interventions are used more widely. Another definition of knowledge translation, is the exchange, synthesis and application of knowledge through a dynamic and iterative process of interactions between relevant stakeholders to accelerate the societal or economic impact of research (Straus, et al., 2007).

The term Knowledge Translation (KT) is a recent term in the field of health. Knowledge translation emerged in response to the gap between evidence-based research and its implementation by policy makers (Scott, et al., 2012). KT is about bridging the gap and defining the interactions between the researchers and policy makers in strengthening health services and improving patient outcomes (CIHR, 2004). The programmes of KT aim to ensure that a wide range of stakeholders are aware of and use research evidence-based knowledge to inform their health and health care decision making (Gimshaw, et al., 2012).

The WHO (2005) states that KT is a mechanism that is growing in importance because the application of its methods has been shown to be effective in closing the Knowledge-to-Action Gap that is evident worldwide. Bridging this gap is one of the most important public health challenges that is faced today, and a mechanism to achieve this is through knowledge translation.

In Sub-Saharan Africa KT network exists which comprises of eight-member countries, namely Rwanda, Burundi, Democratic Republic of Congo, Uganda, Ethiopia, Ghana, Senegal and South Africa. The network supports translation of health systems evidence into policy and action, build knowledge translation capacity among its members. It also assesses and evaluates the knowledge translation effects across the network to identify and document best practices (Knowledge Translation Network, 2017).

Across the globe health professionals face the similar challenges of translating the best available evidence into actual health interventions in a timely manner to provide the most effective care and service (Field, et al., 2014). In addition, one of the research findings, which have been repeated in many researches on clinical services and health in the world, is the failure in the transfer of research into practice (Valinejadi, et al., 2016).

The gap between existing knowledge and action leads to consequences such as suboptimal use of effective treatments and overuse of ineffective or unproven treatments. Hence, this leads to poor health outcomes, health inequities, and a waste of increasingly scarce resources (Grimshaw, et al., 2012). Consequently, patients fail to gain maximum benefit from advances in healthcare, resulting in a negative impact on quality of life, productivity, and resource utilization at an individual and societal level (CIHR, 2004). The evidence-practice gap has contributed to patient failure to properly take advantage of advances in healthcare (Straus, et al., 2011).

1.1.1 Knowledge Translation in Zambia

Zambia has seen considerable efforts to harness health research knowledge in decision making over the years. This has seen the creation of relevant institutions, as well as the passing of landmark polices governing health research. A Non-Governmental Organisation (NGO) KT platform known as the Zambia Forum for Health Research (ZAMFOHR) was formed in 2004 after recognising that the research community in Zambia was deeply fragmented (Kasonde and Campbell, 2012). The aim of ZAMFOHR was to map out these fragments and to provide cohesion and leadership for national level knowledge translation efforts. ZAMFOHR was to establish why there was a disconnection between the research and policy communities, what specific activities could lead to more cohesion between them and given the scarce funding environment (Kasonde and Campbell, 2012).

In 2013, the National Health Research Authority (NHRA) a regulatory body was established under the Health Research Act of parliament No.2 of 2013 to promote, regulate and coordinate ethical conduct of quality health research and facilitation of evidence-based policies and programs that improve the health of the people. The institution is further mandated to ensure the development of consistent health research standards and guidelines for ethically sound health research in Zambia (National Health Research Act, 2013).

However, even with some with some of this progress knowledge translation in Zambia remains a challenge. This is compounded by the limited number of studies that have been undertaken to understanding how research knowledge can be translated into policy in the Zambian settings. Thus, this study was therefore designed to fill this gap by assessing health research knowledge translation into policy in Zambia. The study was carried out in Lusaka District, where the key informants (policy makers and health researchers) are based. The study also reviewed policy and strategic framework documents that are at national level.

1.2 Statement of the Problem

The World Health Organization estimated that half of all premature deaths could be prevented by the implementation of known interventions by using available knowledge (WHO, 2004). However, failure to translate health research knowledge into policy and action in both developed and developing countries is extensive (Haines, et al., 2004). According to Santesso and Tugwell (2006) developing countries face more challenges translating health research knowledge into action compared to developed countries. This could be largely attributed to lack of access to research knowledge by policy makers, lack of professional regulation and opportunities for continuing professional development, weakness in the health systems as well as other stakeholders (Garner et al., 2001). Zambia, being a developing country has challenges in translating health research knowledge into policy and practice.

In Zambia, there is a pool of health research information that is produced within the country by various research institutions. Few of these institutions make follow ups to see how their research findings are being utilised (Nzala, et al., 2010). It is believed that Zambia's research and policy communities have evolved in very separate spheres, and that policy

makers often formulates policies without consulting research evidence (Kasonde and Campbell, 2012). There is negligible indication that health research knowledge translation has had an impact on health policies in Zambia in which case the research remained mainly an academic exercise (Nzala, et al., 2010). Further, there is limited evidence on effective strategies to build both policy and researcher capacity to engage on evidence use in policy making (Mukwato, et al., 2018).

1.3 Significance of the Study

The implementation of health research knowledge helps health care providers and policy makers to understand available health care choices, their risks and benefits that enables them to make informed decisions, (Canadian Institute of Health Research, 2009). However, to effectively translate health research knowledge into policy can be challenging owing to many barriers (Graham, 2006). The findings of the study brought out valuable insights regarding bridging the gap between health research knowledge generation and policy making. The study provided detailed information on the process of health research knowledge translation into policy in Zambia, who the main actors are as well as detailed factors that shape the uptake of health research evidence. The study further recommends best practices that will improve knowledge translation and ultimately, health policy formulation process in Zambia. The study served to highlight lessons learnt in the process of health research knowledge translation into policy in Zambia and recommend context specific actions that can improve the process.

1.4 Research Question

How is health research knowledge translated into policy in Zambia?

1.4.1 Research Objectives

1.4.2 Main Objective

To explore health research knowledge translation into policy in Zambia

1.4.3 Specific Objectives

1. To map out key actors involved in health research knowledge translation in Zambia.
2. To analyse the engagement process between health research and policy making in knowledge translation.

3. To identify and document factors that shapes the uptake of health research knowledge translation into policy in Zambia.

1.5 Conceptual Framework

To improve research uptake and explain interactions between stakeholders and the evidence generated, and relationships between evidence and policy processes. Various models, theories and frameworks have been developed, among them being Knowledge to Action (KTA) Framework (Graham, et al., 2006). This study adopted the KTA Framework in trying to assess health research knowledge translation into policy in Zambia.

1.5.1 Knowledge to Action Framework

The KTA Framework was useful to this study as it helped with assessing the process of health research knowledge translation into policy. The framework further helped with identifying potential barriers that need to be addressed in knowledge translation in Zambia. The reason for using the KTA Framework in this study was that knowledge translation methods that promote adoption and utilisation are based on an action model known as the Knowledge to Action Framework (WHO, 2005). Knowledge to Action Framework was developed in Canada by Graham and colleagues in the 2000s. The framework is for guiding the process of knowledge translation, which has been adopted by the Canadian Institute of Health Research and other organisations worldwide. It is based on the commonalities of over 30 planned-action theories which make up the action cycle with the addition of a knowledge creation component. The KTA Framework consists of two phases one being Knowledge Creation which involves three steps and the other one Knowledge Application which involves seven steps.

Knowledge Creation Phase

Step 1: Knowledge Inquiry

In this step knowledge is generated through research outputs such as journal articles, guidelines, primary studies, clinical trials, well-designed retrospective, observational, or prospective studies and represents most of research that is conducted.

Step 2: Knowledge Synthesis

Knowledge synthesis involves synthesizing results from individual research studies and interpreting them within the context of global evidence. Knowledge syntheses take the form of studies that fall into the categories of systematic reviews, scoping reviews, and meta-analyses, literature reviews and consensus findings or statements. Grimshaw, et al., (2012) suggests that "the basic unit of Knowledge Translation is up-to-date systematic reviews or other synthesis of the global evidence."

Step 3: End-user Products/Tools

The tools include things like clinical practice guidelines, decision aids and videos, performance measures. The development of evidence-based tools and products creates an end-user, decision-making context for the application of the desired knowledge moving from awareness to the agreement (Straus, et al., 2009).

Knowledge Application Phase

Knowledge Application is the second phase of the KTA Framework and is composed of an action cycle addressing behaviour and practice. This phase includes much-needed implementation plans promoting adoption and adherence to the evidence (Crockett, 2017). Below is the seven-step application cycle.

Step 1: Identify the gaps and select the knowledge needed

Identifying the problem is the critical starting point in the action cycle. It requires measuring the current gaps between desired and actual practice using appropriate methods to determine the magnitude of the problem. Of importance in a resource-constrained environment is selecting which gaps to target (Kitson, et al., 2009).

Step 2: Adapt or customize the knowledge to the local context

Adapting to local context is a critical step in the process. Knowing your audience and assessing the value, usefulness and appropriateness of the knowledge is critical to its uptake and sustained use. For example, in the context of clinical practice guidelines, adapting existing national guidelines which may be applicable and how organizations need to change

to adopt guidelines to fit local circumstances serves not only to increase the relevance and applicability of guidelines, but also gives end-users a sense of ownership to help promote implementation (Crockett, 2017).

Step 3: Assess barriers and facilitators to knowledge use

There are several factors that can hinder or enhance the uptake of knowledge, including issues relating to the knowledge itself, factors relating to those who will be using the knowledge, and the context where the knowledge is to be used. Understanding the barriers to knowledge uptake and implementation strategies, as well as facilitators of change, are critical to effective knowledge translation activities. Assessment of barriers can be done quantitatively and qualitatively using a variety of conceptual models and instruments (Crockett, 2017).

Step 4: Select, tailor, and implement interventions

Once an understanding of the potential barriers and facilitators to adoption has been achieved, the next phase involves planning and carrying out interventions to bring about the intended change. Selecting an intervention has been described as both an art and a science, and ideally should be based on evidence of its effectiveness. Important considerations for choosing a KT strategy include a clearly defined goal or objective for each strategy, an understanding of how the strategy overcomes one or more barriers to behaviour or attitude change, and the use of theory to inform selection and implementation (Straus, et al., 2010).

Step 5: Monitor knowledge use

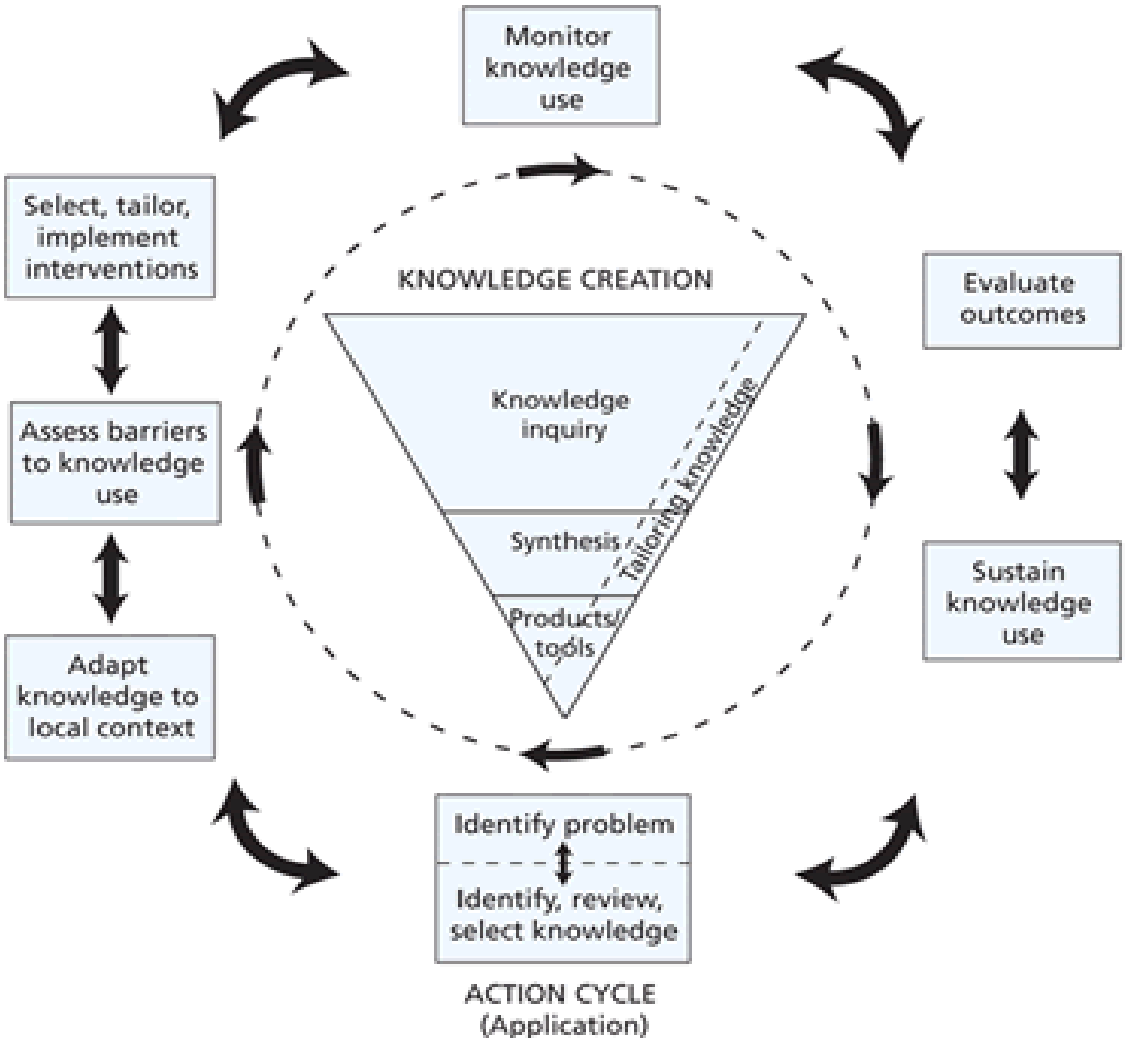
Once a KT strategy has been delivered, the use of knowledge should be monitored. Monitoring the use of knowledge is critical in understanding how and to what extent the KT strategy has had an impact on outcomes, the next phase in the action cycle. This can be achieved through observation such as administrative databases and/or active measurement using questionnaires.

Step 6: Evaluate outcomes or impacts of using the knowledge

Evaluating outcomes is an area of KT that requires more attention and involves evaluating whether application of the knowledge is impacting the desired outcome, be it patient or practitioner behaviour, health outcomes, or system level changes. Outcomes related to the original goals determine to what degree the caused change has narrowed the gap between evidence and actual practice. The impact of a strategy should be assessed using explicit, rigorous qualitative and quantitative methods, beginning with formulation of a defined question of interest (Nielson, 2015).

Step 7: Determine strategies for ensuring sustained use of the knowledge

Implemented change is not usually self-sustaining and requires on-going monitoring and effort. Over time, barriers to knowledge use may change from those initially identified, so sustaining knowledge use includes an on-going feedback loop that cycles back through the action phases. Addressing sustainability also involves planning for both the spread and scaling up of knowledge use, and concerns whether an innovation continues to be used beyond the initial implementation. Key factors present in sustaining knowledge use can include perceived benefits and risks, relevance, leadership, policy integration, resources, and politics (Crockett, 2017).



Source: Graham et al. 2006

CHAPTER 2: LITERATURE REVIEW

The literature review is presented in steps necessary for the process of knowledge translation. The themes are embedded in the two cycles of the knowledge to action framework. Under the knowledge creation cycle there is knowledge enquiry Tailoring knowledge/Priority setting, knowledge synthesis and product tools. Whereas, under the Action or Application cycle there These are steps that can be put in place for effective implementation of health policies using health research knowledge. Each component of the framework involves different phases which overlap and can be iterative.

2.1 KNOWLEDGE CREATION PHASE

2.1.1 Priority Setting

Priority setting represents the first movement of the KT cycle. By identifying policy needs and research options, priority setting processes unite policy makers and researchers before the research begins. However, priority setting is a challenge at global national and local levels and for contexts in health systems (Campbell, 2010). The sustainability of healthcare systems worldwide is threatened by giving a demand for services. Decision makers struggle in setting priorities appropriately because they lack consensus about which values should guide their decisions.

Bryant, et al., (2014) conducted a study on health research priority setting in selected high-income countries. The aim of the study was to review methods, models and frameworks used to set health research priority setting. The study was a systematic review which reviewed Medline, Cochrane, Psyc Info database were peer reviewed studies published from 1990 to 2012. The findings of the study are that there was no consensus about a gold standard or best practice model for health research prioritisation. The study recommended that priority setting should be overseen by a multi-disciplinary advisory group, should involve a broad of representation of stakeholders, should utilise objective and clearly defined criteria for generating priorities and should be evaluated.

Kapata, et al., (2016) conducted a comprehensive review of the previous priority setting activities and processes in Zambia. The study results revealed the earliest record of priority setting was conducted in 1998 in Zambia. Different priority setting approaches have been implemented in Zambia, ranging from externally driven, once-off activities to locally

initiated comprehensive processes. However, there has been no systematic national process for priority setting. These priorities setting processes in Zambia were characterised by limited stakeholders' buy-in of the resulting national research programmatic research agenda. Most striking was the lack of linkages between different initiates. The study concluded that there were gaps in the priority setting processes, stakeholder engagement and application of a defined criterion. There is a need for a priority capacity developed across range of stakeholders.

Another study by Cheung, et al., (2011) was conducted on a priority setting analysis in print media in 44 countries in Africa, the Americas, Asia, and the Eastern Mediterranean to understand one dimension of the climate for evidence-informed health systems and to provide a baseline for an evaluation of knowledge-translation platforms. The results show that approximately 5.5 and 5 times more articles describing health research evidence compared to the number of articles describing policy priorities and policy dialogues respectively. Few articles describing health research evidence that discussed systematic reviews were 2%, health systems research 2% and a few of policy dialogue articles discussed researcher involvement were 9%. News coverage of these concepts was highly concentrated in countries like China and Uganda, while a few articles were found for many other jurisdictions. The analysis concluded that in many countries the print media at least as captured in a global database, are largely silent about three topics central to evidence-informed health systems. These findings suggest the need for proactive media engagement strategies.

2.1.2 Knowledge Synthesis

MacDonald, et al., (2016) conducted a realist synthesis of research on effective strategies to support implementation of public health interventions. The study concluded that, public health interventions are often complex and context-sensitive making knowledge about effective implementation critical to achieve the public health goals of improving population health and promoting health equity. Although there is some literature on the implementation of public health interventions, there is no comprehensive synthesis that encompasses the full range of research outputs. Thus, there is limited information in a

useable synthesised form for public health decision makers, program planners and practitioners.

Another study by Rycroft-Malone, et al., (2012) was carried out on the process used for a realist review and synthesis to answer the question; 'what interventions and strategies are effective in enabling evidence-informed healthcare?' The findings of the study were that defining the scope of the review; concept mining and theory formulation was fundamental to a realist synthesis because it provides the structure and framework for examining and synthesising diverse evidence. The study concluded that realist synthesis is a new approach to evidence review. It is particularly appropriate for unpacking the impact of complex interventions because it works on the premise that one needs to understand how interventions works in different contexts and why.

Another study was carried out by Salter & Kothari (2014) on examining literature about the use of Realist Evaluation (RE) in the assessment of knowledge translation interventions implemented within healthcare environments. The findings show that projects were initiated in a variety of health care settings and represented a range of interventions while most authors mentioned context, mechanism outcome, a minority reported the development of context mechanism outcome configurations or testable hypotheses based on these configurations. The study concluded that the use of RE in KT is relatively new, however, theory-building approaches to the examination of complex interventions in this area may be increasing as researchers attempt to identify what works for whom and under what circumstances.

Knowledge synthesis is central to evidence-informed decision-making. CIHR (2004) defines knowledge synthesis as the "contextualisation and integration of research findings of individual research studies with the larger body of knowledge on the topic. A synthesis may be reproducible and transparent in its methods, using qualitative and/or quantitative methods."

The literature reviewed on knowledge synthesis generally states that basing decisions on findings of an individual study might be misleading (Ionnidis, et al., 2005). The researcher agrees with this statement because it is better to do systematic reviews of much literature

on similar studies so as to come up with one research evidence that can be adopted and applicable to the local context. As such, this study will bring out information on how knowledge synthesis is very useful in making sense of many different studies in a way that can be used by knowledge users.

2.2 KNOWLEDGE APPLICATION CYCLE

2.2.1 Knowledge Translation

Mukwato, et al., (2018) conducted a descriptive cross-sectional study in Lusaka, Zambia on use of research evidence in policy and decision-making. The results of the study indicate that the concept of evidence informed health policy was not well understood. The results also show that there is a shortage of evidence on policy makers' actual capacity to use research evidence and there is even less evidence on effective strategies to build their capacity. The study concluded that, there is need for more sensitisation and capacity building among the decision and policy making process as incorporation of relevant high-quality research evidence into the health policy making process is key strategy for improving health systems.

Paulos, et al. (2007) conducted a study on improving the dissemination and uptake of falls research into policy and practice. The study reported on the Falls Translation Task Group's first initiative to address issues around the research to policy and practice interface and identifying a continuing role for such a group. The study used observation method in a one-day forum that brought together falls researchers and decision makers from across the nation to facilitate linkage and exchange. The results of the study were that both researchers and decision makers had a desire to bridge the gap between research and policy practice. However, there were significant barriers of health systems (lack of financial and human resource) and evidence (insufficient economic data and implementation research.

Another study conducted in Uganda by Oremi, et al., (2012) on how the use of evidence in health policy making plays an important role especially in resource constrained settings where informed decisions on resource allocation are paramount. The main objective of the study was to elaborate a Middle Range Theory (MRT) of knowledge Translation in Uganda that can also serve as a reference for other low- and middle-income countries. The study was a two-step which employed a qualitative approach to examine the principle barriers

and facilitating factors to knowledge translation. The results revealed that the most common emerging facilitating factors could be grouped under institutional strengthening for knowledge translation, research characteristics, dissemination, partnerships and political context. The study further reported that policy makers and researchers ranked institutional strengthening for knowledge translation, research characteristics and partnerships as the most important. The study concluded that MRT on knowledge translation in policymaking in the health sector in Uganda provides a framework that can be used in empirical research of the process of knowledge translation on specific policy issues.

In Iran a survey that was executed in 2015 on diabetes by concurrent mixed method approach in descriptive cross-sectional method indicates that, the mean scores of, the question of research, knowledge production, knowledge transfer, promoting the use of evidence and all aspects together were 2.48, 2.80, 2.18, 2.06 and 2.39 respectively. The themes research quality and timeliness and promoting and evaluating the use of evidence had the lowest 1.91 and highest mean scores 2.94 respectively, except for the theme interaction with research users which had a relatively mediocre scores 2.63 the other areas had scores below the mean. The overall status of KT in Iran was lower than the ideal situation. There are many challenges that require great interventions at the organisational or macro level (Valinejadi, et al., 2016).

Another study was conducted in Cambodia, a Low-Income Country (LIC) by Goyet, et al., (2014). The study assessed the effectiveness of KT intervention aiming to provide evidence-based knowledge on pneumonia to health authorities. The results of the appraisal showed that the integration of KT key messages on paediatric and adult guidelines varied with a better efficiency in the paediatric guidelines. The overall AGREE-II quality assessment scored 37% and 44% for adult and paediatric guidelines, respectively. The UML analysis highlighted constraints of the involved stakeholders greatly differed, and there were several missed opportunities to translate evidence into adult pneumonia guidelines. The study concluded that stakeholders both researchers and policy makers planning to update clinical guidelines in LIC may need methodological support to overcome the expected barriers.

Despite the recognition that knowledge has led to significant improvements in health outcomes around the world, major challenges persist. They include health outcome inequalities among and within countries, and the continued rift, the 'Know-do-gap' that still exists between the research and policy communities (Campbell, 2012).

The literature reviewed on KT, is that concept of evidence informed health policy not being understood could be that policy makers are not aware of how important the use of evidence is in decision and policy making. The study brought out information on whether policy makers use health research evidence in the process of decision making and policy formulation. However, the right thing to do is using evidence in the process of decision and policy making. The many challenges of KT require great interventions at the international, regional and national level. More research and sensitisation on the importance of basing decision and policy making on health research evidence is key. According to WHO, (2004) most deaths could be prevented if only treatment, decision and policy making were based on the knowledge available.

2.2.2 Knowledge Brokering

A study by Bornbaum, et al., (2015) was conducted using a systematic review and a search strategy designed by a health research librarian. The goal of the review was to systematically gather evidence regarding the nature of knowledge brokering (KB) in health-related settings and determine if KBs effectively contributed to KT in these settings. The findings of the study indicated KBs performed a diverse range of tasks across multiple health-related settings, results supported the KB role as a 'knowledge manager' linkage agent and capacity builders. The study concluded that KBs performed many and varied tasks to transfer and exchange information across health-related stakeholders, settings, and sectors. How effectively they fulfilled their role in facilitating KT process is unclear, further, rigorous research is required to answer this question of KBs discern the potential impact of KBs on education, practice, and policy.

Norton, et al., (2016) conducted an exploratory study of knowledge translation interventions conducted with participants of global health meetings in 2012 and in South Africa in 2013. They measured stakeholder's uptake of evidence-based knowledge in terms of their translation of this knowledge into actions around public health policy and practice.

The results of the study revealed that most respondents used new knowledge to advocate for policy change (2012: 65.5%; 2013: 67.5%) or improve service quality (2012: 60.1%; 2013: 70.6%). The type of knowledge that respondents commonly shared was clinical of scientific information (2012: 79.1%; 2013: 66.7%) and country specific information (2012: 73.0%; 2013: 71.4%). Most 2012 respondents shared knowledge because they thought it would be useful to a co-worker or colleague (79.7%). The study concluded that supporting knowledge brokers working in a local and regional context spur change and has the potential to improve health outcomes.

Knowledge brokering is about bringing people together to help them build relationships, uncover needs, and share ideas and evidence that will let them do their jobs better. The KB role in knowledge translation is very cardinal. The KB's role is essentially to be an intermediary between researchers and policy makers. The KB is defined as the human force that makes knowledge transfer more effective and is distinct in aiming to bring people together for mutual advantage. The KBs make evidence more accessible and tailored for health care decision makers (CHSRF, 2003)

The literature reviewed above on knowledge brokering emphasises the importance of knowledge brokers in the process of health policy formulation. The researchers' view is that knowledge brokers act as intermediaries in the process of health KT into policy and can influence on public health policy and practice. As such their importance cannot be overemphasised. Further, Traynor et al., (2014) argues that knowledge brokering is a potentially promising knowledge translation strategy for public health, though additional feasibility and cost-effectiveness data are still needed. The study brought out information on how useful knowledge brokers can be in the process of health research knowledge translation into policy in Zambia.

CHAPTER 3: METHODOLOGY

3.1 Study Design

This study used a qualitative case study methodology to answer the research question. A qualitative case study emphasised the importance of describing and interpreting an event or series of related events and their context, in order to illustrate more general issues (Stake, 2005). The study explored the process of health research knowledge translation and was enabled by probing questions derived from the documents reviewed and the Knowledge to Action Framework. The Knowledge to Action Framework was developed to guide the process of knowledge translation (Graham, et al., 2006). The framework helped with identifying questions that addressed the process of research knowledge translation and the questions identified allowed participants to respond in their own words.

3.2 Study Setting

The study was conducted in Lusaka district because that is where national policy makers are based. The policy documents reviewed on health research knowledge translation are at national level. The key informants were from various research organisations that generated health research knowledge in Lusaka. The organisations reached that generates knowledge included; National Health Research Authority (NHRA), The University of Zambia School of Public Health (UNZASoPH), Zambia National Public Health Institute (ZNPHI), Southern Africa HIV and AIDS Information Dissemination Service (SAfAIDS), Centre for Infectious Disease Research in Zambia(CIDRZ) and National Aids Council (NAC) and the organisations reached that translates health research knowledge to policy included, Ministry of Health (MoH), National Assembly Parliament Health Committee,

3.3 Study Population

The population consisted of those participants that had worked for at least one year in their respective organisations and were either responsible for conducting health research and/or involved in the process of health policy formulation.

3.4 Sampling Methods

The study utilised both purposive and snowball sampling techniques in selecting participants. This was to achieve a maximum diversity sample across the targeted population. The researcher logically anticipated that 20 key informants were to bring out

information sought for, as the interviews were in-depth. However, a total of 14 key informants were interviewed because informational saturation was reached. Saturation commonly indicates that based on the data collected or data analysed hitherto, further data collection and/or analysis are unnecessary (Saunders et al, 2017).

3.5 Data Collection Method

The study first reviewed health policies and strategic framework documents to familiarise with how the policy and legal environment affects the translation of evidence into policy in Zambia. The health policy documents and strategies reviewed were systematically selected from MoH because they governed health research and set the direction for evidence-based decision making in the country, Table 1.0 shows the documents reviewed. Thereafter, Key Informant Interviews (KIIs) were conducted. The KIIs aimed at collecting data from the participants that are experts in the field of health research knowledge translation, Table 2.0 shows the key informants interviewed.

The interviews varied according to whether the participant was a policy maker or health researcher in their respective organisations. The study key informants were contacted electronically through email or phone call and physically at their respective offices and asked to participate in the study. When they agreed an appointment was set, one to one as well as phone call interviews were employed using an interview guide which had main and probing questions, a voice recorder as well as taking down of notes.

The information sheet was shared with all participants prior to interviews and consent was obtained from all key informants and consent forms were signed. Phone call interviews were conducted with 5 key informants and face to face interviews were conducted with 9 key informants. The key informants after each interview were asked if they knew anyone who would participate in the study, and they suggested names and their contact details thereafter the researcher contacted the suggested key informants. The data was collected over a period of 3 months and this allowed for the researcher to have enough time to collect the data from key informants with busy schedules.

Table 1.0: Key Informants Interviewed

Policy Makers

Participants	Organisation
Key informant # 3	Parliament
Key informant # 7	MoH
Key informant # 8	MoH
Key informant # 9	MoH
Key informant # 11	NHRA
Key informant #13	Parliament
Key informant #14	MoH

Knowledge Creators

Participants	Organisation
Key informant # 1	CIRDZ
Key informant # 2	UNZASOPH
Key informant # 4	NAC
Key informant # 5	ZNPHI
Key informant # 6	SAfAIDS
Key informant # 10	NHRA
Key informant # 12	NHRA

3.6 Data Analysis

Thematic analysis of identifying semantic themes and patterns within the data collected and transcribed verbatim was utilised in this study (Braun and Clarke, 2006). Initially, the transcripts were read and re-read to familiarise with the data at the same time paying attention to sections that were addressing health research knowledge translation. Useful notes from the transcripts were also extracted and codes were then generated. After this, themes or categories were developed from predetermined code structure from the conceptual framework 'Knowledge to Action' and literature reviewed. However, there were additions of new codes due to additional insights from the respondents during data collection, such as dissemination, capacity building and political environment. The data was placed according to themes and in the process new analytical themes were created. Thereafter, the themes were reviewed just to see if they made sense and if there were connections among them and used for analysis (Table 4.0).

3.7 Dissemination Plan

The findings of this study will be shared with MoH, NHRA and all the institutions where data was collected and including availing the final printed dissertation to the School of Public Health, University of Zambia. The findings of the study will also be published in a peer-reviewed journal.

3.8 Ethical Consideration

Ethical approval was provided by The University of Zambia Biomedical Research Ethics Committee (UNZABREC) and clearance to conduct research was sought and granted by the National Health Research Authority (NHRA). Permission to collect data was sought from MoH through The Permanent Secretary – Technical Services and Parliament through the Clerk of the National Assembly, as well as from all the organisations where data was collected.

Consent was administered to participants before conducting face to face interviews. The consent form had information on the title, purpose and benefits of participating in the study, as well as the rights of the participants. Privacy was always maintained during data collection by conducting the interview in an environment where the participants were free to express themselves. Participants' views were treated with utmost confidentiality during

data collection by securing the voice recorder and notebook in a lockable drawer. Participants were de-identified with numbers as opposed to their actual names during data analysis.

CHAPTER 4: RESULTS

The qualitative results are presented in two parts; firstly, the document review that details the positions of various health research governing policy documents on knowledge translation. Secondly, the key informant interview data is presented according to policy makers and researcher perspectives with respective verbatim quotes. To understand the health research knowledge translation process, the key informants' views are organised according to the knowledge to action framework components. Further, we present the views of participants on factors that shape uptake of health research knowledge.

Table 3.0 Health Research Governing Policy Documents in Zambia

Title	Year	Position on use of evidence for policy
Zambia National Health policy	2012	Emphasizes on the need to improve the dissemination and utilization of research findings, the need to increase funding levels for research work, the need to prioritize health research amid scarce resources.
National Health Research Authority Strategic plan	2018 -2021	Stresses on promoting health research through effective regulation coordination, capacity building and knowledge translation.
Zambia National Health Research Act	Act No. 2 of 2013	Provides power by law to the NHRA to regulate and coordinate all health research in Zambia and promotes the translation of health research outcomes into policy. The document highlights on the uses of scientific methods to generate information to deal with health diseases
Zambia National Health Research Agenda	2018- 2021	Aligns the production of research evidence to the national health goals and objectives as well as provide guidance to researchers, research institutions, policy makers, program implementers and other partners focusing on Zambia's health research
The Zambia National Health Research Policy	2010	Sets specific policy measures on research priority setting. Accentuates on developing mechanisms and criteria for identifying and agreeing on national health research priorities.

The reviewed documents emphasise promotion of health research and developing mechanisms for identifying national health research priorities. The policies stress the use of scientific methods to generate health information whose outcomes should be translated into policy. They also highlight the importance of ensuring strengthened linkages among health researchers and policy makers. In addition, the documents underscore the need for the establishment of a national database for all health research findings for easy access, as well as undertaking a thorough update and inventory of all health research in the country. The policy documents emphasize the importance of setting the national health research agenda, and disseminate it to stakeholders with a provision to review and update over time. However, these policies seem to focus more on improving the research environment, with rather unclear guidelines of how to ensure that health research knowledge is adopted in national health policies by policy makers. The policy documents only refer to limited aspects of knowledge translation without outlining how this should be done in the Zambian context. Further, the policies do not clearly state what roles should be played by various actors in the knowledge translation process to ensure evidence is incorporated in national health policies.

Table 4.0 Key thematic categories

Main theme	Sub-theme
• Actors in knowledge translation	• Policy makers • Funders • Health policy advocates • Ministry of Health • Health researchers • The media • Community
• Engagement between policy makers and researchers	• Knowledge brokering • Direct engagement
• Knowledge translation process	• Knowledge creation • Knowledge synthesis • Knowledge products • Priority setting • Use of research findings • Dissemination
• Enablers to knowledge translation	• Local research leadership • Use of locally existing data to inform policy
• Barriers to knowledge translation	• Lack of space for dialogue • Political environment • Limited resources • Lack of a national knowledge hub

4.2. Actors in Health Research Knowledge Translation into Policy

Numerous actors involved at different stages of the knowledge translation process were identified by the key informants. The list of actors included the research funders, health policy advocates, MoH, health researchers, the media, community who are the beneficiaries, policy makers at national, provincial and district levels. However, the major actors identified as being directly involved in the process of translating evidence into policy are the health researchers who conduct research and generate the knowledge, the government through the Executive, Legislature and the Judiciary as well as the policy makers from Ministry of Health and other stakeholders who advocate for policies to be formulated based on evidence available. Some respondents, however, indicated that there are different roles that each actor plays depending on the stage of knowledge translation. Not all key actors in the process of translating knowledge to policy participate equally. Relationships among the key actors in the knowledge translation process also play an

important role in influencing the adoption of evidence in national public health policies. Some policy makers stated,

> *"The main actors are the researchers, the ministry of health who is ourselves because what is likely to happen is that, if a researcher conducts their research the next thing they want to do is the dissemination but before they proceed to do the dissemination, they engage the Ministry of Health..."* [KI #8, Policy Maker].

Another policy maker stated that,

> *"... it depends with the kind of policy to be formulated if its change of policy on say user fees for health services and introduction of health insurance its cabinet that formulates at that level..."* [KI # 14, Policy Maker].

Another key informant who is a health researcher and policy maker had this to state;

> *"... the researchers themselves, the health workers who are basically the implementers and policy makers but there are many stakeholders, but the key ones are those three...."* [KI#11, Policy Maker/Health Researcher].

4.3. Engagement between Researchers and Policy Makers in Knowledge Translation

Knowledge Brokering

One form of engagement between the policy makers and researchers was through knowledge brokering. Knowledge brokers were said to be vital in bridging the gap between the health researchers and the policy makers. These included organisations, media and the civil society that advocated for incorporation of evidence in national health policy formulation processes. However, it was noted that knowledge brokering was defragmented in Zambia with limited emphasis on using research evidence in national health policies by most organisations and media houses. It was also noted that recent efforts have seen organisations such as Zambia National Public Health Institute and National Health Research Authority embarking on involving the research community and media in advocating for evidence-based policies. One health researcher remarked

> *"...Our audience is the public and the public health practitioners, the media and everybody, we now have a plan to start engaging the media where people can understand and get this information, but it must be correct information on the media."* [KI# 5, Health Researcher/advocate].

Direct Engagement

Another form of engagement was directly sharing research results with the policy makers. However, it was reported that neither the health researchers nor the policy makers are compelled to engage each other in the process of knowledge translation into policy. Some health researchers indicated that there is need to have a platform where research findings in addition to producing the required reports are shared with the policy makers. The policy makers highlighted the need for research information to be presented to them in an actionable format, so they can easily use it. Both the policy makers and the health researchers indicated that there was need to institutionalise the direct engagements and communication, particularly on selected research thematic areas such as sexual and reproductive health. Direct engagement platforms such as the parliamentary committee on health where researchers would present findings to the law makers where however said to be inadequate in the knowledge translation to policy process. Some policy makers and health researchers stated

> *"...quiet often we are not part of stakeholder consultation and yet we are expected to come and debate this law and approve. That is why we have bad laws because people do not have knowledge or an idea of what they are doing. So how do we expect people to make the law when they don't understand the issues around it...?* [KI# 3, Policy Maker].

Other two key informant who are health researchers recounted;

> *"We need to have a moral responsibility and the engagement space through policy briefs. We need to engage the National Health Research Authority so that there is communication from their end to make it as a user moral responsibility for all researchers and there must be time allocated where these policy makers are able to be present..." [KI # 2, Health Researcher].*

> *"...there is a gap in Zambia because knowledge translation is being embarked on now. I was saying that knowledge translation is important. Secondly, there seems to be a gap because there are a lot of research results that we have which I think have not been implemented into policy and why is that? it is because for all these years we have not had a platform to use to ensure that there is knowledge translation..." [KI # 10, Health Researcher].*

4.4. Health Research Knowledge Translation Process into Policy in Zambia

Knowledge Creation

Both health researchers and policy makers reported that knowledge creation is the capacity to generate the knowledge before it can be translated, therefore generating quality knowledge that is good enough to be translated into policy is what every health researcher should aim for. In addition, it was indicated that building capacity to generate knowledge that is useful to end users is needed at different levels of knowledge creation and policy formulation process, one policy maker who is also a health researcher stated that,

> *"...capacity to generate the knowledge, analyse the data in such a way that it is useful for policy makers, synthesise that research knowledge into a form that can be used into policy formulation, is the key as well as the capacity of the policy makers themselves to appreciate the research knowledge and be able to utilise that knowledge for policy formulation..."* [KI #11, Policy Maker/Health Researcher].

Knowledge Products–research outputs

Health researchers agreed that they produced knowledge in various research programs that include sexual reproductive health, HIV, TB and Malaria among others. Some research organizations had strength in doing clinical trials, evaluating HIV vaccines, and worked on endemic diseases such as, shigella, cholera, typhoid and Ecoli. A lot of health research knowledge is generated locally; some of which has been used to inform policy. Some health researchers stated that

> *"...our research centres around Communicable (HIV, Hepatitis, TB) and Non-Communicable Diseases (Diabetes, hypertension) ..." [KI # 9, Health Researcher/Policy Maker]*
>
> .

Another health researcher had this to say

> *"We do various health research programs, clinical trials, we evaluate HIV vaccines and drugs, and now we are working on HIV Virus vaccine, as well as TB..." [KI #1, Health Researcher]*.

The key step identified in the health research knowledge translation into policy in Zambia, is the development of policy briefs that are shared with relevant Technical Working Groups who then submit them to the Ministry of Health for policy relevant action. Some policy

makers indicated that once the policy brief has been discussed, it forms some sort of a policy dialogue, in an ideal situation that dialogue would involve a lot of stakeholders and would continue for some time until a decision is made about weather some recommendations can be incorporated into policy. However, this does not happen for most health policies. One policy maker stated that

> *"...we are working now towards a formalized process of knowledge translation into policy but what happened in the past is that, when a researcher has conducted a study, they disseminate those results and usually they disseminate first internationally and now it is a policy that all researchers must disseminate their results locally in Zambia before disseminating elsewhere." [KI 11, Policy Maker/Health Researcher].*

Knowledge Synthesis

Some health researchers indicated that their institutions inadequately synthesise health research knowledge because they are inadequately trained in integrating research findings into policy of individual research studies and this is part of the reason why knowledge translation is a challenge in Zambia. Further, most research conducted was either purely for academic purposes and donor funded, and when the research is donor funded it is sometimes difficult to access the research findings owing to data restriction contractual agreements. One health researcher indicated that

> *"...knowledge synthesis is very important, and part of the reason why knowledge translation in this country is poor because institutions are not set to synthesise knowledge, we have a lot of data that are collected in vain and are left to waste. We have students, academicians from outside Zambia accessing that data translating and publishing it into papers while the Zambians are data collectors..." [KI # 1, Health Researcher].*

Priority Setting

The key informants revealed that there was no clear research priority and agenda setting in most research institutions due to external donor influences. Both the health researchers and policy makers felt that external funding dictates the agenda and/or priority setting in their respective institutions, which ultimately affects how policy makers receive the evidence provided. Donor funds were said to be the main mechanism through which donors determined which research study should be conducted. This was however, thought to

compromise research interests that address priority local needs, hence affecting policy maker views on locally relevant evidence. Some health researchers and policy makers explained,

> *"...we don't have funding of our own, so we cannot determine that we are going to research on this. Our researchers respond to competitive calls for funding and those calls come with already ring-fenced areas. So, I think while we might be talking about setting priorities in research, that is an effort in futility, you only set priorities when you have money to fund those priorities, we respond to funds." [KI # 1, Health Researcher]*.

One policy maker had the following remarks,

> *"...most research that is conducted is sponsored by donors, therefore, only research in which donors have interest is sponsored and undertaken thereby leaving the other research that the government would want to research on..."*
> *[KI # 13, Policy Maker]*.

The other policy maker who is also a health researcher indicated that

> *"...it is very difficult to come up with the priority areas as one because there is a degree of inter-relation. However, you all know that we have got partnerships that help us to combat some of these communicable diseases such as HIV so that makes it easy for priority setting because some of the top ten coordination diseases are of public health significance...." [KI # 9, Health Researcher/Policy Maker]*.

Use of Research Findings

The policy makers and health researchers stated that health research knowledge translation is important and key to the use of evidence in informing evidence-based policies. For the research results to be utilized, it is important that, the results are disseminated to those that need to make policy decisions. They further stated that there is a policy and planning unit within the Ministry of Health that is striving to ensure that policies are formulated and implemented using the research findings. A policy maker indicated that;

> *"...we collect evidence, measure the current gap which is existing, come up with options that you would present to policy makers and cost those options and then compare with what has already been done either within the country and elsewhere..." [KI # 9, Policy Maker/Health Researcher]*.

Another key informant a policy maker stated that;

> *"...after the discussion, all parties will come to an agreement to say the research was well designed and therefore, the findings are authentic. An agreement will be made where the dissemination of the findings is made and of course within the Ministry of Health, we have a department unit that deal with translation of knowledge into policy..." [KI # 8, Policy Maker/Health Researcher]*.

Dissemination

Some health researchers indicated that they did not make available their research findings to policy makers because they were not obliged to do so and policy makers did not demand for the available evidence. However, they used various avenues such as conferences, meetings, journals for dissemination of the health research findings. It was further reported by health researchers that they disseminate but it has been hard for policy makers to use some of the results because of the way health researchers communicated and packaged their findings. The researchers sometimes do not communicate their findings clearly by using technical language making it difficult for interpretation and use by policy makers. Some informants indicated that

> *"... knowledge is as useless as it can be if it cannot be shared. So, if knowledge is going to be generated and it ends as it is without sharing, then clearly it will not serve its purpose. So, we need to identify what end goal should be when a research institution gets to the ground to conduct research, that knowledge should be widely shared for it to serve its purpose." [KI # 6, Health Researcher/Policy Advocate]*.

Another key informant remarked,

> *"...with knowledge translation the method of communication is really key so we would disseminate but most of the time when we do the study, we have the conclusions, you may have the recommendations but the recommendations may not be as useful, because you are not describing how that recommendation can be done...." [KI # 12, Health Researcher]*

Implementation Intervention

Some policy makers shared experiences when some of the research findings were used to inform policy. One of the examples was 'The Zambia Integrated Management of Malaria and Pneumonia Study, which is one of the policy interventions that were implemented using health research knowledge generated within the country. It was a study that was conducted in Chikankata, Southern province of Zambia in 2009, essentially the study was

looking at Community Health Workers being able to diagnose and treat both malaria and pneumonia. The results of the study were used to inform the policy on integrated community case management of malaria, pneumonia and diarrhoea. One KI stated that;

> *"The policy formulation process followed was first the development of a policy brief that was presented to the child health technical working group. After discussing the policy document, it was found to be of value then the MoH agreed to implement what was called the integrated community case management of malaria, pneumonia and diarrhoea and the decision was made that community health workers can prescribe amoxicillin and utilise the rapid diagnostic test to diagnose malaria." [KI # 11, Policy Maker/Health Researcher]*.

Monitoring, Evaluation and Sustainability

Some key informants had different views on the monitoring and evaluation of implemented policies. The participants indicated that there are inadequate monitoring mechanisms that are put in place to follow up the performance of the implemented policies. Some policy makers and health researchers indicated that in some instances policy monitoring is conducted whilst others stated otherwise.

> "…we do monitor implemented polices, by using the strategic plans which have the monitoring framework and the processes for tracking progress, we monitor them through the monitoring and evaluation frameworks in the strategic frameworks, annual work plans…" [KI #14, Policy Maker].

A health researcher indicated that,

> *"...follow up is not really there, for us we look at the research process, after you have the results then you disseminate so that is it. So first you disseminate in the right way that the end user will really use it and then what follows is the advocacy part, so you need to advocate for the use of the information, which we have not strongly done..." [KI # 12, Health Researcher]*.

Another policy maker had this to say;

> *"We do not have a form of mechanism for monitoring the performance of some of these policies. So basically, within the monitoring framework, there is nothing that I could describe…" [KI # 3, Policy Maker]*

4.5. Factors Shaping the Uptake of Health Research Knowledge Translation into Policy in Zambia.

4.5.1. Enablers to the Uptake of Health Research Knowledge Translation into Policy

Emerging Leadership to support local research

One of the enabling factors among others is that there is good environment for evidence-based programming. This can be seen in the way Ministry of Health has been reforming to reposition itself for better management and use of research evidence, particularly in selected departments like health promotion and social determinants for health which were not there before. Both the health researchers and policy makers were of the view that there has been great spear heading from the higher-level leadership within the Ministry of Health acknowledging the importance of research and knowledge translation. To this effect, the MoH has facilitated the creation of the National Health Research Authority to coordinate and facilitate knowledge transition.

> *"...one of the ingredients that are leading knowledge translation process is mainly leadership and the environment, because we have had research since time in memorial. Because research is a big thing it needs to stand on its own, some of the factors enhancing knowledge translation is mainly related to what is being envisioned by leadership, which I think is what should be the case." [KI # 8, Health Researcher/Policy Maker]*.

Use of Locally Existing Data to Inform Policy

Locally generated knowledge was reported to have more impact on policy making because it was tailored directly to the local context and as such pertinent to the state of affairs the country is trying to improve by coming up with particular policies. One KI highlighted that;

> *"When it comes to using the research that has been done locally, it must be research that is properly designed and well conducted. There is what we call meta-analysis, you collect the number of studies and you say this one did a study. We must have well conducted and synthesised studies and that's how you develop your evidence say therefore, what came from this study is useable as evidence..." [KI # 8, Health Researcher/Policy Maker]*

Some health researchers noted that at the moment in Zambia the volume of locally generated research is increasing, which meant that the evidence base was improving.

However, it was indicated that the locally generated data was too fragmented. Various organisations generated knowledge, but it is not known as to what kind of knowledge was generated. Therefore, to make use of the already existing knowledge in the process of health research knowledge translation, there is need to generate, store in one hub and make available the health research knowledge. One health researcher remarked;

> *"...we could use the already existing information; we do have a lot of information system but they are so fragmented. The Ministry of Education has information system, Ministry of Health, NAC etc but we do not necessarily have a place or an institution that all this information is stored..." [KI # 4, Health Researcher/Policy Advocate]*.

4.5.2. Barriers to Health Research Knowledge Translation into Policy

Limited Knowledge Translation Capacity

Most health researchers and policy makers were of the view that there was need for capacity building in the processes of knowledge translation. Skills in research and knowledge translation were identified as the competences that are key to improving the uptake of health research knowledge translation into policy in Zambia. The findings of the study revealed that continuous education among knowledge translators on the need to identify the key messages best for informing policy should be prioritised. It was reported that education and capacity building for policy makers will enable them to engage effectively with the health research findings. Further health researchers should be up to date with systematic reviews or synthesis of the health research knowledge generated internationally as well as locally, a key informant indicated that;

> *"... It is very important to have a skill as you embark on certain processes that are both research itself and knowledge translation. So, in terms of skills I mentioned that a lot of people have gotten education but we are still a growing country so we may still have gaps here and there in terms of skills to conduct research but also at the level of policy translation its either insufficient or inadequate..." [KI # 7, Health Researcher/Policy Maker]*.

Another key informant who is a health researcher stated that;

> *"... At the same time as a country we are moving from one level to the next level. We had a very few people who were educated sometime back, now we have a lot of educated people, we have a lot of schools that have come on board. So, I think all these are contributing to more and more research being conducted and the need for knowledge translation..."*
>
> *[KI # 10, Health Researcher]*.

Lack of Space for Dialogue between Policy Makers and Researchers

Some health researchers noted that knowledge translation was limited because there are inadequate platforms for both the health researchers and the policy makers to dialogue on the formulation of evidence informed policies. They indicated that there was need for a knowledge translation platform that will bridge the gap that exists between the researchers and policy makers. The platform should facilitate knowledge translation in whatever form.

> *"I think that knowledge translation is extremely limited in translating into policy because there have not been platforms that are integrated and coordinated where this is done. But I think that there should be platforms where there is a policy engagement and others where researchers and policy makers need to interact and engage each other..."* [KI #2, Health Researcher]

Political Environment

Some health researchers highlighted that some of the reasons their research findings were not utilised to inform policy, was because the political party in power influences policy making. They also indicated that policies are not formulated using any study results, instead there are cycles that include inception, midterm and final evaluations. They further noted that most of those involved in policy making are civil servants at the Ministry of Health and are inclined to support the manifestos of the government in power. This resulted to be a barrier when a new government is elected to power. The political leaders prioritise the formulation and implementation of programs they promised to deliver to the people during their tenure. This results in competing interests between what should be done for the nation and fulfilling the party manifesto. A KI remarked;

"...policy makers at the moment still carry political inclination. You come to understand that if you have a political power that is in the government, like currently in Zambia, the government in power is also running the political manifesto and the question that will always arise is that, could political manifesto prioritize the needs of the nation...?" [KI # 6, Health Researcher/Policy Advocate].

Limited Resources

Health researchers and policy makers stated that lack of resources in the process of health research knowledge translation into policy is an impediment. Researchers stated that research is expensive and as a result, resources to conduct research are one of the biggest challenges. Resources do not only refer to financial, but also equipment and infrastructure. The lack of all these resources leads to the generation of poor research findings and focussing on research that do not require expensive equipment and infrastructure. One health researcher indicated that;

"Research is not a cheap exercise and for my capacity to be felt as the researcher, it requires some resources, qualified human resource, it will require infrastructure if you have to do more especially in the health sector, the health sector is really different from maybe commerce. In the health sector if you have to do meaningful research, it has to be pure science, so it is expensive for all those equipment and chemicals." [KI # 10, Health Researcher].

A policy maker had this to say concerning limited resources in carrying out health research

"research knowledge is sometimes inaccurate due to limited funds to finance health research…" [KI #13, Policy Maker]

Lack of a National Knowledge Hub for Health Research Findings

The participants indicated that Zambia lacked a national knowledge hub for all health research findings generated locally. Some health researchers and policy makers reported that there were a lot of health researchers doing health research but it is mainly for academic purposes and mostly academicians publish their important findings in international journals, which are not accessed by policy makers. Therefore, that information may not be available for policy makers to utilise, further, it was reported that there is research

conducted in most parts of the country but only research from Lusaka, Copperbelt and maybe institutions like Tropical Diseases Research Centre will be known, meanwhile the other research findings from other districts that might be useful will go unpublished and unnoticed. Hence the need for a national database for all research generated within the country. A KI stated that;

> *"...there is need to put up systems and strategies for creating national health related data repositories with appropriate standard operating procedures for access and storage and must be accessible and available to researchers. Health research results are there not to be packed, but to help us create evidence and inform policies so for that reason we are not able to do that and so this has remained part of the complex challenge of translating evidence to policy...*" [KI # 2, Health Researcher].

CHAPTER 5: DISCUSSION

The document review highlighted how well health research knowledge translation into policy is promoted in Zambia. The documents showed that there was provision of direction for the improvement of health research environment, promotion of health research through effective regulation, coordination, prioritisation, capacity building and knowledge translation. Data from the interviews however showed that there was poor coordination, prioritisation and use of research findings in the process of health research knowledge translation into policy in Zambia. Policy makers highlighted inconsistent stages in the process of health research knowledge translation into policy. Both health researchers and policy makers had inadequate capacity to conduct research knowledge translation. However, notable efforts were made in health research coordination in knowledge translation.

Engagement between Policy makers and Researchers

The gap in the engagement process of both the policy makers and health researchers exists in Zambia. The gap was said to be due to lack of space for dialogue. The findings of this study show that the government acknowledges the role of health research knowledge translation into policy. As a result, the government created the National Health Research Authority (NHRA), by an Act of parliament, to spearhead knowledge translation in the country. It is hoped that the NHRA will provide the platform for the engagement of policy makers, health researchers, the media as well as other interested stakeholders. The NHRA is set to help researchers disseminate the health research knowledge to policy makers by providing space for dialogue and time. The study by Walter et al., (2003) suggests that providing a platform and time for both health researchers and policy makers has proved to increase the uptake of health research knowledge translation process.

The study findings show that policy makers lack the capacity to appreciate research knowledge and have different levels of understanding on why this is importance. Health researchers ought to package the health research results in a clearer and easily understandable language for policy makers. A study by (Oremi et al., 2012) suggests that researchers should pay attention to the needs of decision makers in terms of the content of the research findings and its presentation. Further, there is need for policy maker's capacity

building in knowledge translation and appreciating scientific health research knowledge as this would increase the uptake of health research knowledge translation in the country. This is in tandem with a study conducted by Mukwato et al suggesting that there is need for more sensitisation and capacity building among the decision and policy makers on the importance of using health research evidence in decision and policy making process in Zambia (Mukwato et al., 2018).

Knowledge Translation Process

The health researchers expressed that in Zambia knowledge translation is poor because the research institutions are not set-up to conduct knowledge synthesis. Few research institutions have capacity to timely gather evidence from various studies and synthesize in a timely manner through systematic or rapid reviews for policy maker. Synthesis of evidence remains a key issue in knowledge translation efforts. However, MacDonald, et al., (2016) concludes that there are no comprehensive synthesis methods that may encompass the full range of research outputs. Basing decisions on findings of an individual study might be misleading and therefore, a wide range finding may increase the validity of findings. Thus, there is limited information in a useable synthesised form for policy makers.

In Zambia there are a lot of health institutions that conduct research in various fields on communicable and non-communicable diseases. However, these research institutions do not have any formalised institutional priority setting systems. Furthermore, we also lack a proper national research priority system that may inversely impact policy support for any available evidence. Most research are donor funded and have an obligation to support donor agents interests. Policy makers lack of buy-in and support for such kind of research outputs may contribute to why they not so eager to incorporate evidence in their policy process. One suggestion to address priority setting is by allowing this process to be overseen by a multi-disciplinary advisory group, should involve a broad of representation of stakeholders, should utilise objective and clearly defined criteria for generating priorities in Zambia.

Monitoring the utilisation of knowledge use is critical in understanding how and to what extent the knowledge has had an impact on outcomes (Nielson et al, 2015). It is these outcomes that determine to what extent the caused change has narrowed the gap between health research knowledge and practice. In Zambia however, monitoring mechanisms for

knowledge use weak if any are existent. The results suggest that there is inadequate form of monitoring mechanisms for monitoring the performance of some policies and some of the interventions that are implemented. Existing mechanisms such as the parliamentary committee do not have required capacity to ensure use of evidence in policy making. Further legislation and policies that respond to current contextual realities are required in efforts to improve evidence use in policy making.

Barriers to Health Research Knowledge translation into Policy

Although the process of knowledge translation has resulted in significant positive health outcomes around the world, inclusive challenges still persist in Zambia which include inequalities within the country and the continued gap that still exists between the research and policy communities (Campbell, 2012). Both the health researchers and policy makers expressed that the gap is exacerbated by the fact that neither party compelled to engage each other. Bridging this gap requires more innovative approaches that will allow for either party acknowledge and appreciate their roles in efforts to develop evidence informed policies.

Both health researchers and policy makers stated the challenges of resources, both financial and human in efforts to translate evidence into policy. The resources included not having indigenous funding for most locally generated health research knowledge, human capital, infrastructure and the needed equipment. These challenges were faced both at knowledge creation phase and implementation phase. These findings are similar to the study findings conducted by challenges in the uptake of evidence-based intervention in health include lack of financial resources, human resources as well as health restructuring (Poulos, et al., 2007).

Knowledge translation into policy is limited also because there have not been strategies for creating national health related knowledge hub and platforms that are integrated and coordinated, which can avail knowledge to the policy makers at their figure tip. Whilst many people conduct research, policy makers have not a database where they can find this evidence and use it for policy making. There is need to put up systems and strategies for creating a health research knowledge hub that should have standard operating procedures for access and storage. These must be accessible to both policy makers and health researchers. It is hoped the Government through the NHRA will create the national health

research hub to enhance the uptake of health research knowledge translation into policy in Zambia.

Strengths and limitations of the study

The study was a qualitative study which facilitated for detailed collection of data regarding the process of health research knowledge translation into policy in Zambia. Though the study facilitated richer description of the knowledge translation process, the responses given by participants could not be measured. Furthermore, the data collection from the policy makers was a challenge look at their busy schedules. For this reason, we could not interview as many as we would have wanted. However, getting access to parliamentarians that sit on the parliamentary health committee leveraged our inability interview a larger number of policy makers. Even with some of these challenges, the study still provides a richer perspective of some of the challenges facing the process of knowledge translation in the Zambian context.

CHAPTER 6: CONCLUSION

Knowledge translation can address many of the challenges faced in the health sector in Zambia by implementing known interventions informed by available health research knowledge. Health research knowledge translation into policy remains a challenge in Zambia despite positive efforts over the years, owing to a number of factors that shape the uptake of health research. These include among others limited resources, space for dialogue, national knowledge hub and the political environment. There is need for a national health knowledge hub with appropriate operating procedures for storage of data that should be accessible to both researchers and policy makers. Furthermore, there is need to create space for dialogue between health researchers and policy makers on the knowledge translation. Efforts that strengthen coordination of the process of health research knowledge translation among the health researchers, policy makers and key stakeholders will be vital in obtaining the full benefits of local evidence in improving health of Zambians. Future studies should seek to assess develop specific context relevant strategies to leverage the identified enablers and minimize barriers in effort to increase evidence use in national policy making efforts.

6.2 Recommendations

1. To enhance the uptake of health research knowledge there is need to put up systems and strategies for creating a national health knowledge hub with factual and reliable information.
2. There is need to put up mechanisms that will improve the formal engagement process between the health researchers and policy makers.
3. Health researchers should be conducting knowledge synthesis of the research results generated from individual studies they conduct in a way that can be used by policy makers.
4. The Government should incentivize continuous capacity building on health research knowledge translation skills for both policy makers and health researchers.

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APPENDICES

Appendix 1: Information Sheet for Health Researchers

An Assessment of Health Research Knowledge Translation into Policy in Zambia

Hi, my name is Annie Malama, a student at The University of Zambia, School of Public Health. You are being asked to take part in a research study of 'An Assessment of Health Research Knowledge Translation into Policy in Zambia'. You are being asked to take part in the study as you have been identified as one who is responsible for all health research in your organisation. Please read carefully before you decide on whether to take part or not in this study. The purpose of this study is to assess how health research knowledge is translated into policy in Zambia.

You must be responsible for health research in your organisation to be able to take part in this study. If you decide to take part in this study, I am going to conduct an interview with you. The interview will take about 20 minutes. With your permission, I would like to voice record the interview using a voice recorder.

I do not anticipate any risks to you participating in this study. However, you may refuse to answer questions that will make you uncomfortable. You may also stop the interview at any time. There are no benefits and compensation to you for participating in this study. However, this study will generate information regarding health research knowledge translation into policy in Zambia.

The responses and the voice recording you will give will be confidential no information will lead to your identification. Only me and those involved in this research will have access to the records and the voice recorder will always be locked in a secured drawer. I will delete the voice recording after I transcribe and analyse the data, most likely after three months.

If you have any questions concerning this study, you can either contact me, the principle investigator, Annie Malama on +260972547141, or you can contact the Chairperson of the University of Zambia Biomedical Research Ethics Committee on +260211256067.

Appendix 2: Information Sheet for Policy Makers

An Assessment of Health Research Knowledge Translation into Policy in Zambia

Hi, my name is Annie Malama, a student at The University of Zambia, School of Public Health. You are being asked to take part in a research study of 'An Assessment of Health Research Knowledge Translation into Policy in Zambia'. You are being asked to take part in the study as you have been identified as one who is responsible for all health policy making in your organisation. Please read carefully before you decide on whether to take part or not in this study. The purpose of this study is to assess how health research knowledge is translated into policy in Zambia.

You must be responsible for health research in your organisation to be able to take part in this study. If you decide to take part in this study, I am going to conduct an interview with you. The interview will take about 15 minutes. With your permission, I would like to voice record the interview using a voice recorder.

I do not anticipate any risks to you participating in this study. However, you may refuse to answer questions that will make you uncomfortable. You may also stop the interview at any time. There are no benefits and compensation to you for participating in this study. However, this study will generate information regarding health research knowledge translation into policy in Zambia.

The responses and the voice recording you will give will be confidential no information will lead to your identification. Only me and those involved in this research will have access to the records and the voice recorder will always be locked in a secured drawer. I will delete the voice recording after I transcribe and analyse the data, most likely after three months.

If you have any questions concerning this study, you can either contact me, the principle investigator, Annie Malama on +260972547141, or you can contact the Chairperson of the University of Zambia Biomedical Research Ethics Committee on +260211256067

Appendix 3: Consent Form

An Assessment of Health Research Knowledge Translation into Policy in Zambia

Consent Form

By signing below, I _____, agree to take part in this study willingly. I understand the purpose of the study. I know my rights as a participant and I also know the risks and benefits.

Participant's signature/thumbprint_____ Date: _____

In addition to consenting in participating in this study, I also agree to have a voice recording interview.

Participant's signature_____ Date: _____

Witness signature_____ Date: _____

Researcher's signature _____ Date: _____

If you any questions concerning this study, you can either contact me, the principle investigator, Annie Malama on +260972547141, or you can contact the Chairperson of the University of Zambia Biomedical Research Ethics Committee on +260211256067.

Appendix 4: Data Collection Tool: Policy Makers

An Assessment of Health Research Knowledge Translation into Policy in Zambia

Date:_____

Interviewee study ID: _____
Interviewer name: _____
Location: _____
Age: Gender Position and years in the same position:

GENERAL QUESTIONS

Demographic Questions

1. Please tell me about yourself

Probing Questions

a. Age of responded, length of tenure?
b. At what level of management are you within the structure?
c. What kind of functions do you perform in this organisation?

KNOWLEDGE CREATION AND TRANSLATION

2. Describe your research agenda in your institution? What thematic areas or domains does your institution focus on? Non-Communicable Disease (NDCs), SRHR, MNCH

Probing Questions

a. Describe the priority setting process in terms of knowledge (research) you create (type or research or the domains to focus on)
b. Please describe the role, if any that you play with regards to setting public health research priorities here in Zambia? How is the priority setting done? Where have you been involved, what was the experience?
c. Explain how as a policy maker you use the research findings to inform policy decisions here in Zambia? Name one situation experience.

d. What do you think about translation of research into policy in Zambia? What challenges do you have as a policy maker in using evidence/research to inform the policies you formulate?
e. Describe the demand for research from policy makers in order to inform polices. What are some of the issues from policy maker perspective with regards to availability of public health research?
f. Can you describe how knowledge producers (researchers) engage with you as a policy maker? What platforms can best be used to reach you?
g. In what forms or how would you want the research evidence to be presented for easy uptake and use in the formulation of national policies? Describe how research should be communicated to you?
h. Describe some of the factors that contribute to you as policy makers not using/ adopting some research evidence to inform policy formulation in Zambia? highlight the factors

BARRIERS TO POLICY FORMULATION

Main Question

3. Describe the barriers you face in the process of policy formulation.

Probing Questions

a. Explain the strategies you use to assess the barriers in the process of policy formulation.
b. Describe the factors that can hinder the uptake of evidence in informing policy.

SUSTAINABILITY OF KNOWLEDGE USE

Main Question

4. When coming up with policies do you use the evidence that is available?

Probing Questions

a. Describe the factors that can enhance the uptake of evidence in informing policy.
b. Explain how you utilise research evidence in the process of policy formulation.
c. Describe how as policy makers you monitor policies formulated based on evidence.
d. Explain the strategies you utilise as policy makers in the evaluation process of the impacts of policy formulated based on research findings.

Thank you for your time!

Appendix 5: Data collection Tool: Health Researchers

An Assessment on Health Research Knowledge Translation into Policy in Zambia

Date:_____
Interviewee study ID: _____
Interviewer name: _____
Location: _____
Age: Gender Position and years in the same position:

GENERAL QUESTIONS

Demographic Questions

5. Please tell me about yourself

Probing Questions

d. Your age and length of tenure in your position?
e. At what level of management are you within the structure?
f. The kind of function you perform in this organisation.

KNOWLEDGE CREATION

6. Describe your research agenda in your institution? What thematic areas or domains does your institution focus on? Non Communicable Disease (NDCs), SRHR, MNCH etc

Probing Questions

i. Describe the priority setting process in terms of knowledge (research) you create (type or research or the domains to focus on)
j. Does your institution have a formal systematic or informal process for priority setting; describe the institutional structures, if any and their influence on the process of knowledge creation.
k. Describe how your institution synthesise the research results from individual research studies?
l. What kind of knowledge products do you offer to policy makers?

m. Describe the tools utilised in your institution in the process of knowledge creation.

TRANSLATION PROCESS

7. Kindly explain your understanding of knowledge translation (the research to policy/action process.

Probing Questions

a. Describe your experience in the process of translating research into policy as an individual? As well as your experience at institutional level?
b. What are some of the dynamics in terms of how policy actors relate with your organisation in this regard?
c. What do you think about the process of translating research into policy in Zambia? Especially in the political space, institutional arrangements and regulatory framework (policy and legal)
d. Are your institutional research findings translated into policy?
e. Describe any examples of when this happened? Describe the processes in this particular situation- what was done?
f. Describe your engagement process with the policy makers.
g. How do you make them buy-in into some of your research findings? What strategies do you use and success?
h. Describe some of the strategies that you use in communicating research knowledge to the policy makers?

BARRIERS TO KNOWLEDGE TRANSLATION

8. Describe the barriers you face in the process of knowledge translation (research to policy)

Probing Questions

a. What are some of the organisational level dynamics that impede research knowledge creation in your particular context-at your organisation?

b. At a broader level, describe barriers to research to policy translation process in Zambia. How is the policy and legal environment, how does it influence the knowledge translation process?
c. Describe any examples with regards to your research domain?
d. Do you have any systematic way to assess the barriers to knowledge translation?
e. How do you handle these impediments to ensure that research is translated into policy?

SUSTAINABILITY OF KNOWLEDGE USE

Main Question

9. Describe your experience with health research knowledge use at your institution? Do you have any examples of where research results were utilised?

Probing Questions

a. Explain the strategies used in your organisation for ensuring sustained translation/uptake of research knowledge into policy by various policy players?
b. Describe the monitoring mechanisms that your institution uses to follow up to see how research findings are being utilised by policy makers?
c. Describe the factors that can enhance the uptake of research knowledge into policy? (institutional, political and legal factors)
d. Explain some of strategies your organisation uses in the evaluation process of outcomes or impacts of using the research findings.
e. Have you conducted such before? What have been the outcomes?

Thank you for your time!

Appendix 8: Work Plan

Gantt Chart: September 2018 – September 2019

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Submission to REC for approval													
Submission NHRA for authorisation													
Permission from facilities													
Data collection													
Data analysis													
Report writing													
Presenting of preliminary results													
Final editing													
Submission of final report													

Appendix 9: Study Budget

Description	Per Day	Quantity	Days/week	Duration	Cost (K)
Ethical Approval				8 weeks	1000
Transport Costs	100.00		5 days	8 weeks	4000
Voice Recorder		1			800
Stationery Assorted					500
Printing paper					1500
Miscellaneous expenses					1500
Journal application fee					2000
Grand Total					**11300**