UNIVERSITY of RWANDA

EAC Regional Centre of Excellence for Vaccines, Immunization and Health Supply Chain Management (EAC RCE-VIHSCM)

Factors Influencing Coverage of the Expanded Program on Immunization in Iganga District, Eastern Uganda

Thesis submitted to the University of Rwanda, in partial fulfilment of the requirements for the degree of Masters in Health Supply Chain Management (MSc HSCM)

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Academic year 2018-2019

STUDENT DECLARATION

I declare that, this dissertation is the result of my own original work except specifically acknowledged, and it has been passed through the anti-plagiarism system and found to be compliant and this is the final approved version.

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Signed  13th October 2019

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Signature  13th October, 2019

Jonathan Izudi,

DEDICATION

This academic work is absolutely dedicated to my family for supporting and encouraging me.

ACKNOWLEDGEMENTS

I am grateful to the Lord our God who has given me the gift of life and enabled me to accomplish this work. I wish to extend my heartfelt gratitude to my supervisors Mr. Simon Eyoku and Mr. Jonathan Izudi, for their guidance and skillful supervision. I thank them for having spared time and energy to guide me in this research project.

Special recognition goes to the administration of Moroto Regional Referral Hospital and Mulago National Referral Hospital staff, for the overwhelming guidance and support. I appreciate the work done by all my lecturers at the School of Public Health, EAC Regional Center of Excellence for Vaccines, Immunization and Health Supply Chain Management, National University of Rwanda, for their assistance which helped me to move forward in my academics and research process.

I thank all my classmates especially group members with whom I always carried out discussions. The almighty God bless you abundantly. Lastly, but not least I thank my family that always tolerated my absence from home and extended their love, understanding and a helping hand that enabled me to successfully carry on with my studies.

ABSTRACT

Background: The EPI coverage in Iganga district was 79.3% in the year 2017/2018. This was below the 95% MOH target coverage for control of immunizable diseases. The under coverage by 15.7% in Iganga prompted the researcher to carry out a study to understand factors that were responsible for such performance. It's in light of this that the researcher focused on assessing the factors influencing the coverage performance of the EPI in the district. The study objectives were; to describe the coverage performance trend of EPI in Iganga district over five-year period from 2018/17-2014/13; to identify workforce related factors influencing coverage of the EPI performance in Iganga district; to establish health facility related factors influencing coverage performance of EPI in Iganga district and to ascertain health data management factors influencing coverage of the EPI performance in Iganga district.

Methodology: A descriptive cross-sectional study with a design involving both quantitative and qualitative approaches were undertaken. The study was conducted in Iganga district in DHOs office, one hospital, 4 HCIV/HSDs and 10 HCIIIs of Eastern Uganda. Data was collected from a sample size of 53 respondents using self-administered questionnaires and through KII interviews. Data was collected, edited analyzed and presented to SPSS Version 20 and using descriptive analysis for quantitative while qualitative was analyzed through organized themes and reported as verbatim.

Findings: Immunization coverage measured by the 3rd dose of DPT3 Hep3 Hib3 and measles was persistently below 80% for the past 5-review period, 2013/14-2017/18 compared to the national target of 95% (Figure 2). The major factors that influenced the coverage of the EPI performance were attributed to staffing levels, motivation, transport and distribution of vaccines. Others were data quality and availability, skills development, inadequate supervision and monitoring. Also, the EPI program was affected by inadequate funding, cold chain equipment functionality, and the lack of real time data documentation and reporting as well as waste management.

Recommendations: Increasing funds allocation to EPI activities like out reaches, continuous community sensitization, capacity building for health workers, incentives to village health teams during immunization activities. Others are procurement of solar refrigerators, investment in Management Information Systems for quality data and provision of adequate disposal and waste management equipment.

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ABREVIATIONS AND ACRONYMS

AFR	African Region
AHSPR	Annual Health Sector Performance Review
CAO	Chief Administrative Officer
CDC	Centre for Disease control and Prevention
cMYP	Comprehensive Multi- Year Plan
DHO	District Health Officer
DHT	District Health Team
DPT3Hib3Hep3	Diphtheria, Pertussis, Tetanus, Haemophilus influenza and hepatitis 3 (Pentavalent vaccine)
EPI	Expanded Program on Immunization
FGD	Focus Group Discussion
GAVI	Global Alliance for Vaccines and Immunization
GDP	Growth Domestic Product
GVAP	Global Vaccine Action Plan
HMIS	Health Management Information System
HSD	Health Sub District
HSDP	Health Sector Development Plan 2015/16-2019/20
KII	Key informant Interview
MCH	Maternal Child Health
MOH	Ministry of Health
MTR	Mid Term Review
NDA	National Drug Authority
REC	Research Ethics Committee

SDG	Sustainable development goals
SOP	Standard Operating Procedure
UBOS	Uganda Bureau of Statistics
UNMHCP	Uganda National Minimum Health Care Package
WHO	World Health Organization

CHAPTER ONE

1.1 Introduction and Background

Immunization is a key component for meeting sustainable good health and wellbeing for vulnerable children and eligible adults according to WHO.The five-combination vaccine (DPT3.HEP3Hib 3 and measles), the pentavalent, is used as a measure for coverage (GVAP, 2016). Unfortunately, it has been noticed of recent that some resurgence of other diseases such as measles which experts attribute to people avoiding vaccines and fueled by fear and misinformation as a characteristic of the main causes as reported by WHO (2015). The report further revealed that vaccine hesitancy which refers "peoples perceived negativity towards taking recommended action") has the potential in some places to really hinder the progress the world has made in controlling vaccine-preventable diseases asserts the report (WHO, 2015). The resurgence of these diseases once prevented is unacceptable as it hinders efforts in control of vaccine-preventable diseases in the Western world as well as in developing countries where health systems are supposed to be strong. However, still more children and eligible adults are reached with efforts of expanded program on vaccination. Reports on coverage show more than 100 million children reached in efforts to prevent this life-threatening ailment caused by this lethal pathogen (GVAP, 2016).

WHO African Region (2018), immunization progress report states that, there have been record efforts and achievements with partner support, reducing deaths associated to immunizable diseases, example is the decline to measles as in 2000 and 2014.Polio has been controlled except in conflict infested areas like in Nigeria.

The poor progress in regional immunization coverage in Sub-Saharan Africa has led to vaccinated and missed opportunities for children within the countries to continue to record marked morbidity and mortality in vaccine preventable diseases. There is also no similarity in the performance of the programs as it is basically dependent on political commitment to disease prevention. (GVAP, 2018) as shown below:

Table 1: Indicators: % Countries with At Least 80% Coverage for DPT3

Country	2017	2016	2015	2014	2013
Burundi	74	93	89	84	93
DRC	91	83	86	83	80
Ethiopia	78	76	74	65	50
Kenya	32	47	35	47	45
Uganda	86	87	81	76	75
South Sudan	30	-	39	25	23
Malawi	75	68	75	89	75

Source: *District Level Immunization Coverage by Country, AFR 2013-2017*

The children not vaccinated with the basic antigens of the Expanded Program on Immunization (EPI) antigens reduced from 30 million in 2000 dropping to 22.4 million by 2011, showing that nearly 20% of children born yearly are still not accessed. Moreover, roughly 1.6 billion people, or one-quarter of the global population still lack access to vaccines. The challenge to the programs is still how to keep the cold chain for program commodities for immunization including equipment acquisition, maintenance and necessary training for desired skills (GAVI, 2017).

Important factors like health workforce, facility related factors, community level issues and logistics, and information management do play a part into the required output for a successful immunization program (GAVI, 2017)

In Uganda, priority in immunization is focused on reducing the infant mortality and this has been a successful intervention and economically achieved as a public health measure in preventing diseases. Immunization is among the most successful and cost-effective public health interventions in preventing infant mortality. It is a priority intervention within the county, s Minimum Health Care Package (UNMHCP) contributing to the Ministry of Health vision and objectives in service delivery (MOH, 2018).

Nationally, EPI has been registering some positive progress in performance over the last five years. In the FY 2017/18, 101 districts reported 80-100% coverage with 37 of these, surpassing the 95% target, the desired target for sustained control of vaccine- preventable diseases with exception of some districts that achieved below target including Iganga. This

has resulted in marked decline of infant morbidity and mortality over the last five years (MOH AHSPR Reports: 2018/17; 2017/16; 2016/15; 2015/14 & 2014/13).

1.2 Problem Statement and rationale

In Iganga district, the EPI program coverage was 79.3% in the period 2017 to 2018 FY which is remarkably lower than the 95% national target and coverage gap of 15.7%. This is the problem because it does not lead to the desired target coverage for sustained control of vaccine preventable diseases (AHSPR, 2017/18). However, the reasons for the under coverage of EPI program in the district are unclear there is limited data. There are also weak strategies in place to address this gap. The research proposed to address this performance gap by generating evidence for improving the EPI program to meet both national and global health objectives and goals.

1.3 Aims of the study

To study factors influencing the coverage of the Expanded Program on Immunization in Iganga District in Eastern Uganda.

1.4 The Specific objectives

1. To describe coverage of EPI in Iganga over five-year period from 2018/17-2014/13.
2. To identify workforce related factors influencing EPI coverage in Iganga.
3. Establish the coverage health facility factors influencing EPI in Iganga.
4. To discover the data management factors affecting EPI coverage in Iganga.

1.5 Main Question

What factors influence the coverage performance of the EPI in Iganga?

1.5.1 The research questions

1. What are coverage issues of the EPI program in Iganga over the last five-year period?
2. What workforce factors influence EPI coverage in Iganga?
3. What coverage factors are responsible at health facility level in EPI in Iganga?
4. What data management aspects influence coverage of EPI program in Iganga?

1.6 Anticipated output

The study will generate evidence-based information for improving the EPI program to meet both national and global health objectives and goals.

Consequently, the findings will be used as evidence-based research to inform policy implementers on operationalization of the immunization program activities.

1.6.1 Study Limitations

Small Sample size that made generalization of findings difficult.

Inadequate data made the research to focus on generating evidence that was time confusing.

Inadequate research funding made the researcher to spend own money causing financial strain.

Lack of prior research done in the area previously made literate review very tedious.

1.6.2 Solutions/Delimitations

An appropriate sample size was chosen guided by study design. In this way, the study findings became generalizable to the population of study.

In order to ensure required data was collected, the researcher used multiple data tools and in-depth study which helped to collect adequate data.

Research was done to understand the problems in the area.

Mobilized and requested for adequate funds and other resources such as friends which supported the process of the research work.

CHAPTER TWO

THE LITERATURE REVIEW

2.0 Introduction

The literature related to the study topic is expressed. The research premised on the variables are as based on peer reviewed journals from WHO, World Bank, GAVI publications and Uganda Ministry of Health EPI program reports.

2.1 Background to immunization

Vaccination still ranks as a successful cost-effective intervention for controlling diseases.

(GVAP, 2015). Immunization program uptake contributes to saving lives from avoidable deaths. When children are healthy, there is improved school attendance and mature into the country's productive and economically beneficial adults and hence, increased productivity (World Bank, 2016).

In the last 10 years, immunization has expanded in target and number of vaccines to be delivered to a broader range of people and seen are new vaccine introductions. (WHO, 2013). Similarly, findings by Rwabukwisi et al (2017) revealed that, the return benefits gained from dollars invested in immunization programs and services is exceptionally good for the benefit of the individuals, society and the nation. Citizens who are healthy invest more and lead to sustained economic advantages to their nation contributing to development.

Immunizing children against vaccine-preventable diseases greatly reduces childhood morbidity and mortality. Uganda's DPT-containing vaccine also protects against Hepatitis B (HepB) and *Haemophilus influenzae* Type b (Hib); it is known as DPT-HepB Hib or the pentavalent vaccine (UDHS, 2016).

Children who are fully immunized are a brighter future for a nation and such a country has to ensure that factors for achievement of coverage for vaccination plan is met (MOH, AHSPR 2017/18). Government as such needs to commit sustained financing to the EPI. A starting point is translating the plan into funding for the program. Additionally, and to achieve sustainability, a detailed planning process, reviewing of the situation, detailed program in terms of response to challenges and finally culminating into costing requirements to be determined and mobilized cannot be overemphasized. This experience varies in Africa region. (WHO, 2018)

Noticeably, many countries have made significant improvements to increased funding for the EPI programs in the past five years. However, commitments are still needed to achieve full sustainability and ownership of vaccination programs. (WHO, 2018).

Majority of the countries adopted Comprehensive Multi-year Planning framework and have aggregated their resource needs for this program. Necessary benefits of high coverage, move along with committed political and investment requirements by governments to assure sustainable and intended outcomes. (GVAP, 2011-2020).

Furthermore, the GVAP plan re-instates the importance of planning using the CMYP processes as a necessary condition for sustainable trajectory towards immunization programs. Consequently, the GVAP looks forward to extending full benefits of prevention.

The World Bank report (2016) found that many Middle-income counties failed to achieve desired targets in the last 10 years and Uganda is among.

2.2 EPI Program Coverage

2.2.1 Performance of EPI Program in Iganga District FY 2017/18

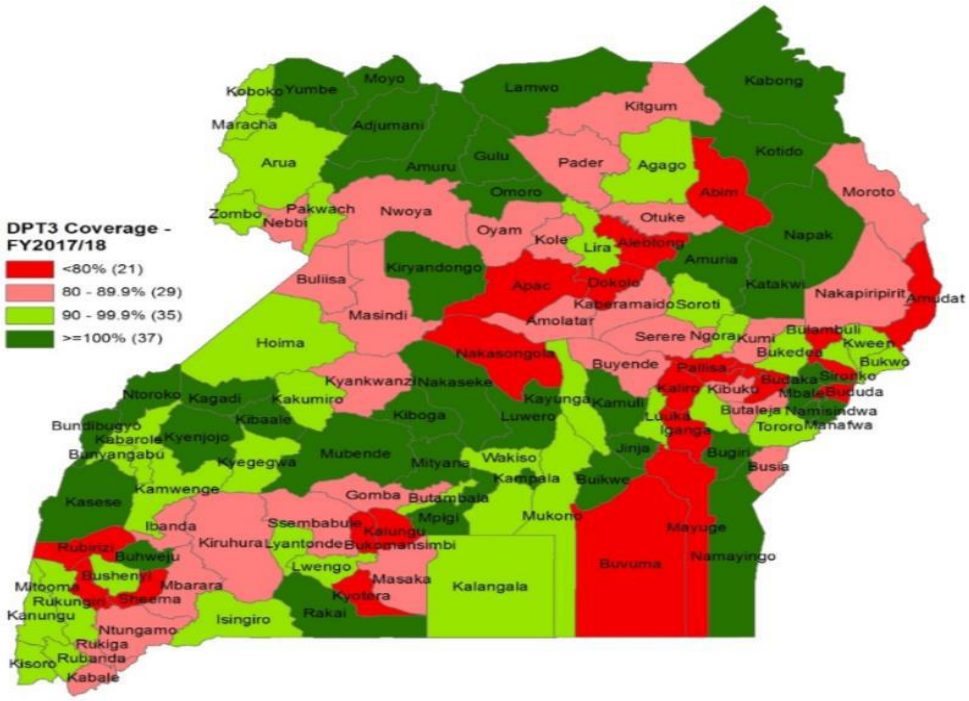


Figure 1: Performance of EPI Program in Iganga District FY 2017/18

Source: Uganda-MOH Annual Health Sector Perfromance Review, AHSPR FY 2017/18

According to the AHSPR FY 2017/18, Iganga district was among the districts with RED flag in terms of EPI performance measured by DPT3 coverage. The DPT[3] coverage was lowest in the following districts;

DPT3 coverage was 95% nationally in 2017/18, although there was a decline from 99.2% in 2016/17, the target of 95% was achieved. Coverage among males was 97.4% relatively higher compared to 93% among females.

However, DPT3 coverage was also lowest as seen in the following districts; **Iganga (79.3%)** Alebtong (79.1%), Rubirizi (78.8%), Kaliro (78.4%) and Kalungu 78.3%). (AHSPR, 2017/18) as shown by the above map.

2.2.2 Performance of EPI Program in Iganga District FY 2016/17

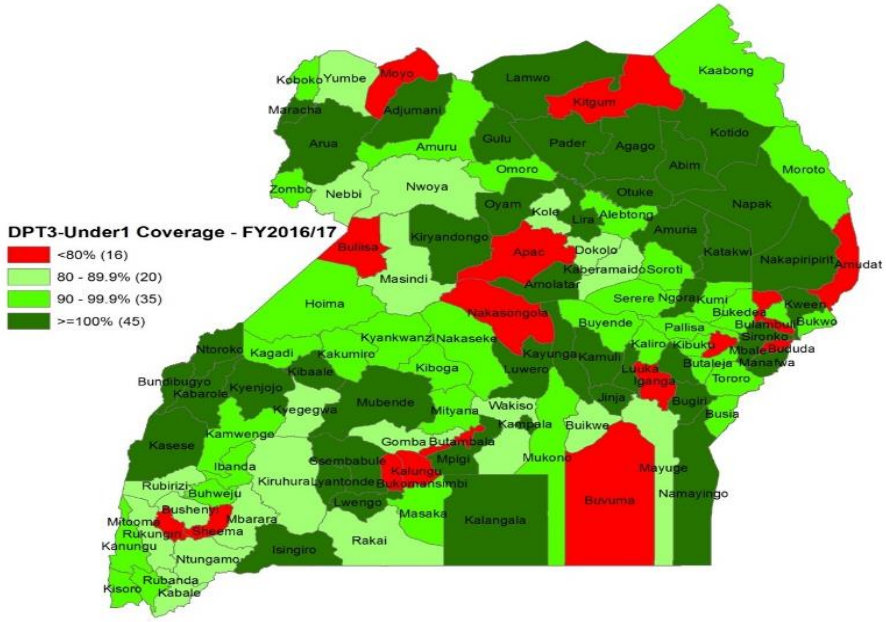


Figure 2: Performance of EPI Program in Iganga District FY 2016/17

Source: **MOH, Uganda-Annual Health Sector Perfromance Review, AHSPR FY 2016/17**

Similarly, according to the AHSPR FY 2016/17, Iganga district was again among the 16 districts with DPT3 coverage below the HSDP target of 95% and was marked RED. The districts were**: Iganga (79.2%)**, Bududa (79%), Buliisa (79%), Kitgum (78.2%), Apac (77.8%), Butambala (77.7%), Mitooma (76.7%), Nakasongola (76.7%) and Amudat 76.6%).

These districts performed below national target of at least 95%. This was surprising because majority 101 out of 122 districts performed above the national average target (95%) as seen shown by map above.

2.3 Health facility related factors

2.3.1 Vaccine Coverage (measured by DPT3 Hep3Hib3 and Measles)

The UDHS (2016) survey reported that, data for 2015/16 showed a modest increase since UDHS 2011 for DPT3 (from 71% to 79%) and for measles coverage among ages of children 12 to 23 months representing 76% to 80% respectively. The percentage of children who received measles vaccination before their first birthday stood at 72%, well off the HSDP target of 95%.

The immunization data showed much higher coverage rates. The first half of HSDP survey numbers of vaccinations (DPT3 and measles) had reduced and the coverage estimates also fell low. This can be attributed to accuracy in reporting, and it cannot be a conclusion that this is an actual decline (HSDP MTR, 2018).It is worth noting that approximately, at least 4% vaccines ordered for by health offices and immunization sites do expire before use and this is likely even an underestimate since returns of wastage reports to the ministry is not clearly expressing the correct numbers; the amounts wasted or discarded due to suboptimal potency associated with the cold chain is unknown. Such scenario is relatively worse in Sub-Saharan Africa. In 2010, CDC similarly reported that, nationally financed vaccines availed in Africa must be kept at between 2°C and 8°C of storage to maintain potency yet the countries record failures to achieve requirements.

Lack of temperature control leads to administration of ineffective vaccines to the public in a small, but significant, percentage of cases and adds to cost of destruction as waste management (CDC, 2010).

2.3.2 Transport and distribution

Weir & Kathy Hatch (2014) concluded that a figure corresponding to 20% of physician offices or other places offering immunization, fail to meet the necessary requirements for vaccine cold temperature requirements, transport or distribution as well as the way they are handled at user levels. Hence, continued examination of vaccine quantities, their storage, and distribution is very critical for successful expanded programs on immunization.

2.3.3 Quantity of vaccines

According to MOH (2018) annual program report, ensuring the maintenance of valuable quantities of vaccines with associated costs is usually ignored during immunization activities.

2.4 Health work force for supply chain

2.4. 1 Staff Workload

It is a requirement endorsed by WHO in 2017, that new vaccines introduced into the health system and that different handling requirements, differences in schedules targeting varied population, must observe times for their shelf-life. This call for critical need to have effective human resources for vaccination. Therefore, training to handle new and introduced vaccine products, and cold chain equipment monitoring, or to operate software systems. Maintaining functioning systems in this respect require teams to be trained. Transportation to installation maintenance and repairing refrigerators function may be necessary to be outsourced.

Additionally, the HSDP (2015-2020) advises on the institutionalizing of appraisals and associated rewards to ensure staff availability for service delivery to mothers and child clients to the EPI program. Hence MOH and Districts need to design the strategies to meet the satisfaction of program requirements.

2.4.3 Motivation

Motivation is an influence encompassing a complex set factors involving social, professionalism and economic factors of the stakeholders. Many issues play for health workers to remain working and maintaining their supportive service to EPI and motivation has varying issues to make staff continue service delivery. (HRH Report, 2016)

Including a strong career development path, adequate compensation procedures, may essentially contribute to motivation of staff and performance improvement since conditions of working plus living conditions are bearable. Having strong human resources and mechanisms in place within a health system that can help to ensure that the right motivational factors are in place at adequate levels to keep health workers satisfied (Lai ER, 2016).

Findings revealed that, having a good relationship among co-workers influence and promotes positive motivation WHO (2016) report. In Ethiopia, a study revealed that the nurses experienced relatively greater job satisfaction when autonomous than on pressure imposed on them and further made effective decisions regarding client needs. However, problems like

neglecting career development, enhancement of salaries and demotivates staff. Doctors and health workers laboring in rural settings commonly cite limited career development opportunities as a demotivating factor.

According to Zemichael Weldegebriel (2016) report, Doctors offering services in remote areas found challenges with modern technology availability and complained of improving their skills. Negligence to such important commitments lead to staff attrition and patients are left with no services which also affects immunization. This leads to loss of motivation and morale. Researchers think that communication during staff appraisals about promotion procedures could result in increased work morale.

Frustration and loss of motivation is dangerous and automatically, the effect achieved is poor service delivery.

Lack of availability of supplies or stock out incidents of vaccines, medicines and health commodities in the care facilities is a very poor picture of the service delivery system and adds to workers frustration to offering their skills. The result is usually job attrition.

Health workers argue that inadequate resources prohibit them from doing their jobs. In South Africa, Doctors reported they left their employment at rural clinics due to lack adequate operational facilities, materials used, and necessary medical equipment prohibiting health staff to do jobs well. And they argue this as prohibition to performance. This is not interesting at all in rural areas where immunization including out reaches are to done.

Some managers tend to fail to give good examples to build necessary good working relationships necessary for usual team work for health. At times, planned positions are left unfilled resulting to workload for the few available human resources. There is also irregular supervision from the responsible officers at central level including feedback for the little monitoring that is done. Manongi et al, reported that even and often, the only response as feedback received from supervisors is also negative in nature. Reward to health workers requires a good salary. In Uganda, disparity in salary enhancement favors some professional cadres especially lawyers who are given hefty salaries yet doctors are ignored. This is not an interesting factor for immunization activities. Salary complaints is therefore more paramount for the health service worker to provide full potential and equitable advantages for all civil servants. Delay in payment is another striking issue that is impeding staff in caring for patients, pay for utilities and maintain families.

2.5.4 Attitude

According to Tania Cernushi (2018) report, the findings revealed that 67% of the health workers assessed lacked knowledge on logistics and basic immunization practices while on issue of equipment and tools, the results showed that 80% lacked equipment or those that were present were overused equipment necessitating training on equipment maintenance and vaccine management.

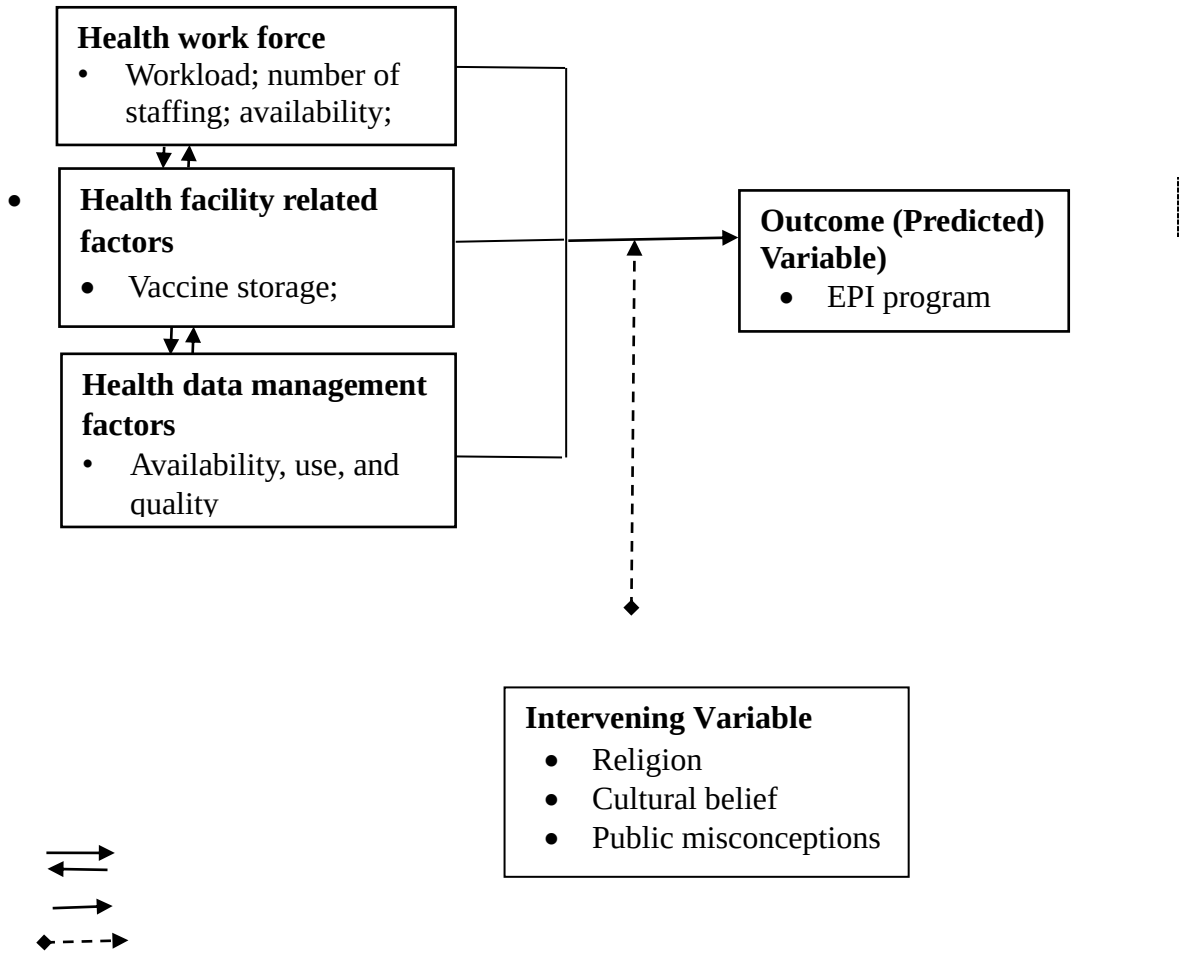
2.6 Health Data Management factors

Efforts to ensure availability, use and quality of data for planning are critical for sustained success of immunization.

The use available immunization data, nonfunctioning software systems for EPI documentation including decreased monitoring influences the demand and delivery for the EPI program.

2.7 CONCEPTUAL FRAMEWORK

Predictor or Y variables (IV) **Predicted or X variable (DV)**



Explanation for the Conceptual Framework

⇄ Means IV influencing one another

→ Refers to influence of IV on DV

●- - - -► Describes the influence of intervening variables between Predictor and Predicted variables

This study was guided by the predictor variables (IVs) namely the Health Workforce, Health Facility and Health Data Management factors that influenced the EPI program performance (Predicted Variable).

Under health workforce factors, the researcher assessed specifically how workload related issues, staffing numbers, their availability and motivation factors influenced the EPI performance in Iganga. Similarly, under health-related factors, he studied the variables which included vaccine storage, transport and distribution as well as quantity of vaccines. Other variables studied under data management factors were availability, use and quality; monitoring, supervision and valuation. The study intended to find out if the Predictor Variables influenced the Predicted or outcome variable.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

The chapter identifies the research study design, setting, sample population as well as the sampling technique. Describes the collection methods for data and tools used including processing.

3.1 Study Design

The study undertaken is one which is descriptive and cross-sectional in nature and involving qualitative as well as quantitative approach. This was chosen because it is quick, easy to conduct and data is collected once.

3.2 Study Setting

It was in Iganga district geographically, located in Eastern Uganda. The district has one General Hospital, 4 HSDs/HCIV, s and 10 HCIIIs. The choice is because, for the years 2017/2018 and 2016/17, the district consistently performed less than 80%) compared to the National Target of 95% in terms of EPI coverage.

3.2.1 District demographic data

The town of Iganga is 44 Km East off Jinja road with population of 504,197 (M 241,182, F 263,015**)** obtained from the Uganda National statistics (2014). Administratively, it is made up of 3 constituencies with one Municipality. There are 20 HCIIIs at sub county level, 4 HCIVs located at the constituencies and municipality levels with one General or District Hospital. The map below details profile:

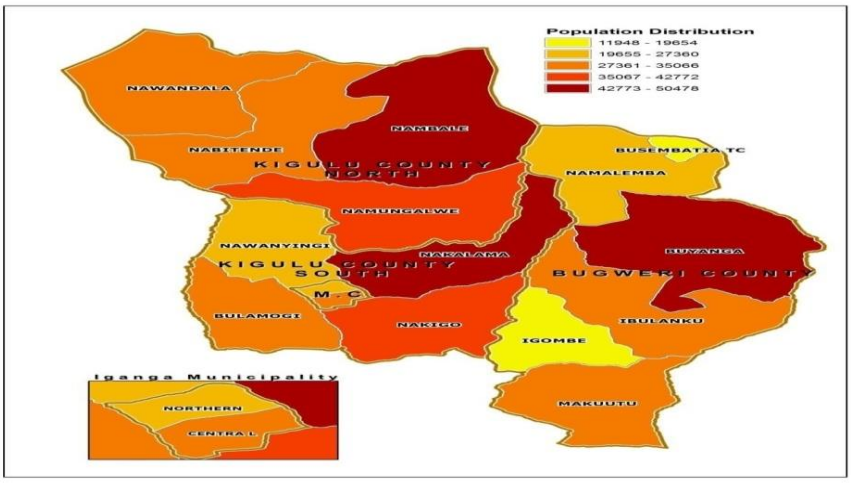


Figure 3: Iganga District demographic data

3.2.2 Organization and delivery of EPI services in the district

The DHO oversees planning and management role. While the Assistant is the focal person for EPI and oversees MCH, coordination plus implementation of those activities. At HCIV, the medical officer plays the management role while HC111, s are managed by Clinical Officers.

3.3 Study population

Respondents were healthcare staff mandated for EPI. Specifically, they included the following: Vaccinators across the health facilities, District EPI Focal Person, Health Facility In-charges, the Biostatistician, Public Health Nurses, assistant DHO also a focus for MCH/Nursing and the DHO.

This group was chosen as study respondents because they are the implementers of EPI program and possess expertise and professionalism for the activities.

3.4 Sampling

Purposive sampling was used because the respondents are information-rich at district health office level. Similarly, at the 3 Health Sub district (HSDs) and one HCIV. The researcher used the purpose approach in a cascade manner. The researcher sampled **Fifty-three** (53) using the benchmark usability test (see sample size table below). The respondents were as follows: For KIIs-**03** from DHO's office, **4**-hospital, **2**-Bugono HCIV, **4**- at 3 HSDs of Kigulu North, Kigulu South and Iganga municipality. While for Questinaire-**38** at HCIIIs and **2** of the sampled respondents were drawn purposively from the district health office down to HCIII levels to minimize bias.

3.5 Sample size.

The researcher used a Benchmark Usability Test (emphasis on metrics) to determine the sample size. With this sampling technique, researcher selected **53** (13 KII, 40 Respondents for questionnaires) as a representative sample of the study population. The benchmark usability test table below shows the sample size with 95% confidence level and a margin taking care of error +-13%.

Table 2: Sample to consider for Specific margins

	Sample	
Margin of Error (+/-)	**90% confidence**	**95% confidence**
24%	10	13
20%	15	21
15%	28	29
14%		45
13%	38	53
12%	45	63
11%	54	76
10%	65	96
9%	81	115
8%	103	147
7%	136	193
6%	186	263
5%	268	381

4%	421	597
3%	749	1,064
2%	1,689	2,398

Source: Parameter Estimation-*Sample considered and taken based on specific margins of error for 90% then 95% confidence levels.*

3. 6 Data techniques and tools

The following methods of data collection firstly, a questionnaire to collect quantitative data administered to the staff working in the EPI units. Secondly, for Key informant interviews (KIIs) guiding tools to collect mainly qualitative data from key informants namely DHO, District EPI Focal Person, Biostatistician and the In-charges at HSD and Bugono HCIV. Thirdly, a document review was conducted to collect quantitative data on EPI performance trend for the 5-year period 2017/18-2013/14.

3.7 Data processing

Quantitative data was input into SPSS version 20 while the qualitative data was transcribed verbatim (word for word).

3.8 Analysis of Data

3.8.1 Quantitative data analysis

Analyzed through SPSS version 20 using descriptive analysis. Descriptive analysis was performed on both numerical and categorical variables. It was then summarized into frequencies and percentages.

3.8.2 Qualitative data analysis

Thematic content analysis using an inductive approach was used. Data was manually coded; sub themes and themes were formed. The results provided use quotations to support the quantitative findings.

3.9 Ethical Approval

Ethical approval to conduct the process, got cleared by the University of Rwanda and Clarke International University Research Ethics Committee (REC). Administrative approval was

obtained from the District Health Office of Iganga by the researcher. Informed consents were obtained from each respondent before data collection.

CHAPTER FOUR

ANALYSIS, DISCUSSION AND PRESENTATION OF FINDINGS

4.0 Introduction

The chapter provides the performance trend of EPI in Iganga district over five-year period from 2013/14-2017/18. Document study/review was conducted retrospectively to answer objective 1.

For objective 2, 3 and 4, the researcher conducted KIIs and administered the questionnaires to collect quantitative to corroborate with qualitative data. The specific predictor variables studied were workforce factors, health facility and health data management factors influencing coverage of EPI performance in Iganga district.

4.1 Demography of the respondents

Characteristics of demography for the respondents and hence the findings in relation to objectives was obtained.

The characters in this chapter four include; age, sex, health facility and professional training as shown in tables below.

4.1.1 Response rate

The 53 respondents targeted, all participated using questionnaires and interviews to form 100% response rate. Therefore, these findings present a fair, reliable and valid occurrence.

4.1.2 Age of the respondents

The questionnaires were administered to obtain information about the age of the respondents. The data collected is as seen in the table below.

Table 3: Age of the respondents

Age		
	Freq.	**(%)**
25-34	10	25.0
35-44	21	52.5
45-54	4	10.0
55 and above	4	10.0
Missing	1	2.5
Sum	40	100.0

From table 1 above, the majority, 21 (52.5%) of the respondents were in the age range of 35-44 years while 10 (25%) of them were aged 25-34. This is not surprising since majority of health workers are mature adults and youth who participate in providing immunization services within communities or health facilities around them.

4.1.3 Sex of the respondents

The researcher administered and obtained the responses from the respondents as shown below in the table 2.

Table 4: Sex of the respondents

Sex		
	Freq.	**(%)**
Male	10	25.0
Female	29	72.5
Missing	1	2.5
Sum	40	100.0

From 40% respondents, 29(72.5%) were female and 10(25%) were male. This is because the health activities and immunization services are conducted by majority female health workers as compared to males. With the above information the researcher noted that there was more involvement of females who are midwives than male midwives, nurses or clinical officers working at EPI program in Iganga.

4.1.4 Health facility level

The table below shows the levels of health facilities data got from respondents who work and provide EPI services. The details of the facilities are presented in table below;

Table 5: Health facility level

Health Facility level		
	Frequency (f)	**Percent (%)**
Hospital	4	10.0
HSD/HCIV	6	15.0
HCIII	29	72.5
Missing	1	2.5
Sum	40	100.0

From the finding, the majority 29 (72.5%) of the respondents worked and provided EPI services at HCIII while 6 (15 %) of them worked and provided EPI services at HCIV. This is not surprising since HCI11 levels provide comprehensive health services for communities at sub-county levels. It's a referral level for HC1V that are based at county level.

4.1.5 Professional training of Respondents

The findings obtained about the cadre/professionalism of the health workers is presented below.

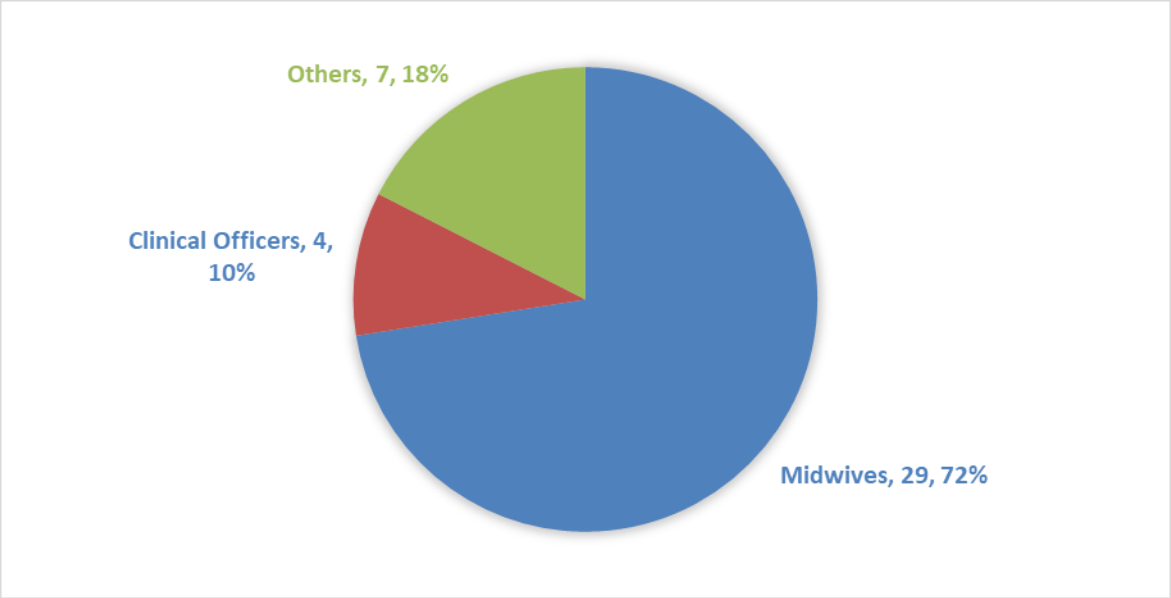


Figure 4: Professional training of Respondents

Source: Primary Data (2019)

The majority 29 (72.5%) of the respondents, were professionally trained as midwives while 4(10%) were trained as clinical officers. This means that immunization services at community levels within the health centers are mainly conducted by midwives who generally offer maternal and child health services to communities including immunization of children and eligible mothers.

4.2 Performance trend of EPI in Iganga district over five-year period from 2013/14-2017/18.

In regard to this objective, the researcher conducted in-depth study of the EPI Program and established its coverage performance within the specified period.

Coverage performance findings for EPI program focused on ensuring better health and growth of children within Iganga. This is in line with UDHS Report (2016) that, highlighted immunization to be responsible for the reduction of disease burden against the six killers yet preventable morbidities sometimes leading to mortality.

Fully immunized children grow with better health outcomes consequently making a future country with more productive workforce. (MOH, AHSPR 2017/18). Therefore, immunization requires a long-term investment and sustainable financing.

Generally, the performance of EPI program in Iganga, measured as a coverage was below the required national target of 95% coverage. The performance trend of EPI program in Iganga District was as shown below.

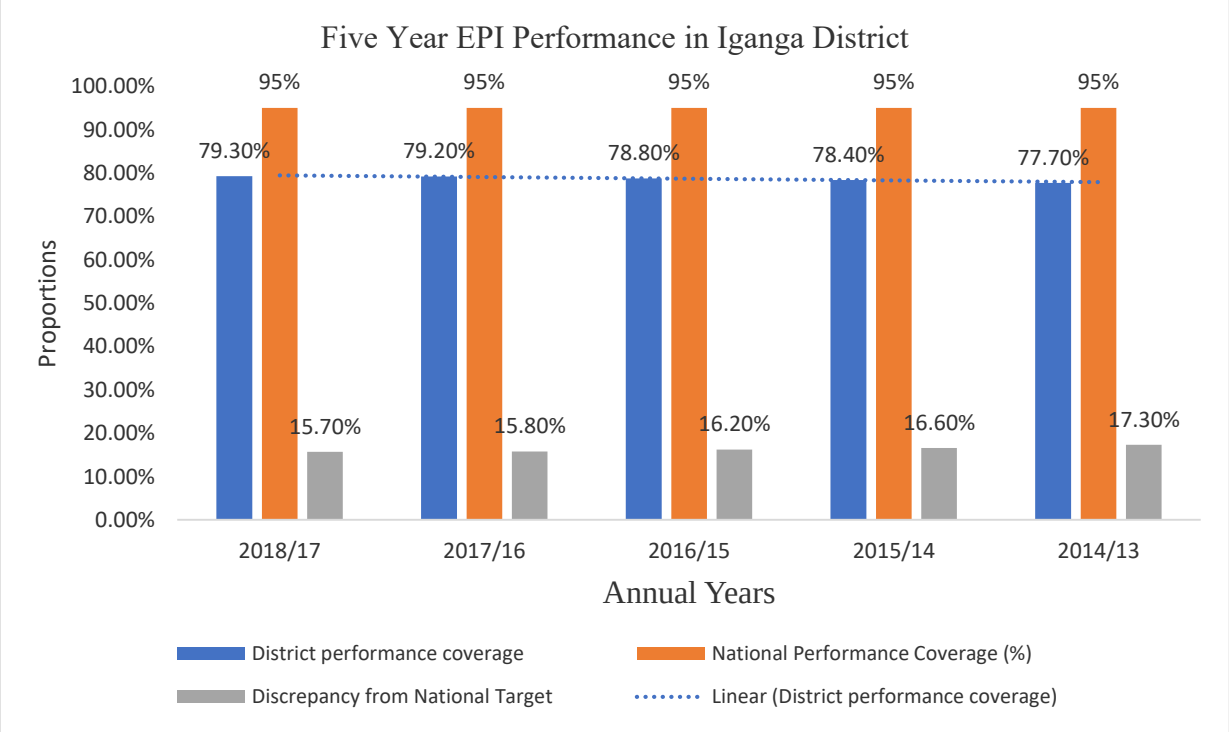


Figure 5: Performance Trend of EPI program in Iganga District

From the figure, it is clearly shown that the performance trend of EPI program in terms of coverage was fluctuating slightly between financial years 2013/14-2017/18, but in general the performance was below required national target of 95%**.**

These concurs with MOH, Uganda-Annual Health Sector Perfromance Reviews that reported Iganga district as among 16 or 20 districts with DPT3/Hib3Hep3 and measles showing a lower performance target of 95% for the duration of 5 years 2013/14-2017/18 reviewed.

4.3 The coverage workforce related issues affecting EPI performance in Iganga district.

The findings obtained following administration of questionnaires about, "What are the **w**orkforce related factors influencing EPI coverage performance in Iganga district" are presented in the tables below with sub-sections as per each theme.

4.3.1 Staffing

The human resources adequacy in the EPI department or unit in facilities visited and respondents interviewed are presented as below.

Table 6: Staffing as a factor influencing EPI Performance in Iganga.

Staffing		
	(f)	**(%)**
Yes	25	62.5
No	15	37.5
Sum	**40**	**100.0**

Out of 40 respondent's, majority 25 (62.5%) said yes to the question regarding staffing with 15(37.5%) of them saying no. In regard to this, the District Health Officer (DHO) had this to say in an interview with the researcher.

"As Iganga district, we are happy that the government has put a lot of emphasis on immunization and ensured that, we have enough personnel. At least EPI department has enough staff in most of the health facilities within our district. I am happy about this for sure" KII DHO.

The remark by DHO appears to disagree with responses (Table 4) stated by the respondents at facility level, however he was quick to add that, some staff are on training while others absentee themselves. This implies existence of workload as a factor.

4.3.2 Kind of workload staff are involved

Immunization services here are the most engaging work for us. Our staff together with VHTs conduct monthly outreaches within communities in addition to handling children who are brought here at the facility. So, we are busy from morning to evening and we ensure that the children access immunization services as required" KII HCIV

The findings concur with the WHO report (2017) which, highlighted that health workers get really engaged with immunizations most especially whenever introduction of new vaccines in the health system.

4.3.3 Workforce availability

In regard to this aspect the EPI Focal point person, stated to the researcher that;

"When it comes to immunization issues, our staff have shown utmost commitment and they are always available. This is really wonderful, and we expect them to keep it up" KII, EPI Focal person

The above statement clearly shows that staff under EPI program were always available and committed to their work.

4.3.4 Staff motivation

On staff motivation, when the respondents were asked the question, "how are staff motivated at their workstations?" the findings the researcher got are presented below.

Table 7: Staff motivation

	Responses on motivation			
	Facilitation Allowance (SDA)		**Teamwork and Recognition**	
	Frequency (f)	Percent (%)	Frequency (f)	Percent (%)
Yes	24	60.0	18	45.0
No	6	15.0	10	25.0
Missing	10	25.0	12	30.0
Sum	**40**	**100.0**	**40**	**100.0**

The majority 24(60%) of the respondents mentioned facilitation allowance while at work outside the facility as a way through which the staff are motivated. And on the other hand, 18 (45%) of the respondents mentioned teamwork and recognition for the work well done as a motivating factor.

One of the KII had this to say, to the researcher during an interview at one of the health centers that;

"If you want a well-motivated staff, pay them well. Under EPI program, we are well facilitated, and the SDA allowances are generally modest and paid on time, so we serve happily" KII HCIII

The above concurs with WHO (2016) report findings which stated that, maintaining a positive relationship with staff through well planned compensation increases motivation to duty. Staff adequately perform in employment when being paid promptly (HRH Report, 2016).

4.3.5 The perception of the EPI implementers

The findings obtained about the question "What is the perception of the EPI implementers?" is as seen in the table below.

Table 8: Responses to Perception of the EPI implementers

Perception of the EPI Implementers		
	Frequency (f)	**Percent (%)**
Good	25	62.5
Fair	3	7.5
Bad	4	10.0
Missing	8	20.0
Total	**40**	**100.0**

Majority 25 (62.5%) of the respondents said that, discernment of the implementers was good while 3 (7.5%) of respondents stated attitude as being fair. In this regard, the DHO had this to say thus;

"As you know attitude is important and as the implementer I have done my level best to have a good attitude and encourage my staff to support EPI program and sensitize the community to embrace immunization campaign as the government has emphasized it for better health outcomes for children in Uganda".

4.4 Coverage factors at facility

Findings obtained from respondents on the question "What are the health facility related factors influencing coverage for EPI performance in Iganga" are presented below.

4.4.1 Quantities of vaccines

On the status of quantities of vaccines availability, the KII had this to say,

"That vaccines are always available and adequate, He further added that. "We thank the government for ensuring enough supply of vaccines for immunization and the supplies reach our stores on time" KII, DHO Iganga.

However, other socio-behavioral impediments to immunization service delivery also exist especially cultural, public and religious factors. For example, some Muslims defy vaccination with belief that, the vaccines are got from pigs -KII, DHO

The Christian sect also named 666 (Triple Six) Church of God preaches against immunization and confer all issues of health to God, hence interfering with interventions by the DHO in implementing EPI activities.

4.4.2 Vaccine storage

Similarly, findings obtained from the respondents when asked "How are different vaccines stored?" are presented in the table below

Table 9: Responses on Vaccine storage

	Vaccine Storage			
	Fridge		Carriers	
	(f)	(%)	(f)	(%)
Yes	25	62.5	11	27.5
No	4	10.0	17	42.5
Missing	11	27.5	12	30.0
Sum	**40**	**100.0**	**40**	**100.0**

The majority 25(62.5%) of respondents mentioned fridges as storage devices for vaccines. On the other hand, 11 (27.5%) of the respondents mentioned vaccine carriers as storage devices especially during outreach immunization programs.

One of the in-charges had this to say to the researcher during an interview at one of the health centers thus; ***"All our vaccines are safe and are stored in the fridges provided to us by government. Some of the fridges are in good working conditions, but also a good number***

are malfunctional and old. The later affects the efficacy of the vaccines. We hope that in future solar fridges can be extended to even lower health centers. KII I/C HCIII

The above findings concur with WHO (2017) report that gives specifications on how vaccines should be stored in cold chain system and meeting standards.

4.4.3 Transportation and distribution to lower facility levels

The findings obtained regarding "How vaccines are transported and distributed to lower facility levels?"

Table 10: Transportation and distribution of vaccines to lower facility levels

Transportation and distribution to lower facility levels						
	Vaccine Carriers		**Cold boxes**		**Other Distributions**	
	Freq. (f)	(%)	Freq. (f)	(%)	Freq.(f)	(%)
Yes	32	80.0	9	22.5	2	5.0
No	8	20.0	29	72.5	38	95.0
Sum	**40**	**100.0**	**40**	**100.0**	**40**	**100.0**

The majority 32(80%) of the respondents mentioned vaccine carriers as a means of transportation and distribution of vaccines to lower facility levels. On the other hand, 9 (22.5%) of the respondents mentioned cold boxes as a means of transportation and distribution of vaccines.

Erica Weir & Kathy Hatch (2014) results who found that, about 20% don't meet vaccine distribution and storage at user levels since they lack storage carriers or crates. Therefore, transport and distribution are so critical for successful expanded immunization programs.

4.5 Health Data Management Factors

Findings obtained in regard to data management factors influencing the coverage of the EPI performance in Iganga district" are in the table below- data availability, tools and usage.

4.5.1 Data availability

The results obtained in regard to data availability for EPI?" are presented in the table below

Table 11: Responses on data availability

Data Availability		
	Frequency (f)	Percent (%)
Available	28	70
Not available	12	30
Sum	**40**	**100.0**

The majority 28(70 %) of the respondents said that, data was available. On the other hand, 12 (30%) of the respondents said that data was not available.

The EPI focal point person had this to say to the researcher during an interview, thus;

"Data is one of the key aspects that have improved with EPI performance. Immunization data is captured using standardized forms and tools from MOH." KII EPI focal person.

However, it was surprising to note that, the above response contradicts with another responses stated below when a similar question was asked by the researcher.

There is poor data collection due to some staff lacking skills most especially newly recruited staff. Stated KII, DHO

4.5.2 Tools used in EPI activities

The findings obtained about tools used in EPI activities?" are seen in the table below

Table 12: Tools used in EPI activities

Tools used in EPI activities						
Tools	**Tally sheets**		**Immunization Cards**		**Registers**	
	(f)	(%)	(f)	(%)	(f)	(%)
Sum	**40**	**100.0**	**40**	**100.0**	**40**	**100.0**

The majority 40(100%) of the respondents mentioned tally sheets, immunization cards and registers as tools used in EPI activities.

One of the HCIII in-charges had this to say to the researcher during an interview at one of the health centers, thus;

"Each tool for data capture under EPI program does matter. We use for example immunization cards as a must so that immunization is well documented. In addition, we use other tools as well" KII, I/C HCIII

4.5.3 Data usage

The findings generated on "How EPI data are used at the health facility/district?"

Table 13: Responses for data usage

Tools used in EPI activities						
Tools	**HMIS reporting**		**Planning EPI activities**		**Performance review**	
	(f)	(%)	(f)	(%)	(%)	(%)
Sum	**40**	**100**	**36**	**90**	**38**	**95**

Source: Primary Data (2019)

The majority 40(100%) of the respondents mentioned HMIS monthly and quarterly reporting as the major form through which data is obtained and used. On the other hand, 38 (95%) and 36 (90%) are used for conducting performance reviews and planning for EPI activities respectively. The EPI focal point person had this to say to the researcher during an interview at one of the health centers thus;

"Our reporting follows data collected daily and from different health facilities. We have used data collected to compile monthly and quarterly reports for the program"

4.5.4 Quality of the EPI Data

The findings obtained about the question "what is the quality of the EPI Data recorded?" are in the table below.

Table 14: Quality of the EPI Data

Quality of the EPI Data		
	Frequency (f)	Percent (%)
High	7	17.5
Good	28	70.0
Fair	4	10.0
Missing	1	2.5
Sum	**40**	**100.0**

Majority (28, 70%) of the respondents said that the quality of the data collected was good. Relatedly, 4 (10%) of the respondents said that the quality of data collected was fair.

4.5.5 Monitoring EPI Implementation in Iganga

The findings obtained regarding "who monitors the implementation of the EPI?" Is presented in the table below.

Table 15: Monitoring EPI Implementation in Iganga

Monitoring Implementation		
	(f)	(%)
DHT	25	62.5
HF In charges, Biostatistician and Cold Chain Technician and others	15	37.5
Sum	**40**	**100.0**

Majority 25(62.5%) of the respondents mentioned the DHT as the people who monitor the implementation. Similarly, 15(37.5%) of the respondents sated HF in-charges, Biostatistician and Cold Chain Technician and others as human resources who also carry out monitoring of EPI activities in the district.

One of the in-charges had this to say to the researcher during an interview at one of the health centers that;

"The work of monitoring of EPI program has been a concerted effort of district and community leadership as well as the political heads sometimes. This has ensured success for this program so far" KII, I/C HC IV

4.5.6 Monitoring of EPI

Monitoring of the EPI activities in the table below.

Table 16: Monitoring of EPI

Monitoring, Supervision plus Evaluation of EPI		
	(f)	(%)
Quarterly	17	42.5
Monthly	13	32.5
Missing values	10	25.0
Sum	**40**	**100.0**

The majority 17(42.5%) of the respondents said that Monitoring, Supervision and evaluation of EPI are done quarterly. Similarly, 13 (32.5%) of the respondents reported monthly.

4.5.7 Challenges influencing EPI Performance in Iganga.

All of the 40(100%) of the respondents said yes, that the implementation of EPI program had challenges.

The researcher obtained findings that are responsible for the current and previous coverage of EPI far below the National Target. The table below details the specific challenges.

4.5.8 Specific challenges influencing EPI Performance in Iganga District.

The findings obtained facing EPI performance are:-

Table 17: Specific challenges influencing EPI Performance

Key Challenges/Factors Influencing EPI Performance										
	Inadequate funding for EPI		Cold chain equipment failures		Lack of real time data		Stock Out Causing interruption		Waste management	
	(f)	%	(f)	%	(f)	%	(f)	%	(f)S	%
Yes	33	82.5	30	75.0	30	75.0	19	47.5	17	42.5
No	10	25.0	10	25.0	7	17.5	21	52.5	23	57.5
Total	40	100.0	40	100.0	40	100.0	40	100.0	40	100.0

Source: Primary Data (2019)

Majority of the respondents stated inadequate funding for training, supervision, communication and VHT facilitation 33(82.5%); Cold chain equipment failures 30 (75%); Lack of real time data, 30 (75%). Others, are vaccine stock outs 19 (47.5%) as above and waste management (42.5%) especially disposal of glass, used syringes and needles.

4.5.9 Solution to challenges

The study findings obtained about the question are shown below for "what can be done to solve the challenges?"

Table 18: Responses on Solution to challenges

	Solution to challenges							
	Increased funding for EPI activities		Procure solar refrigerators		Investment in MIS for real time data		Provision of adequate disposal and waste management equipment	
	(f)	(%)	(f)	(%)	(f)	(%)	(f)	(%)
Yes	40	100	35	87.5	37	92.5%	27	67.5
No	0	0	05	12.5	03	7.5%	31	32.5
Sum	**40**	**100**	**40**	**100**	**40**	**100**	**40**	**100**

All respondents 40 (100.0%) mentioned increased funding, Procurement of solar refrigerators to health facilities (87.5%), investment on management information systems to provide real data collection, reporting for timely decision making (92.5%) and provision of adequate waste management and waste disposal equipment (67.5%) as key solutions to improve EPI implementation and achieve desired national target of 95% as in table 18 above.

CHAPTER FIVE

THE RECOMMENDATIONS AND CONCLUSIONS

5.0 Introduction

Recommendations and conclusions of this research in relation to study questions, objectives and aims are as follows: -

Objectives;

1. To describe the coverage performance trend of EPI in Iganga district over the past five-year period from 2013/14-2017/18.
2. To identify health workforce related factors influencing coverage performance of EPI in Iganga.
3. Establish the facility factors for coverage performance of EPI in Iganga.
4. To ascertain data management factors for coverage performance of EPI in the district.

5.1 Conclusions

Coverage of the 3rd dose of DPT Hepatitis and Hib which is used as a measure for immunization performance was persistently below the national target of 95% in Iganga for the period under review 2013/14-2017/18. (Figure 2).

There is therefore, an urgent need to tackle the technical and socio-behavioral impediments to immunization service delivery. Noted was the religious factor as some Muslims were opposing vaccination with firmly held belief that, the vaccines are derived from pigs against their teachings. The Christian sect also named 666 (Triple Six) Church of God do preaches against immunization and confer all issues of health to God, hence interfering with interventions by the DHO in implementing EPI activities.

5.2 Recommendations

1. The Ministry should lobby and allocate increased funding to cover EPI activities like trainings, mentorships, including equipment acquisition, maintenance and skilling.
2. The district should recruit more staff to support the existing health workforce during the EPI implementation at health facilities and outreach posts.

3. The district health office should continue with training and development of staff skills in quality data documentation and reporting for informed planning and decision making.
4. The Ministry should strengthen aggregation and reporting of quality data from all district administrations so that it is collated at national level for planning and implementation.
5. The MOH should revise the development and dissemination of supporting policies that enhance immunization services and incorporate village health teams with support through seminars, enhancements, workshops, radio and televised programs among others.

5.3 Suggested areas for further research

Findings suggested these areas for further research.

- Management of Immunization programs for rural community outreach.
- Training local communities for sustainable immunization campaigns.

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APPENDIX 1: INFORMED CONSENT FORM FOR HEALTH WORKERS

Investigator:

"My name is ***Ecweu Richard***, a *graduate student at the School of Public Health, National University of Rwanda in Kigali.* I am inviting you to participate in a research study. Involvement in the study is voluntary, so you may choose to participate or not. I am now going to explain the study to you. Please feel free to ask any questions that you may have about the research; I will be happy to explain anything in greater detail**.**

"I am interested in learning more about **Factors Influencing the Performance of The Expanded Program on Immunization (EPI) in Iganga District, Eastern Uganda.** You will be asked some questions on the performance of EPI in Iganga. This will take approximately 5 minutes of your time. All information will be kept confidential, in the case where subjects' identities need to be retained or can be associated with their responses, or anonymous and confidential, in the case where data collection does not allow responses to relate to a subject). If anonymous, this means that your name will not appear anywhere and no one except me will know about your specific answers. If confidential, I will assign a number to your responses, and only I will have the key to indicate which number belongs to which participant. In any articles I write or any presentations that I make, I will use a made-up name for you, and I will not reveal details or I will change details about where you work, where you live, any personal information about you, and so forth.

"The benefit of this research. There are no direct benefits to you for participating in this study. However, your participation in this study may add to the body of knowledge about **Factors Influencing the Performance of The Expanded Program on Immunization in Iganga District, Eastern Uganda**. This information should help us to (provide correct information for the research and better understanding of the problems in order to make recommendations.). There are no risks to you for participating in this study are (state the risks to subjects). If you do not wish to continue, you have the right to withdraw from the study, without penalty, at any time."

Participant - "All of my questions and concerns about this study have been addressed. I choose, voluntarily, to participate in this research project. I certify that I am at least 18 and above of age.

Name of participant_____

Signature of participant date

Name of investigator_____

Signature of investigator date

HEALTH WORKERS QUESTIONNAIRE

Section A: Demographic Characteristics

1. Age [ ]

   [ ]

2. Sex

   a) Male [ ]

   b) Female [ ]

3. Health Facility Level

   i. Hospital [ ]

   ii. HCIV [ ]

   iii. HCIII [ ]

4. Professional Training

   i. Doctor [ ]

   ii. Midwife/Nurse [ ]

   iii. Clinical Officer [ ]

   iv. Public health Nurse/officer [ ]

   v. Other---------- (Specify)

Section B: EPI Coverage Factors

5. Knowledge of vaccine preventable diseases (VPDs)

   i. BCG [ ]

   ii. DPT-Hib Hep (Pentavalent) [ ]

   iii. Polio [ ]

   iv. Tetanus [ ]

   v. Measles [ ]

   vi. PCV [ ]

   vii. HPV [ ]

   viii. Rotavirus [ ]

6. Knowledge of vaccines in the Uganda National Routine Immunization

   i. BCG [ ]

   ii. DPT-Hib Hep (Pentavalent) [ ]

   iii. Polio [ ]

   iv. Tetanus [ ]

   v. Measles [ ]

vi. PCV [ ]

vii. HPV [ ]

viii. Rotavirus [ ]

Section B: Health workforce (Workload, Staffing, Availability, Motivation and Attitude)

7. Are there enough staff in the EPI department/health facility?

   i. Yes [ ]

   ii. No [ ]

8. If yes, what kind of work are they involved in (workload)

   ……

   ……

   ……

9. Are they always available at workstation?

   i. Yes [ ]

   ii. No [ ]

10. How are staff motivated at their workstations?

    ……

    ……

    ……

    …….

11. What is the perception of the EPI implementers' attitude by the clients?

    ……

    ……

    ……

    ……..

Section C: Health Facility Related Factors

12. Do receive adequate quantities of vaccines in your health facility?

    i. Yes [ ]

    ii. No [ ]

13. If no, why?

……

……

……

……

14. How are different vaccines stored in your health facility?

……

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……

15. How are these vaccines transported and distributed to lower facility levels?

……

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……

Section D: Health Data Management Factors

16. Is data available for the EPI in this health facility?

i. Yes [ ]

ii. No [ ]

17. What tools do you use in the EPI activities?

i. Availability of Tally Sheets [ ]

ii. immunization card [ ]

iii. Registers [ ]

18. How is EPI data used at health facility/district?

……

……

……

……

19. What is the quality of EPI data recorded in your health facility?

i. High [ ]

ii. Good [ ]

iii. Fair [ ]

iv. Poor [ ]

v. Not sure [ ]

20. Who monitors implementation of EPI in Iganga district?

……

……

21. Who supervises implementation of EPI activities in Iganga district?

How often are the following done?

i. Supervision……

ii. Monitoring……

iii. Evaluation…….

22. Are there any challenges influencing EPI performance in Iganga district?

i. Yes [ ]

ii. No [ ]

23. If yes, mention at least 5 key factors

---

24. What can be done by the district to solve the challenges affecting EPI program in Iganga district?

Thank you for participating

APPENDIX 2: INFORMED CONSENT FORM FOR KEY INFORMANTS

Investigator:

"My name is *Ecweu Richard,* a *graduate student at the School of Public Health, National University of Rwanda in Kigali.* I am inviting you to participate in a research study. Involvement in the study is voluntary, so you may choose to participate or not. I am now going to explain the study to you. Please feel free to ask any questions that you may have about the research; I will be happy to explain anything in greater detail**.**

"I am interested in learning more about **Factors Influencing Performance of Expanded Program on Immunization (EPI) in Iganga District, Eastern Uganda.** You will be asked some questions on the performance of EPI in Iganga. This will take approximately 5 minutes of your time. All information will be kept confidential, in the case where subjects' identities need to be retained or can be associated with their responses, or anonymous and confidential, in the case where data collection does not allow responses to relate to a subject). If anonymous, this means that your name will not appear anywhere and no one except me will know about your specific answers. If confidential, I will assign a number to your responses, and only I will have the key to indicate which number belongs to which participant. In any articles I write or any presentations that I make, I will use a made-up name for you, and I will not reveal details or I will change details about where you work, where you live, any personal information about you, and so forth.

"The benefit of this research. There are no direct benefits to you for participating in this study. However, your participation in this study may add to the body of knowledge about **Factors Influencing Performance of EPI Program in Iganga District, Eastern Uganda**. This information should help us to (provide correct information for the research and better understanding of the problems in order to make recommendations.). There are no risks to you for participating in this study are (state the risks to subjects). If you do not wish to continue, you have the right to withdraw from the study, without penalty, at any time."

Participant - All of my questions and concerns about this study have been addressed. I choose, voluntarily, to participate in this research project. I certify that I am at least 18 and above of age.

Name of participant_____

Signature of participant date

Name of investigator_____

Signature of investigator date

Key Informant Interview Guide

Health Facility Name:		Date:	
Level of HF:		Cadre of KII	
Name of Interviewer:			
Name of Informant:		Position of Informant:	
Marital Status of Informant:			
Age of Informant:		Sex:	
Name of Note Taker:			
Time Interview Started:		Time Interview Ended:	

1. May you briefly describe your roles and responsibilities in this health facility/office?
2. May you briefly talk about what you know about EPI coverage and performance in Iganga District?
3. What is the trend of EPI program performance in Iganga district over the last five years against the national target?

Period (Years)	**District Performance**	**National Target/HSDP**
2017/2018		
2016/2017		
2015/2016		
2014/2015		
2013/2014		

4. What factors do you believe contributed to the EPI performance above?
5. What health workforce factors do you believe influence EPI in Iganga District?

6. What health related factors do you believe influence the performance of EPI in Iganga?
7. What health data management factors do you believe influence the performance of the EPI program in Iganga district?
8. What other factors do you believe indirectly influenced the EPI performance in Iganga?
9. What challenges do you think health workers in the EPI face as they offer immunization services?
10. What recommendations do you think health workers in Iganga should adopt regarding EPI performance?

Thank you

APPENDIX 3: DATA ABSTRACTION TOOL/DOCUMENT REVIEW

Study Location: Iganga District Health Office Library/ DHO's office

Period (Years)	District Performance	National Target/HSDP
2017/2018		
2016/2017		
2015/2016		
2014/2015		
2013/2014		

Quantitative Data for EPI for the last 5 years. Performance by month from DHO, s Office-Iganga.

APPENDIX 4: RESEARCH ACTIVITY TIME PLAN AND BUDGET (UGX) 2019

Activity Description	**June**	**July**	**Aug**	**Sept**	**Oct**	**Budget**
1. Stationery for full proposal development						325,000
Supervisor and REC Approvals						
2. Data collection and Presentation						6,975,000
Analysis and Discussion						
3. Dissertation writing & submission						-
4. Dissertation defense						-
Total						**7,300,000/=**