THE INTERNATIONAL JOURNAL OF BUSINESS & MANAGEMENT

An Analysis of the Efficiency and Effectiveness of the Policy of the National Health Information System (NHIS) on Decision-Making Support in Health Centres in Zimbabwe (2012-2018)

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Abstract:
The research had been conducted to analyse the efficiency and effectiveness of the policy of the National Health Information System (NHIS) on decision support in Health Centres of Zimbabwe (2011 – 2017). The research has been undertaken in pursuance of six objectives namely, to determine the existing demographic data on District Health Information System (DHIS2)database software, to describe the flaws in the processes used to update statistical data on DHIS2database software, to determine the competencies of different categories of staff involved in NHIS data collection, to establish the nature of challenges associated with data collection and dissemination, to verify the extent to which health managers utilize the data for decision support during programming on day-to-day basis and finally, to emerge with a more improved model of NHIS policy for data collection, analysis, synthesis and reporting that can support program managers in their day-to-day decision-making than the existing one. Information was obtained through a questionnaire administered on forty-six (46) health workers who were involved in patient care data collection and reporting in the Health Centres in different Provinces. Probability sampling was used to come up with the sample of sixty. Descriptive correlation design was used in describing what happened to management decisions that were made with the support of data versus those made without data support and later analysed in order to come up with research findings, conclusion as well as making of recommendations. The main finding was that the health centres in the provinces were not adhering to policy in as far as collection of quality health care in data for decision support was concerned. This resulted in most decisions being made based on emotion, impulse, verbosity and mere personal judgement. Efforts were being done to collect Surveillance data on mortality and morbidity issues ignoring other pertinent issues like data on resources required for collection of critical information for management decision support. Recommendation was that there was need for adherence to health information policy on report submission and feedback in Provinces. There were limited training courses, on-job trainings and workshops on health information system in the country's tertiary institutions and also holding of routine review meetings to monitor and reinforce adherence to policy and procedures in as far as data collection is concerned. Essential resources for the speedy processing of data, timely and completeness of reporting must be made available to the practicing health workers in the Provinces for them to produce high quality data needed for decision support in all health centres in the country. The recommendations were to intensify training on NHIS, introduction of advanced training courses on Health Care Information in tertiary institutions in Zimbabwe and make available adequate resources for strengthening health information management in health centres of the country. Hospital Departments have unique requirements for capacity building, further studies are required to investigate severely affected sections of the health centres and the characteristics of the required intervention for targeted departments. The health centres should embrace technology in data collection, including the use of patients' diagnostic machines that collects data to the server. The health information unit should put in place a code of conduct for the department with details on how quality standards could be met. Further studies could be carried out with a wider population sample within country or globally and also to examine how each of the conceptual perspectives affected each category of staff and making the necessary recommendations.

Keywords: *Effectiveness, operational policy, national health information system (NHIS), indicator, decision-making support, data, evaluation*

1. Introduction and Background

In modern management today, decisions are based on scientific evidence rather than verbose, voting or mere talk as it were in the old days. Data and other decisions-making support systems depict the direction an organisation should go or turn to. These are heavily influenced by policy and procedural factors. Lancaster in Fidler and Bowles (1991: 175) indicated that we use information mainly in the following three areas; planning, monitoring control and communication. The World Health Organization (WHO) defines Health Information System (HIS) as "a system that integrates data collection, processing,

reporting and use of the information necessary for improving health service, health service effectiveness and efficiency through better management at all levels of health services". Thus, in Zimbabwe the National Health Information System (NHIS) data is now entered into electronic database software (DHIS2) at district level with a server in Harare. David Easton (2002:236) further propounds that the position in regards to vital statistics in the United States is far from satisfactory. The quality of information is determined by the quality of data used to construe the information (Kroon 1992: 499). There are over 1500 Health Centres and 166 Health Information Officers reporting to the Secretary for Health and Child Care (HQ) routine information in Zimbabwe through their respective Provincial Medical Directors. Standardised data collection tools are used in Health Centres for reporting all activities such as Tally Sheets (T3), Outpatients Reports (T5), Inpatients Reports (T9) or Village Health Worker Reports. These reports are submitted on set deadlines. They are reviewed by their respective Executives at District, Provincial or Head Office level.

2016 Jan - June	Partner Data from Registers	DHIS2 Data at Clinic	Discrepancy
Total	83287	86742	3895

Table 1: Comparison of Reported Data in DHIS2 versus Source Documents (Registers)

1.1. Statement of the Problem

In this study the problem is that Health Information reports from all Provinces (health centres) in Zimbabwe are received at national level lately, much far away from the due dates and with incomplete information, inconsistent and erroneous when compared to the available source documents, yet this is the information used for decision-making support by health managers in their day-to-day programming. In some cases, performance-based payments for the Results-based and HIV programmes were over-stated or under-stated, resulting in poor service delivery in health centres due to lack of funding. The DHIS2 software database, the major source of electronic information for the country, does not capture adequate indicators for performance measurements. This data is vital for decision-making support, to decide on criteria for equitable allocation of resources to health centres, planning diseases interventions, procurement of drugs, and allocation of vital resources like ambulances, nurses, doctors, microscopes or budgeting. Thus, this study investigated the causes of poor data in health centres and made recommendations that result in good performance and sustainable health service management in Zimbabwe. The Research and Training Institute (RTI) and MOHCC in its quarterly bulletin, of April 2011 reports that completeness and timeliness of submitted routine reports from all Provinces in the country varied from 0 to 69% and the T5 report had a submission rate of 58% to 93% over 2 months, nationally. On August 29, 2016, the MOHCC circulated the comparison of reported data from Health Centres had a discrepancy of 3895 in the DHIS2 data base software in January to June 2016.

1.2. Research questions

- What is the current situation with regards to recording demographic data on DHIS2?
- Are there flaws in the process used to enter statistical data on DHIS2?
- Do the institutions' human resources have the competencies to collect DHIS2 data?
- What is the nature of challenges associated with data collection and dissemination?
- How often do health managers use DHIS2 data to support their day-to-day decisions during programming?
- Are there any suggestions to improve the effectiveness of DHIS2 data on decision-making?

1.3 .Research Objectives

- To determine the existing demographic data on DHIS2.
- To describe the flaws in the process used to update statistical data on DHIS2.
- To determine the competencies of different categories of staff in NHIS data collection.
- To establish the nature of challenges associated with data collection and dissemination.
- To verify the extent to which health managers utilize data for daily decision support during programming
- To emerge with a more improved model of NHIS policy for data collection, analysis, synthesis and reporting that can support program managers in their day-to-day decision-making than the existing one.

1.4. Assumptions

This Research was a case study of three provinces (out of ten) only in the country. There was a high possibility that the resources available for MHIS and the knowledge and skills of staff were not adequate and unsuitable to accomplish the reporting activities fully, give the current attrition of staff to greener pastures.

1.5. Significance of the Study

1.5.1. Researcher

The research was in partial fulfilment of the Doctor of Business Administration Degree, it increased the student's knowledge on the topic, had an in-depth understanding of various information systems and their related challenges with a

view to produce a hybrid solution to the current information system of Zimbabwe by linking theories and reality whilst at the same time coming up with a competitive record management systems model. Increased his ability to use time budgeting skills since the research is time bound.

1.5.2. My Organisation

Improvement of the current policy and procedures implemented in Health Information System data collection, submission and response in the country. Collection of good quality data for improvement of the health delivery system of the country through good decision-making support and competitive advantage.

1.5.3. Policy Makers and Stakeholders

Introduction of a user-friendly policy framework, code of conduct for NHIS staff on data collection, submission and response, timeliness and completeness. Embrace the use of ICT to a wider scale in diagnostic information, classification and production of automatic machine generated routine reports.

1.5.4. The Human Resources Department

Review the current policy on the appointment based on merit, staffing establishment, categories of staff, grades, qualifications, experience and lines of communication to align them with the findings of this study so that their operations are conducive to achievement and sustenance of an effective MHIS.

1.5.5. ICT Personnel

Re-programme the DHIS2 software database to include more useful indicators and improve its capabilities on data processing, transmission and feedback. The hardware, software and antivirus versions requirements for the MHIS. The availability of standby power alternatives as well as the right networks at the right place.

1.5.6. Records Management Personnel

Institute changes in their registers, their filing systems, data entry, storage, retrieval and disclosure policy, timely and completeness of reporting as well as personnel structures, feedback, seek supervisors input and appropriate duty allocations.

1.5.7. Academic Body of Knowledge

Contribute to the body of knowledge for other scholars and recommending further studies.

1.6. Delimitation

The research study was conducted in three provinces out of the ten provinces in Zimbabwe. Stratified random sampling was limited to forty-six health workers in three provinces instead of focusing on all health information staff in the country.

1.7. Limitations

The stratified random sampling focused on effectiveness of the health information policy in three provinces only, instead of focusing on all ten provinces in the country and generalization of the results will not be very reliable. Limited financial resources in a country with severe cash crisis and economic turmoil, working overtime and had to forego demands of his personal life to fully exhaust the various aspects the research and meeting the deadlines.

1.8. Operational Definitions

An operational definition is a description of how variables or concepts are measured or manipulated in a study (Burns & Grove, 1997).

Effectiveness means the usefulness of the health information policy in terms of producing data of good quality

Operational policy is a rule guiding the data collection and reporting in the health centres of Zimbabwe

NHIS means vital health statistics used to deduce plans for health activities Indicator is a number of diseases reported to inform managers during decision-making

Client a person receiving services from any health centre

Decision-making support is the availability of leading evidence that directs the health manager to make a particular decision during planning.

Data are the reports with facts and about events compiled at a health centre

1.9. Title of This Study

An analysis of the efficiency and effectiveness of the Policy of the National Health Information System (NHIS) of health centres in Zimbabwe.

1.10. Summary of Section

This section focused on the introduction and background to the study which lead to the conceptual variables, the statement of the problem was narrated and lead to the research questions, research objectives, assumptions, and delimitations, significance of the study, limitations and the operational definitions.

2. Review of Related Literature

This section focused on literature review which Seaman (1987) describes as an extensive, exhaustive systematic examination of publications relevant to a research project. The main focus was on the theoretical perspectives of policy issues in general and policy issues affecting management information systems in particular as well as assisting in unveiling a viable MIS that clearly supports decision-making. This section was also composed of the trend analysis (global, regional and local perceptions), the conceptual perspectives followed by theoretical perspectives as well as the conclusion and the summary.

2.1. Rationale for Review of Related Literature

The purpose of literature review is assist the researcher to find out what already exists in relation to a problem of interest and familiarize with the concept and content of literature. Polit & Hungler, (1991) propounds that it helped the researcher to learn about the current state of knowledge with regards to a particular issue as a means of improving practice or identifying potential solutions to problems. Examination of literature was expected to unveil what other authorities established on situations where poor data quality could not support health managers in making good decisions. There was need therefore to interrogate the gap left unanswered from other previous authors' publications on the topic. Pilot et al (2001:121) believes that literature review puts the current study into the context of what is known about the topic and also correlate the findings of this study in relation to existing knowledge. The researcher was thus able to identify a gap which he sought to address.

2.2. Trend Analysis

The findings from previous researches on availability of quality vital (NHIS) statistics in relation to the variables has shown that a number of authorities who have written about management information systems highlighted a lot of benefits which could accrue to health managers when they have access to good quality of data. 'O' Brien 1992:18 identified that lack of information, faulty information or no information is often the reason that especially small enterprises fail, but this study intends to find a solution. There was a general common trend in the views expressed from developed to developing economies across the globe with regard to the availability and use of management information systems in organisations. There are common issues which cut across especially the role of the MIS in decision-making support in organisations. Greater relationships have been articulated between good data quality and good decision-making in organisations and the associated challenges which affect managers in day-to-day running of health institutions without adequate MIS backup. Much emphasis has been done on studies related to implementation of MIS without addressing basic policy and procedural guidelines leading to major impediments on organisational success and poor health delivery systems mainly due to geographical disparities and other socio-economic variables. In the Latin America and the Caribbean, Lancelot Busby (2003) carried out a study on 'general data challenges facing the Caribbean in the context of sustainable development', and reported that generally, the Caribbean countries have been described as "data poor" and in the absence of data and information, policies adopted and implemented have been arrived at on the basis of little or no data and less information. The result is years of wandering in the wilderness of development – talking of visions of the promised land of development without the ability to measure proximity to that goal. The conclusion was the standardization of concepts, definitions, instruments and measurement of progress. The South African and Tanzanian DHIS2 databases are interactive and can lead users to immediate action (www:/dhis/rsa.za). The DHIS2 database of Zimbabwe as the sole source of official information for the health centres of Zimbabwe is far from satisfying end-user data requirements in terms of quality, adequacy of indicators and inconsistent with ever-changing data demands.

2.2.1. Theoretical Perspectives

The theoretical framework of this study was drawn from the theory of modernisation as the main guiding theory.

2.2.2. Modernization Theory

Modernization refers to a model of a progressive transition from a 'pre-modern' or 'traditional' to a 'modern' society. Modernization theory originated from the ideas of German sociologist Max Weber (1864–1920), which provided the basis for the modernization paradigm developed by Harvard sociologist Talcott Parsons (1902–1979). The theory looks at the internal factors of a country while assuming that with assistance, "traditional" countries can be brought to development in the same manner more developed countries have been. Zimbabwe was experiencing most of its challenges due to poor economic performance and all this arose from traditional and historical imbalances yet this is time to focus on modernisation issues like data-based decision-making.

2.3. Conceptual Perspectives

2.3.1. Introduction

A conceptual definition provides a variable or concept with connotative (abstract, comprehensive, theoretical) meaning and is established through concept analysis, concept derivation, or concept synthesis. The conceptual framework of this study was derived from the researcher's experience and involvement in the phenomenon, then he came up with research questions, objectives and identified variables likely to be causes of the phenomenon. The variables which the researcher suspects are staff competence and attitude, capacity building programmes, implementation strategy, decision-making process, databases security, monitoring and controlling systems, communication channels, networks and organisational challenges. These areas can affect NHIS if they are not properly aligned at implementation phase. 'O'Brien (1990) agrees that Management Information System is an integrated system of information flows designed to enhance decision-making effectiveness and that it is where people use specific procedures and resources in an organisation to gain, process and distribute information. There are however, several factors that can distort the establishment of a meaningful MIS that range from organisational structure, records management practice, staff competencies, existing policies, communication channels and skills and networks among others. Thus, literature review served to bridge the gap between what has been researched by various authorities and the status quo. According to Leedy (1993) preliminary literature provides a substantial better insight into the dimensions and complexity of the problem and it equips the investigator with a complete and thorough justification for the subsequent steps as well as with a realization of the importance of undertaking the research. Literature review examined the variables that determine the independent variable (effectiveness of the Health Information System (NHIS) statistics policy) and how they affected decision-making in the health centres in Zimbabwe as a dependent variable. When the NHIS data quality is good, suitable decisions are made by health managers on the day-to-day running of the health programmes, there should be a greater correlation between data of good quality and good decision-making. A thorough literature study demonstrates that the researcher is duly knowledgeable about related research and the intellectual traditions that surrounded and supported the study. Thus, the questionnaires also carried questions and indicators meant to find out the extent that each area was possibly at fault.

2.3.2. Organizational Structure in Relation to Good Records Management

Yasas Vishuddhi Abeywickrama an Australian Technology (2004) published that organizing also comes under the scope of managers. With correct data and forecasting facilities, they could do better organization of activities. A good IS would greatly improve organization. Theodoulou and Kofinis, (2004:168-169) asserts that regardless of how well intentioned, or how well formulated, or how universally supported in the adoption phase of the policy process, a public policy cannot begin to change the behaviour of a target population or solve a specific public problem until someone or some organization implements the policy. Randall Sanders (2014) highlights basic criteria for electronic records as follows: 1. Safety and security, 2. Accessibility, 3. Privacy and 4. Quality Assurance.

2.3.3. Decision-Making Process

Data collection and reporting can be affected by decision-making process of a site especially if it is not properly handled within the MOHCC. Gorry and Scott Morton (1971) views decision making as the process of selecting the most desirable or optimum alternative to solve a problem or achieve an objective. The quality and soundness of managerial decisions is largely contingent upon the information available to the decision-maker.

2.3.4. Policy in Relation to Research Topic

Hogwood and Gunn (1990:259) say "health policy is an expression of goals for improving health situation, the priorities among those goals and general directions for achieving them. Yasas Vishuddhi Abeywickrama (2004) identified many types of MIS. The major types of MIS are: Executive Information Systems (EIS), Decision Support Systems (DSS), Expert Systems Knowledge Based Information Systems (KBIS), Group Decision Support Systems (GDSS) and Enterprise Resource Planning (ERP). Each of these MIS aspect goes with its policies and procedures.

2.3.5. Programme Implementation in Relation to the Research Topic

Slak Brian (2005: 33) asserts that the implementation of the selected option represents a critical aspect of the MIS process. The most carefully crafted MIS that is widely accepted by those it affects can flounder because of improper implementation. Laudon, Kenneth C. (2005) noticed that within companies' major functional areas developed their own MIS capabilities; often these were not yet connected: engineering, manufacturing and inventory systems developed side by side sometimes running on specialized hardware. There is need therefore, for organisations to come up with a standardised IS that integrates all sections' activities and reduce complexity that distorts efficiency and effectiveness.

2.3.6. Communication Processes in Relation to the Research Topic

Laudon, Kenneth C. (2005) described MIS as a pyramidal structure, with four levels of information resources. The levels of information would depend upon the organizational structure. The top level supports strategic planning and policy

making at the highest level of management. The second level of information resources aid tactical planning and decision making for management control. The third level supports day-to-day operations and control. The bottom level consists of information for transaction processing. It then follows that since decision making is specific to hierarchical levels in an organization, the information requirements at each level vary accordingly. Thus, MIS as a support system draws upon: concepts of organization; organizational theories, principles, structure, behaviour and processes such as communication, power and decision making; motivation and leadership behaviour. Davis and Olson (1984) concurred with Gordon and Olson, (1984: 358-359) that there are three levels of information requirements for designing an MIS (Davis and Olson 1984). At the organizational level, information requirements define an overall structure for the information system and specific applications and database. Application level requirements include social or behavioural covering work organization objectives, individual roles and responsibility assumptions, and organizational policies and technical, which are based on the information needed for the job to be performed. A significant part of the technical requirement is related to outputs, inputs, stored data, structure and format of data and information processes. At the user level, database requirements can be classified as perceived by the user or as required for physical design of the database. Therefore, the MOHCC needed to conform to these norms at every level of service delivery in order to fulfil the reporting roles.

2.3.7. Management Information Systems (MIS), Communication Channels, Interpersonal Relationships, Networking and Networks

House James S (1981) Information support includes information a person can use in coping with and solving problems. Furthermore, James Robertson (2005:2) wrote on MIS and enlists common information management problems that include: large number of disparate information management systems; little integration or coordination between information systems; range of legacy systems requiring upgrading or replacement; direct competition between information management systems; no clear strategic direction for the overall technology environment; limited and patchy adoption of existing information systems by staff; poor quality of information, including lack of consistency, duplication, and out-of-date information; little recognition and support of information management by senior management; limited resources for deploying, managing or improving information systems; lack of enterprise-wide definitions for information types and values (no corporate-wide taxonomy); large number of diverse business needs and issues to be addressed; lack of clarity around broader organisational strategies and directions; difficulties in changing working practices and processes of staff; internal politics impacting on the ability to coordinate activities enterprise-wide. These items become recommendations by themselves in so far as they work as a checklist for a balanced MIS. Communication channels play a very important role in the transmission of information from one level to the other. The data collection clerks consolidate the information and forward it to the superiors. Organisations should choose channels of communication that are conducive to timely data reporting. There are oral, written, visual and electronic channels of communication all poses varying strengths and weaknesses. There are also formal communication networks like the horizontal, downward and technical communication or informal ones like the grapevine. Thus, our own MHIS will be filtered to maintain maximum credibility.

2.3.8. Competencies of Health Personnel

Staff competence is an area that needs continuous benchmarking to maximize on performance and if this is not done productivity will be at fault. SAAS 400.05 in its publication on 'performance audit for finance staff', emphasises on control procedures as those policy measures and procedures additional to the control environment which management should introduce to ensure that the specific goals of the entity are achieved. The control procedures which relate specifically to financial information are the measures which are introduced to ensure that the financial information is complete, valid and accurate. The internal control principles are listed as the segregation of duties, information processing controls, general controls, application controls, and physical controls and reporting. Although these procedures were formulated for a financial accounting system personnel, they will apply very well to HMIS personnel.

2.3.9. Needs Identification

Leslie Allan 2012 instructs that a management information system must be flexible and adaptive and must have the capacity to accommodate deficiencies as the system evolves. Managers, as well as information specialists and operations researchers, should participate in each phase of the design of an MIS. *A Training Needs Analysis* (TNA) is used to assess an organization's training needs. This is an assessment of the gap between the knowledge, skills and attitudes that the people in the organization currently possess and the knowledge, skills and attitudes that they require to meet the organization's objectives. Leslie Allan 2012 wrote on Training Management Design and Deliveries identified that training should be done to enhance workplace performance and improve on managing change in the workplace on an on-going basis. Thus, a training needs assessment is best conducted up-front, before training solutions are budgeted, designed and delivered. The output of the needs analysis will be a document that specifies why, what, who, when, where and how the training has to be done. The researcher will precociously analyse the MHIS and highlight how adaptive and flexible it will move with times, else training needs will need be listed and delivered.

2.3.10. Inadequate Planning Indicators and Lack of Time Management

Planning an intervention is always supported by an update of quality indicators and if they are not available programmes come to a halt or take the wrong dimension. Timeliness is very important when taking management action or intervention and thus meeting reporting standards and deadlines. There is a chance that the provinces do no devote enough time to address the inadequate planning indicators and timeliness. (Kumar, 1989) found out that an MIS is directed towards the managerial functions of planning, controlling and monitoring, and decision making. Planning consists of five sequential and interactive steps (Kumar, 1989). These are selecting objectives; identification of the activities which are required to achieve the stipulated objectives; detailing the resources including the various skills required to undertake the activities; determining the duration of each activity to be performed; defining the sequence of the activities. The basic requirements during the planning process of most importance in designing and implementing an MIS for an organization are (Kumar, 1989): providing the information required by the planner at each step of planning; establishing procedures for obtaining the information; arranging for storage of the approved plans, as these will provide the information requisite to monitoring and controlling; and evolving methods for communicating the plans to employees in the organization. Therefore, this study will factor in proper planning skills on data gathering, standardization of data collection tools concepts, definitions and reporting.

2.3.11. Human Resources in Relation to This Research

Tom Marsden (2016) pointed out that due to the fluctuating economy as well as local and global advancements, there are many changes occurring rapidly that affect Human Resources in a wide range of issues. This is likely to be playing a party in Zimbabwe. Slack Brian (2005:36) agrees that all actors in the MIS implementation process must possess a clear understanding of the policy and procedures and what is required to carry them out. All those involved must understand the MIS and have knowledge about their roles in carrying it out. Information and training are essential elements in the MIS implementation process. The research will examine challenges with the human resources involved in IS and propose ways of going around such a problem.

2.3.12. Records Management Systems

The Records management practice in the sites was far away from credibility. The 44 United States Code 330, revised in 2006 stipulates records as books, papers, maps, photographs, machine readable materials, or other documentary materials, regardless of physical form or characteristics, made or received by an agency of the United States Government under Federal law or in connection with the transaction of public business and preserved or appropriate for preservation by that agency or its legitimate successor as evidence of the organization, functions, policies, decisions, procedures, operations or other activities of the government or because of the informational value of the data in them. The same defines Records Management as the planning, budgeting, organizing, directing, training, and control involved in managing the life cycle of records in any medium. Records Management provides a rational basis for making decisions about recorded information, including what should be saved and what should be discarded especially necessary to support the legal, fiscal, administrative, and other needs of the Government owned contractor operated facilities, the federal government, the individual State governments, and the general public. These records protect the legal and financial rights of the Government and of individuals, preserve institutional memory so that informed decisions are possible for officials and their successors. Documents posted on websites and Portals, e-mails regardless of its media (hard copy, machine-readable, microfilm, or electronic) is considered to be essential records. Disposal of these records is authorized by the relevant Head Quarters. The HOHCC records are not exempted from the above scenario, they give evidence of what was done and support the decision on the way forward. There is need to carry out this study and document what is not matching the international standardization.

2.3.13. Capacity Building Programmes

The definition of capacity building is actions that enhance an organisation's ability to work towards its mission (Barbara Blumenthal 2012). The concept of capacity building is similar to the concept of organizational development, organizational effectiveness and/or organizational performance management, the Balanced Scorecard, principles of organizational change, cultural change, organizational learning, numerous perspectives on capacity building from numerous articles, and then review of various common functions like boards, role of CEOs, programs, marketing, fundraising, finances, evaluation etc. (Carter McNamara 2012) adds that it includes models to fix a broken Board, roles and responsibilities, how to get the best members, how to train and organize them, goals for standard committees, ensuring high-quality meetings, evaluating Boards, how to evaluate and/or replace an Executive Director. This give guidelines to identify complex issues in organizations and successfully resolve each of them. Even organizations that are doing fine now but want to evolve to the next level of performance can get these guidelines to identify and implement the best ideas to generate more revenue to further their mission. Such ideas can come from current or new services and used to customize and facilitate planners to implement the best strategic planning process to suit the particular nature and needs. The issue of capacity can also be cross-cutting and go beyond the human resources to include the assets availability and use component. Where the organisation falls short in its entirety has to be capacitated as well, like data transmission resources, internet, modems, computers data bundles, cell phones, vehicles or even office accommodation.

2.3.14. Security of Data bases

Hugo Shebbeare (2010) directed that the security of corporate databases and related issues have become increasingly important as enterprises consider the data they store, purchase, or acquire as assets that are critical to operations. Consequently, those involved with responsibility and control over these resources must assume the role of stewards of the data; otherwise, the security of the data, and, in turn, business operations are at risk even if those at the higher ranks of the organization do not realize the direct link between proper data management and the organization's reputation. Therefore, there is need to secure data with an Effective Disaster Recovery Plan and test it regularly with Microsoft SQL Server 2011, in which new functionalities will enhance high-availability features. Further make sure to groom the Database of sensitive data to reduce the risk of being disseminated for example, human resources data that includes salary information, take the time to properly archive it. Institute the separation of duties with respect to internal control, maintaining compliance on databases used for public reporting. This study will also cross-check the existing database of the MOHCC in terms of this criteria and establish the extent of non-compliance with a view to restore the missing attributes.

3. Research Methodology

This section articulated the research philosophy/methodology in relation to other philosophies, identified the research strategy, including the research methodologies of choice with justification, the population under study, the sampling procedure, the method of collecting data, the research instrument including the reliability and validity of the research instrument as well as the ethical considerations and finally the chapter summary. This thesis followed the mixed methodology of the quantitative and qualitative paradigms as well as the philosophies of constructivist and positivist combined with the epistemological and ontological, utilised the deductive approach which is quicker to complete and data collection is often based on one-take plus explanatory research purpose.

3.1. Research Design

In this thesis, a descriptive correlational design was used to describe and examine relationships between two variables of interest in this study which are the effectiveness of policy and procedures of data collection (independent variable) and decision-making support (dependent variable) and to identify the relationship between good quality data reports and decision-making support.

3.2. Population

Borg and Gall (1996) stipulates the target population as the large group of people, objects or events a research would wish to generalize the results of accessible population as all the individuals who could realistically be involved in the study. There are ten administrative provinces in Zimbabwe with approximately 1724 health institutions and 10344 workers including health who formed the population. The key point is to determine whether the key factors play a role in reporting data of good quality on time, factors such as the qualifications of staff and their categories, networks and networking, communication etc.

3.3. Sampling Process

Burns and Grove (2003:31) refer to sampling as a process of selecting a group of people, events or behaviour with which to conduct a study.

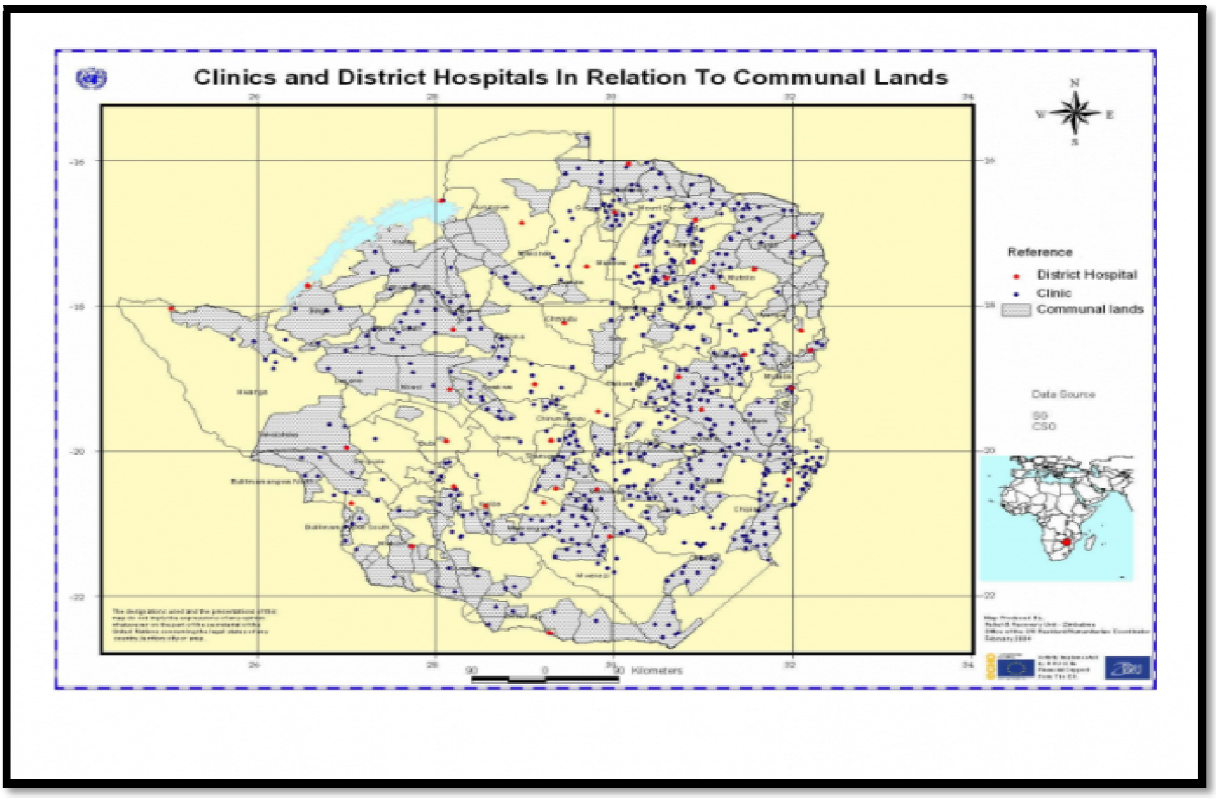

Figure 1: Map of Zimbabwe Showing the Locations of Hospitals and Clinics

3.4. Stratified Random Sampling

The ten provinces of the country were divided into three 'constituencies' (Bryars 1989:229) (Northern, Southern and Western Clusters) of provinces that fall into those three cardinal sides (north, south and west). The major advantage of stratified sampling is that it improves accuracy of results (Bryars 1989). The provinces in the three clusters were each assigned a number and correspondingly numbered strips of papers 1 to 10 placed in a hat. After mixing well the numbers were taken out one-by-one without replacement to obtain a sample of three provinces, namely Masvingo, Mashonaland Central and Midlands Provinces.

No.	Northern Cluster		No.	Southern Cluster		No.	Central Cluster
	Province Name			Province Name			Province Name
1	Midlands		5	Manicaland		7	Harare
2	Bulawayo		6	Masvingo		8	Mashonaland East
3	Matabeleland South					9	Mashonaland Central
4	Matabeleland North					10	Mashonaland West

Table 2: Zimbabwe's Ten Provinces put into Northern, Southern and Central Clusters

3.5. Cluster Sampling

Cluster sampling is used to classify subjects according to sex, category or college (Bryars 1989), thus in this thesis cluster sampling is also used to classify health workers in groups of their professional categories health information officers, nurses, doctors, health inspectors, pharmacists, laboratory scientists, nutritionists and physiotherapists. Getu and Tegbar (2006) describes clusters as usually made up of geographic units like districts, villages or organizational units like Clinics.

3.6. Purposive Sampling

Purposive sampling is "a method of sampling where the researcher deliberately chooses who to include in the study based on their ability to provide necessary data" (Parahoo 1997:232). The rationale for choosing this approach was that the researcher was seeking knowledge about the health practitioners' opinion on challenges of quality and timely data collection for decision support, which the participants would provide by virtue of their expertise and experience. Purposive sampling was then being used to select categories of the participating officers in the respective districts.

3.7. Sampling Plan

A sampling plan describes the strategies that were used to obtain a sample for a study. It is developed to increase representativeness, decrease systematic bias, and sampling error (Burns & Grove, 1997). A sample is a subset of the population, which is selected to participate in the study, and represents the entire population (Polit & Hungler, 1995). It is

used to make generalizations about the population (Nieswadomy, 1995). Data was generally collected from a sample rather than from an entire population. The advantage of a sample is that it is more practical and less costly (Burns & Grove, 1995). In this study stratified random sampling was used to nominate the participating provinces.

3.8. Sample Size and Sampling Procedures

Holloway and Wheeler (2002:128) assert that sample size does not influence the importance or quality of the study and note that there are no guidelines in determining sample size in qualitative research. Qualitative researchers go on until saturation has been achieved, namely when no new information is generated (Holloway 1997:142).

	Province	Names of District Chosen	Number of Officers
1	Masvingo	Zaka	21
2	Mashonaland Central	Mbire	7
3	Midlands	Mberengwa	18
	Total		46

Table 3: Sample Size (No Of Districts And Participants) N=46

Sample size refers to the number of subjects required in the research study (Polit & Hungler, 1995). The sample size of N=46 was chosen for this study. A sample size is essential to describe a phenomenon, detect a relationship or determine effect of treatment (Burns & Grove, 1993). Large samples are more representative of the population of interest than are small samples. (Saunders *et al* 2007) concludes that it is not surprising that the final sample size is most certainly a matter of judgment rather than calculation.

3.9. Questionnaire

A questionnaire is a standardized set of questions designed to elicit a certain response from the individual being researched on. An instrument is a written device that a researcher uses to collect data for example questionnaires, tests or observations (Polit & Hungler, 1995). In this study, data was collected using a self-administered questionnaire in English because it is the language that all provinces can comprehend.

3.10. Interview

The interview is a special case of social interaction between interviewer and interviewee. Used an interview guide with a list of topics which an interviewer had to cover during the course of the interview but considerable flexibility was maintained as to the manner, order and wording used.

3.11. Document Analysis

Studying documents as primary sources is the central method of history that involved developing skills in reading documents taking into account their context and period and minimising the bias that the contemporary reader brings to understanding the document and in cross-checking the evidence from study of multiple and diverse sources are generally written by organisations rather than by individuals. Policy documents provide a point of reference for projects and organisations that guarantee a degree of legitimacy and consensus. The files, registers, monthly reports were analysed to balance up the information in this study, find how user-friendly they were and to make this study relevant.

3.12. Observation

Observing is a technique that involves systematically selecting, watching and recording behaviour and characteristics of objects or phenomenon. Data collection tool are merely eyes and other senses, pen and paper, scales, watch, microscope, camera etc. The researcher checked the filing, the staffing, the computer systems, data security and the records management, the network availability in different places, ZESA electricity availability and back-up.

3.13. Validity

Validity refers to the degree to which an instrument measures what it is intended to measure (Polit & Hungler, 1995:195). Content validity is concerned with the degree to which the items in an instrument adequately represented the universe of content (Polit & Hungler, 1995:200). In this study, internal and external validity, the Hawthorn effect, instrument face and content validity are addressed. The use of a questionnaire and observations since the weaknesses of each instrument was addressed by the strength of the other instrument.

3.14. Reliability

Reliability refers to the degree of consistency and accuracy with which the instrument measures what it is supposed to measure (Burns & Grove, 1997). For this thesis, pretesting of the instrument was conducted at Mutoko District Hospital in Mashonaland East Province two weeks before the actual data collection exercise. A few changes were made on the wording of the questions based on the responses of the pre-test and no further pretesting would be considered.

3.15. Triangulation

Triangulation is the application and combination of several research methodologies in the study of the same phenomenon, employed in both quantitative (validation) and qualitative (inquiry) studies. Creswell (2002:280) also noted that triangulation is a process of collaborating evidence from different individuals, types of data, or methods of data collection... In this way, it encourages the student to develop a report that is accurate, balanced and credible.

3.16. Ethical Considerations

Discussions with the District Medical Officers, Medical Superintendents of Hospitals and the Provincial Medical Directors where the study was conducted held to ensure their maximum co-operation during the study period. A written consent was obtained from all participants. Respondents were collectively informed of the purpose of the study, conditions of participation as well as time commitment. People are more truthful while responding to the questionnaires regarding controversial issues when they were told that their responses are anonymous. The informed consent ensured that the potential subjects voluntarily participated in a study without any risk of incurring penalties or prejudicial treatment. They were free from cohesion, free to terminate their participation any time and to refuse to give information. Subjects were informed and assured that they were free to participate or withdraw anytime and that would prevent them from claiming benefits, thanked them for participating.

3.16. Data Collection, Presentation and Analysis

Data collection was carried out by six trained research assistants who were based in the districts where data was being collected, since they already had good rapport with the local professionals, followed up the questionnaires and posted them via FedEx. Some of the people who received the questionnaires did not return them and 'those who returned them might not be representative of the originally selected sample' (Leedy and Ormrod, 2001). The coded questionnaires were entered into Epi-info and analysed with SPSS, which was more efficient. Analysis and interpretation of the results of the study findings was done using descriptive, quantitative, frequencies, cross-tabulation, bar charts, means, standard deviations, p-values and correlation coefficients.

3. 17. Summary

This section gave an introduction to the topic, followed by the philosophy of positivism, Interpretive and the phenomenology of the research, discussion and rationale for choice of approach was also outlined and this lead to the research purpose which was exploratory, descriptive, explanatory research, the justification of using them. The research approach adopted was deduction and discussed the reason for choice of approach instead of induction. The researcher opted for both quantitative and qualitative approaches to ride on their various benefits. The Researcher articulated on the strategy, design, population, sample of N=46 and sampling procedures in an effort to detail how data was gathered using a standardised questionnaire and some interviews plus document analysis and a bit of some observation. This showed that validity and reliability were maintained with sufficient ethical considerations during data collection. Thus, the findings of this study could be trusted.

4. Data Presentation, Analysis and Discussion

4.1. Introduction

This section used descriptive and quantitative frequencies, cross-tabulation, bar charts, means, standard deviations, p-values and correlation coefficients to analyse the efficiency and effectiveness of the policy of the National Health Information System (dependent variable) on decision-making (independent variable) in Health Centres in Zimbabwe, 2011-2017.
The following exciting findings were reached:

4.2. Distribution of Respondents by District

The distribution of respondents by district shows that 46% were from Zaka, 39% from Mberengwa and 15% from Mbire. The distribution of respondents by age groups showed that majority 89% fell under the 25 to 49 years, 11% of them were in the 50 years and over while none of the respondents were Under 25 years. The respondents' gender showed that 67% of the responses came from females and Male respondents were 33%. The denominations of respondents showed that the Pentecostal denomination contributed 44%, the Catholic had 35% and other denominations contributed 22%. The respondents by marital status show that married respondents contributed 80.4%, Single were 17.4% and Widow 2.2%.

4.3. Distribution of Respondents by Level of Education

The qualifications of the respondents where Diploma holders were 57%, Certificate holders 20%, Bachelor's Degree 15% and 'O' Level was lowest with 9%. Therefore, more than half of the respondents were holders of a Diploma qualification and none had a Master's Degree or higher qualification. The most common professions in hospitals that are responsible for data collection and where highest responses came from were nursing professionals (58.7%). This is a very common scenario in hospitals where nurses are found at every service point also involved in collecting data. 10.9% were Health Information Officers, Medical Doctors contributed 8.7%. This is very interesting because these are key positions in health data collection

and their responses would make the study more useful. Nevertheless, the Pharmacists were only 6.5% followed by Laboratory Scientists 4.3 % and 2.2% from the remainder of respondents.

4.4. Views of Respondents on Procedures Used to Enter Statistical Data into DHIS2 as Routine Tasks

The sampled respondents in the health centres who were asked if their duties included recording diseases on tally sheets (T3 and T6) indicated that 34.8% were in strong agreement while 23.9% were in light agreement. 17.4% were not sure they have to do such duties, 15.2% did disagree and 6.5% strongly disagreed to doing such duties. 2.2% represent missing values, frequency tables will show the missing data in that way when data was entered as string values. They were also asked whether their duties included updating clients intake registers (Outpatients or Inpatients) said that 52.2% were in strong agreement while 26.1% were in agreement, 8.7% were not sure if they had to do such duties, 6.5% did disagree, 2.2% strongly disagreed to doing such duties and 4.3% represented missing string values, as some participants decided not to answer questions that appeared irrelevant to their duties. Another sub-question on whether duties included updating client intake files (Outpatients or In-patients), sampled respondents in the health centres were asked if their duties included recording data into In-patients or Outpatients files and regularly updating them when such patients made repeat visits. Table 4.10 indicates that 43.5% were in strong agreement while 15.2% were in agreement. 13% were not sure if they had to do such duties at all while 15.2% did disagree and 4.3% strongly disagreed to ever doing such duties. 8.7% were missing string values, as some participants decided not to answer questions that appeared irrelevant to their duties.

On whether duties included recording all the patients on monthly reports (T5, T9, HIV etc.) highlights responses of participants in the health centres who were asked if their duties included summarizing the tools and recording the totals on monthly reports, 39.1% were in strong agreement while 26.1% were in agreement and 17.4% were not sure if they had to do such duties, 8.7% did disagree, 0% strongly disagreed to doing such duties and 4.3% represent missing string values, as some participants decided not to answer questions that appeared irrelevant to their duties. A sub-question on whether duties included entering reported data into DHIS2 database software respondents highlighted that 30.4% were in strong agreement while 26.1% were in agreement, 19.6% were not sure if they had to do such duties, 15.2% lightly disagreed and none strongly disagreed to doing such duties and 4.3% represent missing string values, as some participants decided not to answer questions that appeared irrelevant to their duties. A sub-question on whether duties included analysing the data on submitted reports and sharing with stakeholder's respondents answered that 37% were in strong agreement while 17.4% were in agreement and 15.2% were not sure if they had to do such duties, another 17% lightly disagreed and none strongly disagreed to doing such duties. 8.7% represented missing string values, as some participants decided not to answer questions that appeared irrelevant to their duties. The other was a sub-question on whether routine duties included giving feedback to lower level about their data on reports the response was that 45.7% were in strong agreement while 28.3% were in light agreement, 10.9% were not sure if they ever done such duties, 6.5% did disagree, 2.2% strongly disagreed to having done such duties and 6.5% were missing string values. This response is showing that the activity of giving feedback to lower levels is fairly well done but still falls short and needs to be pushed up a bit to achieve good results.

	Mean Scores By District			
Health Information Activity below:	Mberengwa	Zaka	Mbire	Overall
a. Tallying of diseases and conditions on T3 and T6	1.9	2.9	1.7	2.3
b. Updating the Client Intake Registers	1.6	2.1	1.3	1.8
c. Updating Client Intake files, (for admission, discharges or VMMC)	2.1	2.3	1.9	2.1
d. Recording of the Clients onto the monthly reports, T5, T9, HIV/VMMC Reports	1.8	2.2	1.6	2.0
e. Entering all data into DHIS2 computers	2.2	2.5	1.9	2.3
f. Analysis and Reporting data to higher levels and other partners	1.9	1.9	1.7	1.9
g. Giving Feedback to lower levels	1.9	2.0	1.3	1.8
h. Other (specify)	2.2	3.0	-	2.4

Table 4: Comparison of Means by Districts

In Table 4.5. above, on procedures of completing tools, mean scores of 1 and 2 showed that in general respondents were clearly in agreement with the suggestion that they completed all the Tally Sheets, Client intake forms, Consent forms, Client registers, T5 Monthly Health Centre Return, T9 Quarterly Health Centre Return, and HIV/PMTCT/VMMC Monthly Return as required by the policy of NHIS. A mean score of 4 and 5 showed that in general respondents were in disagreement with the suggestion that "Diseases and Conditions Tally Sheets (T3, T6)" were being used in compliance with the policy framework. All provinces had a mean score below 3 indicating that they weakly agreed to the fact that the health information procedures were satisfactorily used in their setting as required by the policy framework. A p-value of 0.009 from the ANOVA test showed that inter-district differences in views on the non-compliance to procedures for collecting quality data for decision

support were statistically significant. Therefore, there was strong need to reinforce processes used to enter data on DHIS2 in sites to align them with policy framework requirement for NHIS data collection.

In particular respondents from Zaka district had a mean score close to 3 indicating that they were not sure whether the "Diseases and Conditions Tally Sheet (T3, T6)" was being used in compliance with the required timelines outlined in the policy framework. A p-values of 0.009 from the ANOVA test showed that inter-district differences in views on the use of "Diseases and Conditions Tally Sheet (T3, T6)" were statistically significant.

4.5. Completeness of Returns and Registers

On completeness of returns and registers respondents indicated that twenty (43.5%) lightly agreed, eleven (23.9%) strongly agreed, a sadly 15.2% were in disagreement, 10.9% were not sure while 4.3% strongly disagree and one (2.2%) was a missing value. Completeness of reports and registers is vital for those who code and classify the data to produce reports. If some fields were not completed or if some site did not report at all comparison and interpretation of the reports does not produce a correct meaning of the situation on the ground. Calculating consumption requirements of drugs or staffing requirements for the provinces will not be easy with faulty data.

4.6. All the Health Centres Timely Submit Returns

Sampled respondents were asked whether all health centres timely submitted all reports and they confirmed that 47.8% lightly agreed, seven (15.2%) strongly agreed that reports were being submitted within the set deadlines. This was a major question in the study as most reports were received late, incomplete and with errors.

4.7. Always Discussed Reported Data with the Supervisor

The respondents were asked if they always discussed returns with their supervisor showed that eighteen (39%) strongly agreed that they discussed, sixteen (34.8%) lightly agreed but 10.9% were not sure there was need to do so, another 10.9% also did disagreed with that requirement. Therefore, a low output on this question confirmed that use of data for decision support was still lacking in health centres.

4.8. Views on Causes of Delays in Submitting Health Information Reports to the Supervisors

Table 4.6 below shows the nine listed factors likely to be causing delays in submitting health information reports to the supervisors and Provincial Medical Director. Mean scores of 1 to 2 shows agreement, 2.5 to 3.2 showed that in general respondents were not sure and 4 to 5 were in disagreement with the fact that ZESA power cuts, heavy workload pressure, staff shortage, financial resources shortage, competing programmes, computer faults, late reports from lower levels, speed of staff in verifying reports, unclear structures at the work place, poor database security lack of knowledge or training about deadlines, inadequate planning and deficient monitoring and controls systems were some of the factors causing delays in submitting health information reports to the supervisors and Provincial Medical Director.

	Mean Scores by District			
Health Information Challenge	Mberengwa	Zaka	Mbire	Overall
ZESA Power cuts and no power backup at the workplace?	2.5	2.5	2.4	2.5
Computer Faulty	2.9	2.8	3.0	2.9
Heavy Workload pressure	2.3	2.5	2.7	2.5
Unclear structure at my workplace	3.1	3.6	3.6	3.4
The reports come in lately from lower levels	2.6	3.1	3.0	2.9
Staff shortage	2.2	3.0	2.1	2.6
Financial resources shortage	2.4	2.8	2.6	2.6
Competing programmes and workload	2.4	2.7	2.9	2.6
Lack of Training or Knowledge about deadlines	3.4	3.2	2.6	3.2
The speed of the Staff who verify the reports before/after me	3.1	3.1	3.6	3.1
Security of Data bases is not good	3.4	3.8	3.1	3.5
Inadequate Planning	3.2	3.3	3.1	3.2
Monitoring and controlling systems are lacking	2.9	3.5	3.1	3.2

Table 5: Views on Causes of Delays in Submitting Health Information Reports to the Supervisors and PMD

Generally, Mberengwa agreed that Heavy workload (2.3), Shortage of staff (2.2), finance (2.4) and competing programmes (2.4) while Mbire were in agreement that shortage of staff (2.1) caused delays in submitting reports to the supervisors and the PMDs.

4.9. Views on the Need for Additional Human and Material Resources

In Table 4.7 below the sampled respondents indicated their views on proposal for additional human and material resources specified by item. Mean scores ranging from 1 to 2 showed that in general respondents were clearly in agreement

with the suggestion that they required additional laptops or computers, airtime and stationary for speedy processing and submission of Health Information Reports to supervisors and the office of the Provincial Medical Director, 3 was for [Not Sure]. Mean scores ranging from 4 to 5 showed that in general respondents were in disagreement with the suggestion that their sections required additional health information officers, doctors, nursing staff, EHOs/EHTs and generators for speedy processing and submission of Health Information Reports to supervisors and the office of the Provincial Medical Director.

	Mean Scores by District			
Type of additional resource proposed	Mberengwa	Zaka	Mbire	Overall
a. Nursing staff	2.1	2.9	2.7	2.6
b. Health Information Officers	2.0	2.5	3.1	2.5
c. Doctors	2.4	2.9	2.7	2.7
d. EHO/EHTs	2.4	2.9	2.9	2.7
e. Laptop/computers	1.0	1.0	1.0	1.0
f. Generator	1.9	2.9	3.4	2.5
g. Cell phones	1.9	2.6	2.3	2.3
h. Air times	1.6	2.0	2.6	1.9
i. Memory stick/USB	1.5	2.3	2.9	2.1
j. Stationery	1.5	2.0	2.6	1.9
k. Transport and fuel	1.6	2.5	2.3	2.1
l. Other (specify)	2.2	-	2.0	2.2

Table 6: Views on the Need for Additional Human and Material Resources

Table 4.8: Research Objective Number Five: Capacity Building requirements
Table 4.8 below indicates views of health workers on the specified staff development programme requirements to increase proficiency in discharging health information duties. Mean scores ranging from 1 to 1.9 showed that in general respondents were clearly in agreement with the suggestion that they required training in data management and majority of them were interested in taking a relevant course to improve their capacity to do health information duties.

Type of Training Requirements	**Mean Scores by District**			
Staff Development Training Proposal	Mberengwa	Zaka	Mbire	Overall
a. On -job Training in Data Management and DHIS2	1.7	1.4	1.9	1.6
b. Certificate / Diploma/ Degree in Health Information	1.6	1.9	2.3	1.9
c. Certificate / Diploma/ Degree in Statistics	1.8	2.1	2.6	2.1
d. Certificate / Diploma/ Degree in Monitoring and Evaluation	1.6	2.0	2.4	1.9
e. Certificate / Diploma/ Degree in Public Health	1.6	2.3	2.0	2.0
f. Certificate / Diploma/ Degree in Records management	1.6	2.2	2.9	2.1
g. Certificate / Diploma/ Degree in Management Information Systems	1.6	1.8	2.7	1.9

Table 7: Views on the Need for Capacity Building to Increase Efficiency and Effectiveness in Discharging Health Information Duties

4.10. Simple Linear Regression Test

The descriptive correlational design (Pearson Correlation Co-efficient test) was also used in Epi-info to demonstrate the strength of the relationship on the effectiveness of policy versus decision-making in health centres. The finding showed that there was a significant negative correlation ($r=-0.115$ $p<.001$) of policy and decision-making among managers in health centres in Zimbabwe. This meant that as adherence to policy on health information increased, poor decision making decreased.

5. Summary

This section introduced the contents of the chapter and unveiled the major findings of the study in line with the set research objectives, presented the data in tables, percentages, means, ANNOVA, p-values and charts.

5.1. Introduction

This chapter presented a summary, conclusions, and recommendations of the study.

5.2. Research Summary of Findings

Richard (2009), accepts that all organisations today confront data quality problems, both systematic and structural and that neither ad hoc approaches nor fixes at the systems solves bad data quality practices.

5.3. Research Findings

In spite of the challenges associated with the research process, the researcher made the following exciting findings:

- There is a significant negative correlation ($r = –0.115$ $p<.001$) of policy and decision-making among managers in health clinics.
- A p-values of 0.009 from the ANOVA test showed that inter-district differences in views on the non-compliance to procedures for collecting quality data for decision support were statistically significant.
- Health workers needed training and resources to improve on reporting of data to their supervisors and the PMDs.

6. Conclusions

- The findings indicated low adherence to policy since most of the coverages were below half (50%). The researcher was prompted into concluding that the policy on health information was not efficient and effective in health centres in Zimbabwe hence the poor submission levels were recorded (RTI April, 2011:11).
- This supported theory of modernisation and the premise that management health information must fulfil its principles of consistency (uniformity), persistence (perseverance), completeness of data, timeliness of data (respecting deadlines), analysis and use in order to accelerate local traditions to wealthier societies.
- A mean of 2.6 shows that responses in Zaka were generally not sure whether the usually completed all the section of the health information forms, returns or registers
- The mean scores of 2.5 and 2.7 showed that respondents in Zaka and Mbire were generally not sure whether all officers in the health centres were meeting deadlines as required by the health information policy.

7. Recommendations

Based on the conclusions set out above, the research made the following recommendations:

- The Ministry of Health and Child Care should ensure coherence among various players in decision-making through capacity building workshops and avail more health information officers in all health centres to professionalise data collection system.
- The Health Information policy and procedures should be applied at every service point to ensure that there is adequate information of high quality for decision-making and to support health managers in their day-to-day programming in health centres of Zimbabwe.
- The research recommends that middle and senior managers should be appointed based on appropriate professional qualifications and be highly conversant with the decisional processes of the National Health Information System (MNHIS) policy through regular trainings and refresher courses for effective implementation of the policy.
- Furthermore, the research recommends that National Health Information System (MNHIS) should hold review and strengthening meetings on a monthly basis in health centres and feedback be given to all categories of staff to ensure that they understand the meaning of the data and smooth implementation of the NHIS policy in health centres.
- The researcher recommends that a National Health Information System (MNHIS) code of professional conduct and practice be put in place and committee be established to oversee the conduct of staff and sit to review it as they find necessary on a regular basis.
- The health centres should consider adopting the twinning approach with other health centres within the region and beyond to exchange and sharing experiences and practices.
- The ministry must seriously consider embracing advanced technology, invest in technology, use of videos, diagnostic machines that post health information to server in real-time and producing automated returns or reports for decision-making support.

7.1. Further Study

The study should be replicated in different sites (with larger samples of different staff categories) to increase generalisability of the findings on the entire Ministry of Health and Child Care, Zimbabwe.

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