

**KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY,
KUMASI, GHANA**

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**Performance Measurement System in the Health Delivery at Eastern Regional
Medical Stores.**

By

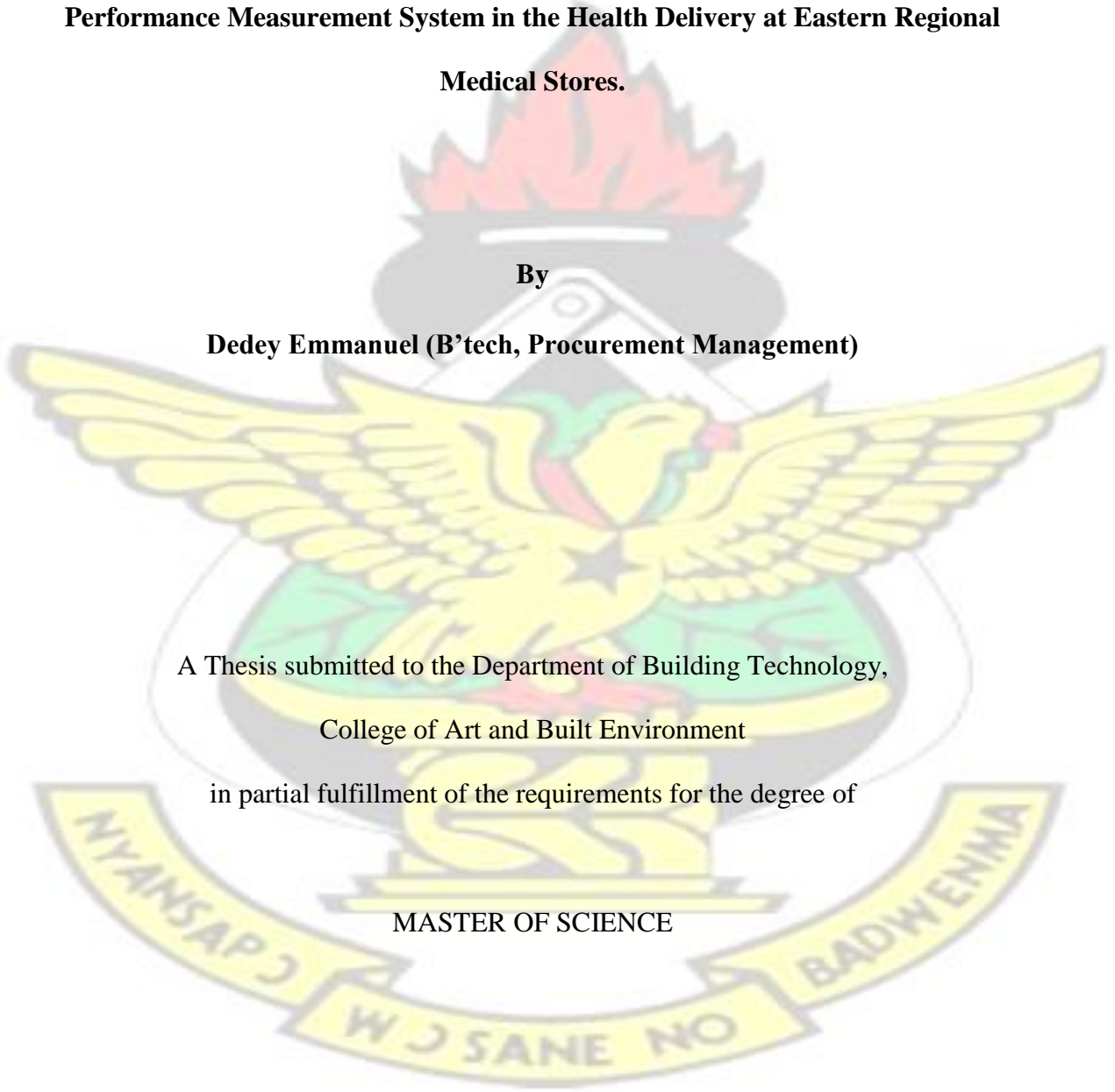
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A Thesis submitted to the Department of Building Technology,
College of Art and Built Environment

in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

NOVEMBER 2016



DECLARATION

I hereby declare that this submission is my own work towards the Msc. Procurement Management and that, to the best of my knowledge, it contains no material previously published by another person, nor material which has been accepted for the award of any degree of the University, except where due acknowledgment has been made in the text.

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ABSTRACT

Health systems are complex entities with different stakeholders that are related by accountability relationships. The measurement of performance is to aid hold the different entities to account by enabling these stakeholders to make informed decisions. The researcher therefore found it interesting and necessary to evaluate the effective implementation of performance measurement systems in the health delivery system at the Eastern Regional medical stores. The research data was collected from the staff of the Eastern Regional Medical Stores, customers and face-face interview was carried out. A combination of quantitative and qualitative data collection instruments was used. This study revealed some indicators that enhance the implementation of performance measurement systems which included; ability to test the quality of products and service on time, adherence to quality standards by clients and health facilities, time frame for the placement of order at the Eastern Regional Medical stores and on time delivery of items in relation to the total number of deliveries recorded among others. Indications from the study showed that the implementation of the performance system is faced with challenges that comprise the inability to meet the demands of client and health facilities, coupled with the inability of clients to make payment on time and prompt payment of claims to health facilities by insurance providers as indicated by more than 40% of the respondents to impede the performance measurement systems. Another major challenge that impedes the performance measurement system was the poor working relationship with health facilities and suppliers as indicated by 47.8% of the respondents. Furthermore, data collection has become reliable

and development of schedule delivery itinerary for all other health facilities has also become effective with the use of systems for performance measurement.

In addition, proper and efficient systems to monitor the movement of goods and proper establishment of baseline were indicated to be mostly true success for the adoption of systems for performance measurement. The challenges expressed by the respondents need to be addressed through the adoption of effective performance measurement systems with appropriate enforcement mechanism. From the study, it is recommended that staff education on performance measurement system and enforcement of legislations should be intensified. Also, e-procurement, information technologies as well as the integration of supply chain management process should be intensified to meet the needs of their facilities and to help achieve effective implementation performance measurement systems in both public and private sector.



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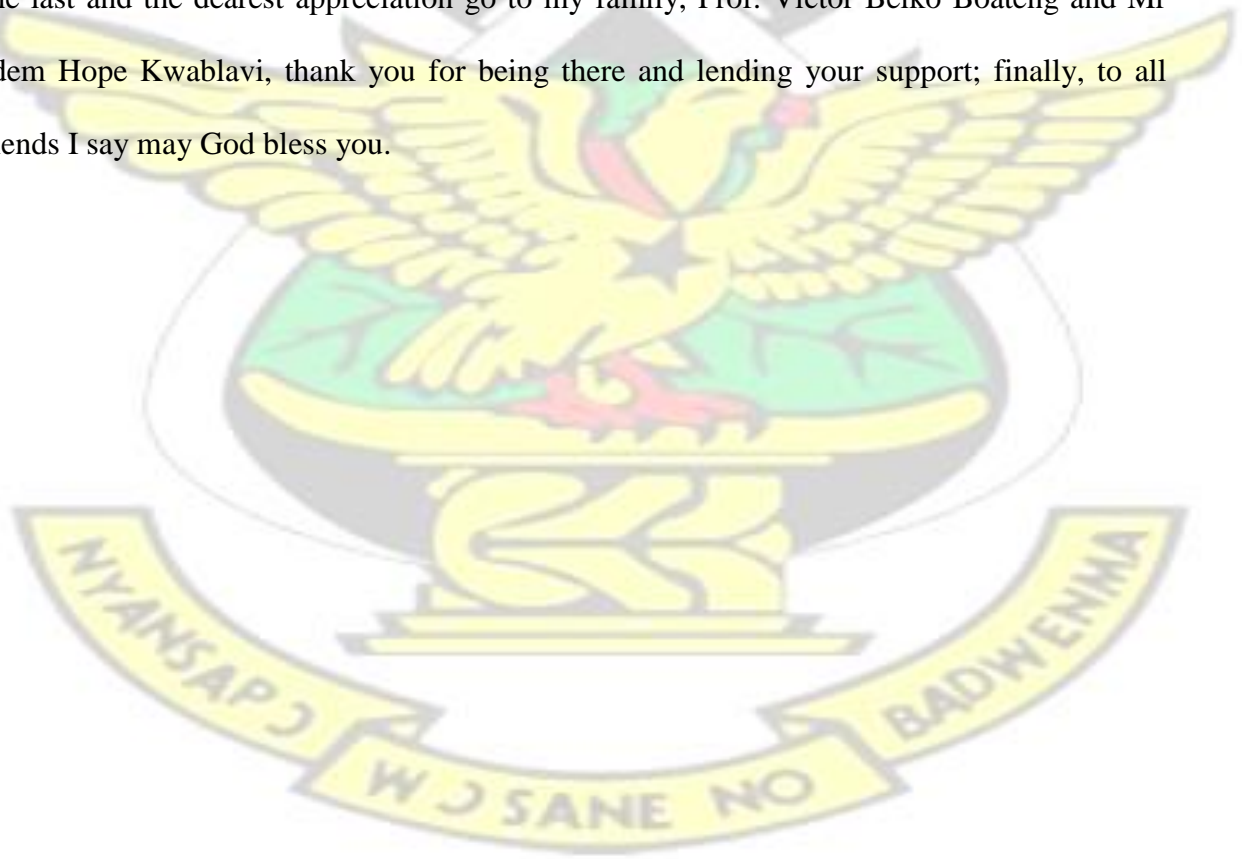


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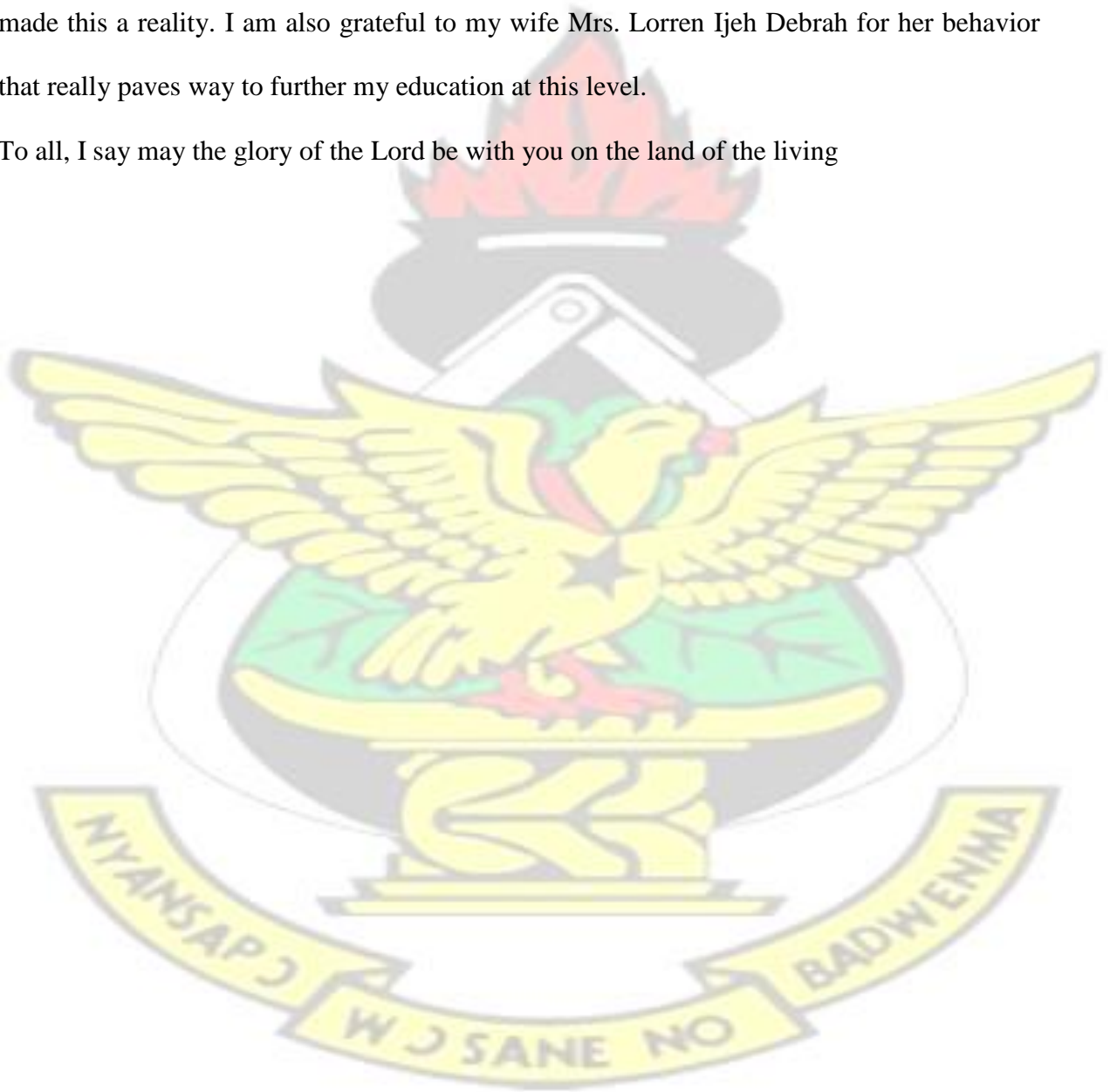
DEDICATION

I love the Lord, because he has heard my voice and my supplications. Because He has inclined His ear unto me, therefore will I call upon Him as long as I live?

I thank you God and I am forever grateful to thee.

This work is dedicated to my mother Dr. Evelyn Ann Asiedu Ofei, who through her effort made this a reality. I am also grateful to my wife Mrs. Lorren Ijeh Debrah for her behavior that really paves way to further my education at this level.

To all, I say may the glory of the Lord be with you on the land of the living



CHAPTER 1

INTRODUCTION

Measuring performance of the various aspect of the health systems is with focus to meet key objectives through monitoring, evaluation and communication (Smith, 2009). Many different stakeholders including patients, purchasers, regulators, government and the citizenry as whole forms a complex health system. A series of accountability relationships links these stakeholder (Bäckstrand, 2006). Making informed decision with the aid of performance measurement systems helps to hold the various agents accountable (Smith, 2009).

Performance measurement is achieved via mechanisms such as labour and capital productivity, investment returns, quality of service and satisfaction of customers, (Neely et al., 2005). In evaluating comparative performance of productivity, Adcroft and Willis (2005) argue that management actions, industry structures as well as market conditions affects performance. Systems of performance measurement as suggested by Neely et al. (2005) describes tools used for both the efficiency and effectiveness assessment.

Performance measurement systems in public organizations in developing countries are often virtually neglected. Martinez and Martineau (1996) observed the broad absence of performance measurement from national health systems in the developing world. They however, have noticed a rapidly changing situations in understanding the integration of performance in to the management and organization of health services in developing countries as highlighted in several studies (Martinez, 2001).

The researcher therefore found it interesting and necessary to evaluate the effective implementation of systems of measuring performance in the health delivery system at the

Eastern Regional medical stores. The Eastern Regional Medical Store (ERMS) is a unit under the Regional Health Directorate (RHD) with management team comprising the Manager, Senior Accountant, Supply Officer for the region and the head of pharmacy. The performance of this unit directly affects health delivery in the region it is located as well as extended services. There is therefore the need for the introduction of effective performance measurement systems to basically rectify the problems associated with the building and managing performance measurement systems in the area of health delivery.

1.1 Problem statement

Healthcare performance has become increasingly critical due to accountability, hence the need to appreciate the key drivers behind an organization performance and evaluate the outcome of its work (Loeb, 2004). The introduction of effective performance measurement systems was basically to rectify the problems associated with the building and managing systems of performance measurement in the area of health delivery. Despite the rise in use of systems for measuring performance organizations of all kinds, firms still experience difficulty in implementing the systems of Performance Measurement (Bourne et al., 2000).

The problems range across a variety of topics: lack of linkage to strategy, data quality, excessive diversity in the field of study, differences in formulating fundamental strategy and executing in the firm, change at high levels in Performance Measurement systems, phenomenon of non-deterministic and social knowledge, bias judgment and organizational defenses that can underrate the use of Performance Measurement systems successfully (Brewer and Speh, 2000, Bontis, 2001).

Instructions were to ensure a comprehensive, transparent, legal and framework, modernized Performance Measurement systems, quality management tools, proficient staff and independent control systems (Appelbaum, 2000). It is against this background that the researcher intends to undertake a study especially on how and why performance measurement system can be developed effectively in health delivery at the Eastern Regional Medical Stores.

1.2 Research Questions

- How are performance measurement systems being developed in health delivery effective?
- Problems identified in the development and implementation of systems of performance measurement in health delivery?
- What are the factors that enable the systems of performance measurement development at Eastern Regional Medical Stores?

1.3 Aim

To evaluate the effective implementation of system of performance measurement in the health delivery system at the Eastern Regional medical Stores

1.3.1 Specific objectives

- To identify performance measurement indicators being developed in healthcare delivery.
- To identify challenges in the development of system of measurement performance in health delivery

- To identify factors that enable the development of systems of performance measurement at Eastern Regional Medical Stores

1.4 Justification

Measurement of performance has several interrelationships with quality improvement (QI), and focus on data usage is one of the key QI principles. The data for performance measurement provides evidence of how well the systems in an organization is currently working and the consequences of applying changes. During the current system of performance measurement implementation, not much reference is made to the changes to be encountered. Therefore, likelihood of the design and implementation processes review will create further insights into why there is success or failure in performance implementations. Of significant deficiency regarding performance measurement system is the paucity of study considering the how performance measurement has been successfully or unsuccessfully implemented to breach the knowledge gap. Several literatures suggest that there are challenges regarding successful implementation of systems of measurement of performance, which are just being recognized. Current knowledge on performance measures is primarily based on practitioners' reflections, hence, there is the need for further success and failure comparative studies on performance measurement implementation in health delivery with focus on Eastern medical stores.

1.5 Scope of study

For the purposes of this study, the focus was on performance measurement systems in healthcare delivery at the Eastern Regional Medical stores. The scope of the research is limited to the Eastern Region and only takes into account the current healthcare performance measurement systems in Ghana. In content, the study is confined to assessing the effective

implementation of performance measurement systems in the health delivery system at the eastern regional medical stores.

1.6 RESEARCH METHODOLOGY/ DESIGN

In exploring the effective implementation of performance measurement system in the health delivery system at the Eastern Regional Medical Stores, a case study approach and the administration of a structured questionnaire were carried out. Information for the study was obtained from questionnaire directed at the practitioners and functionaries. Purposive sampling technique was employed in selecting respondents for the study. Criteria were developed to identify performance measurement indicators in healthcare delivery at the Eastern Regional Medical Stores and to establish challenges in the development of performance measurement system in health delivery. The criteria developed were used to analyze the data collected.

1.7 Structure of the study

This research work is carefully structured in five chapters.

Chapter 1 outlines the background, problem, research questions, Aim and objectives of the study, justification of the study, scope, methodology and the structure of the study.

Chapter 2 provides reviewed literature on performance measurement systems and means of implementation. The review also comprises definitions, concepts, details of measurement systems for performance in the health sector and detailed accounts of related and existing relevant literature on performance measurement systems. It also examines the work of recognized authorities and previous researches carried out on the subject.

Chapter 3 presents the details on methodology used for collecting data, the determination of sample size and administration of questionnaires. The second part is devoted to the data process and analysis.

Chapter 4 consists of Presentation, Analysis and discussion of the study's findings.

Chapter 5 finally concludes the report with summary, conclusions and recommendations.

Bibliographic References and a copy of the structured questionnaire are attached to the study and appear at the appendix section.

CHAPTER 2

LITERATURE REVIEW

2.0 INTRODUCTION

This section reviews works previously done on performance measurements system in healthcare delivery. The review focuses on the implementation of healthcare performance measurement system in Ghana with reference to the Eastern Regional Medical Stores. It also looks at how and why performance measurement systems are developed in the health sector. Performance measurement principles and guidelines affecting performance and performance assessment in health delivery will be reviewed. In this chapter, a number of relevant literatures will be reviewed on the techniques and methods for assessing performance and its application in healthcare delivery. Finally, the chapter will review the challenges that hinder the development of performance measurement systems.

2.1 SYSTEMS OF PERFORMANCE MEASUREMENT

An organization is required to monitor significant aspects of its systems, programs, and care processes. These processes are termed performance measurement. The data collected is to reflect how the processes in the organizations are functioning, and such information aid to promote an organization's decisions over time by comparing the measurements to the goals of the organizational as well as objectives (Gaitho, 2015). Information resulting from measurement of performance gives the working progress an organization and helps to determine allocation of resources to enhance the efficiencies and effectiveness of programs and systems (Choo, 2002, Gaitho, 2015).

The integration of information technology into health care settings, supports the expansion performance measurement throughout the organization (Jalote, 2000). The establishment of Performance measurement throughout health care is with consideration in the core areas of operations, finance and clinical care services. For instance

- **Operations:** these measure the time length taking to receive an appointment by a patient in the practice, or measures care given with patient satisfaction.
- **Finance:** measures the account receivables efficiency i.e., services rendered and timely payment collection of payment
- **Clinical Care:** measures delivery of care considering guidelines that are evidencebased, or how effective that care is in improving patient outcomes.

2.2 MEASURING PERFORMANCE IN AN ORGANIZATION

In order to determine if an organizations system are working well, performance measurement systems are reliable means of achieving such (Beamon, 1999, Kueng, 2000). The economy of today has seen transparency and increasing scrutiny demands of business practices in

organizations. These promote process usage and data outcome as a way of performance demonstration (Gaitho, 2015). Organizations choose to measure performance, regarding typical situations such as improvements resulting from changes, distinguishing what is actually happening from perceptions, site comparison of performance, baseline establishment, evidence based decision making, sustained overtime improvements through process change monitoring recognizing performance improvements.

2.3 SYSTEMS FOR PERFORMANCE MEASUREMENT

Measures of performance require categorizing for a better understanding of the processes and systems or processes being measured. In order to provide a full picture of an organization's underlying systems different types of measures can be combined by an organization. The performance measures include:

- **Measure of Process** is a scientific evidence based efficacy or effectiveness that quantifies healthcare services provided to, on behalf of, or by a patient (Keyser et al., 2009). It quantifies a specific system.
- **Measure of outcome** in the clinical setting measures patients' outcome such as patients test value and compares it to the standard care provided. It quantifies a patient's health status that results from health care (Keyser et al., 2009).
- **Measure of Balance** ensures no new consequence results form changes that improve one part of the system in another part of the system (Bhagwat and Sharma, 2007).
- **Measure of care structure** of an organization quantifies its capacity to provide health care (Berwick, 2002).

2.4 PERFORMANCE MEASUREMENT DEVELOPMENT

Measurement of performance benefits in the public sector, have gained acceptance widely. According to Bach and Della Rocca (2000), in the public sector, the role of performance measurement is to support making of decisions, results in outcomes of community improvement and enables organizations to meet requirements of accountability externally. Kalisch et al. (1998) in recent healthcare policy analysis across OECD countries reports control of macroeconomic cost, care quality and satisfactions of consumers maximization at less cost and ensuring healthcare and treatment access by citizens based on their basic needs instead of ability to make payment as three dominant themes.

2.5 PERFORMANCE OF MEASUREMENT DESIGN PROCESSES

Performance measurement in the public sector, have been developed together by both academics and practitioners based on theory and practice. The adopted approaches are as follows;

2.5.1 Categorizing the design processes of performance measurement

Attempts in comparing and contrasting the different performance measurement design processes by Bititci and Carrie (1998) was to use practitioner requirements as a criteria to compare the different frameworks characteristics, processes and systems, however this strategy somewhat did not differentiate frameworks, processes and systems, nor was categorization achieved.

The approach process described by Kaplan is assessing needs of customers as the basis,

Dixon (1990) have audit technique as their basis and Bitton (1990) the model of ECOGRAI. One source of categorization are the differences in procedures. This outlines two clear dimensions that can be used:

- The procedure underlying, referred to as the 'hard' issues
- The approach underlying considering the process leader or consultant role, referred to as the 'soft' issues.

2.6 PERFORMANCE MEASUREMENT IMPLEMENTATION

The focus of Neely et al. (2005) was to review frameworks and processes published to enhance the design of the systems for measurement of performance and its implementation. However, implementation of successful systems of measurement of performance is suggested to be difficult. Bourne et al. (2003) recently described for manufacturing companies a five year performance measurement systems development. For many companies, these more practical strategies suggested that, the system of performance measurement implementation is not an overnight success.

In some few available comparative studies, only 50% of companies undertook the design process of performance measurement as agreed during the process (Kaplan and Norton, 2001).

Implementation difficulties have been highlighted and informal discussions with consultants indicated that these implementing success rates of performance measurement systems was not untypical of their own experience.

Bourne and Franco-Santos (2005) argues that, for the successful updating of performance measurement systems implementation, it is important for architecture of information

development with support from technology, alignment of incentives with current measurement systems and a CEO lead.

The different indications of consulting strategies to systems of measuring performance implementation have identified some other factors, but similar conclusions were reached. Four barriers to implementation of system (Kaplan and Norton, 2004) of performance measurement were identified.

2.6.1 Non actionable vision and strategy

This results from the failure of senior management to achieve their visions through consensus building. The consequence of this failure is pursued of different agendas by different groups and no coherent effort linked to strategy is achieved.

2.6.2 Unlinked Strategy to goals of team, individual and department

The consequence of this is the use of outdated criteria for performance and relegation of new strategy introduction. System of unaligned incentive can be exacerbated this.

2.6.3 Unlinked Strategy to allocation of resource

The separation of annual process of budgeting and long term strategic planning may be the cause of unrelated funding and allocation of capital to strategic priorities.

2.6.4 Tactical and nonstrategic Feedback

This results when short-term results are solely the focus of feedback and review of indicators of successful implementation strategy are given little attention. The approach of Kaplan and Norton is to overcome these obstacles by using the design process of balanced scorecard.

Meekings (2005) suggests that fear of personal risk and lack of understanding results in resistance to the introduction of systems of performance measurement. He further indicated that architecture systems, architecture measurement from top to bottom and planning process and budgeting integration can overcome this. In addition, Meekings (2005) describes the significance of design process of performance measurement in collective development of understanding.

2.7 MEASUREMENT OF PERFORMANCE IN THE HEALTH SECTOR

Measurement of performance exists across three levels within health systems:

- a. Measuring of performance at the national/system level
- b. measures at the level of the organizational
- c. performance measures at the individual level

The degree of aggregation is the key difference in at various levels in performance measures; however, there should be a relationship between each level. There are several ways to measure performance across the three levels, including: monitoring of ongoing measurement systems, occasional evaluation and reviews, surveys of client, analyses of cost and benefit, benchmarking and longitudinal surveys for long-term (Mayne, 2001).

It is suggested in literature that performance measurement in health care setting are currently the emphasizing on monitoring services at the expense of objectives that are explicit, and the level to which desired objectives are achieved via contributing programs (Mayne, 2001). However, survey of client and longer-term monitoring outcomes and benchmarking has gained rising interest. In spite the importance of the three aspects of performance

measurement, their focus was mostly on the system and organizational levels of performance measurement.

2.7.1 Systems of Performance Measurement Development

In the management of health sector performance system as set out, the departments' role is to outline objectives of national interest, performance evaluation of the health boards against the objectives set and total performance monitoring of the health system. It outlines that adequate structures are to be ensured by health boards in organizations so as to measure performance and in other agencies where they have responsibilities. Currently, performance measurement systems are being developed via various approaches. In the Health sector, the key for accountability between health boards and the department is service plan. The joint board/department service planning of health has agreed on an initial set of indicators of performance with each programme/area having minimum indicators. In addition, an oversight group has been formed conduct comparative analysis via the development of an initial set of indicators of performance (Butler and Boyle, 2000).

2.7.2 Measure Definition and Collection of Data

The definition of the concept and measuring of performance requires agreement within the health system. In the health system of Canada, the aim of the national data model development is to meet the information needs of key stakeholders, along with definitions of common data. There are four levels of data as identified by the CIHI, which includes, conceptual, contextual, physical and logical data. The scope of interest and the major subjects relating to performance measurement is identified by contextual data at a broader level. On another level, the purpose of the conceptual data is to promote each subject

understanding and requires further detail to distinguish each major entity. The logical level is the most detailed which fully describes all entities, defines the characteristics and permissible values, and expresses all relationships. In order to specify information systems this level of detail is necessary. The physical data at the fourth level describes storage of data within a system of information, including structures of information and information formats exchange. Four key steps to performance measure development have been suggested by the Auditor General of Canada (1997). These include the programme objective definition, identification of performance indicators and expectations as well as setting targets for performance targets.

2.7.3 Common framework Development for the measurement of performance

2.7.3.1 Structure Development

The appropriate structures are required in a system for reporting performance to enhance effective use of performance data. These systems are to be between the health boards and departments as well as all providers, and at the organizational level - between line and senior managers, and individuals responsible for service delivery. In addition, reporting structures require support form an adequate and integrated IT infrastructure. Across the sector, strategic view on system development would ensure that longer-term needs would be met by focusing appropriate energies and that the compatibility of the different elements being developed are achieved. It is indicated that development of structures are mostly at the level of the department/health board. Currently, management of performance are exclusive to hospitals area, because reporting structures does not extend explicitly to the level of the individual. Most work is probably required at the community level for performance measurement development and structures for reporting. The establishment of the ERHA in the Eastern

Region has resulted new structures for reporting between the providers and department/ERHA. The outcomes also suggest that in order to use data to compare performance, there the need to develop horizontal structures. Organizations are enabled to spot priority areas and address them by the use of comparative approaches such as benchmarking. This also helps to learn from experiences of each other and to spread innovative working ways.

2.7.4.2 Appropriate levels of data Clarification

Where and how data is used must be level appropriate to the system. Thus at high-level, data required is between the health boards and the department and is review related, strategic planning and policy formulation, whereas at the organizational level, support for operational management requires more detailed information. Consistency at each level of Performance measures is necessary and focus should rise from the individual level and to the top level they should be more aggregated.

2.7.4.3 Accountability Enhancement

In a system, it is necessary to define appropriate levels of accountability as to ensure effective performance measurement systems. It is suggested in literature that, consistent accountability in new public management with the emphasis on devolved authority requires a shift from the hierarchies of traditional management to performance focus demonstration against agreed expectations. Some principles for effective accountability was identified by the AOG/TBS in 1998 which includes, roles and expectations performance clarification, expectations of balance and delivery capacity of each party, recognizing performance review achievements and amending loop holes.

2.7.4.4 Ensuring that data collection and security systems are reliable

Within the health sector at national, regional and local level it required that data collected are of quality and the system used for the collection are reliable. Currently in the Irish health sector, it is suggested that collection of data and process of entry is ad hoc and under-resourced. Information of a very sensitive nature, in the health sector is held on patients. Therefore, increase accessibility and the risk of misuse has resulted from the progressive ways to holding information of patients on computerized systems other than manual systems. A major issue within the health sector is maintaining confidentiality of patient and data security of data. Therefore, it is important to ensure that systems for the measurement performance comply with security requirements (Al-Kuwaiti et al., 2009).

2.8 INDICATORS OF PERFORMANCE MEASUREMENT SYSTEMS

2.8.1 Indicators of health outcome

There is difficulty in using routine statistics at population level for reliable measures of changes in health status resulting from activities of health care- or health system. Therefore, isolating the health care impact from the impact of other health status determinants is very difficult under ordinary conditions health care delivery. Consequently, most indicators of health outcome, being proposed are somewhat proxy indicators of outcomes. These indicators are either:

1. measures of health status, suggesting amenable appropriate and timely medical care to curb morbidity or mortality;
2. measures of process of care, which is believed to highly correlate with good outcomes and measure utilization

2.8.2 Indicators of Responsiveness

The responsiveness concepts of the health systems to consumers widely vary, considering ideas of acceptability, satisfaction, and experience of patients. The main difference on one hand is between satisfaction and acceptability and on the other hand with experience. The former is dependent on expectations. The latter attempts to describe health service delivery objective characteristics, in regard to patients having a choice in the type of treatment (Donelan et al., 1999). In a survey about waiting for non-emergency care, British respondents were less 'worried' than respondents in all but one of the other four countries in the survey. The measurement of the experience of patient is more straightforward than the health outcome measurement.

2.8.3 Indicators of Equity

It is very demanding of data to construct of a full set of indicators of equity for a health system. Five various dimensions of equity have been identified including health, health outcome, responsiveness, access and finance. In addition, disparities might be monitored across many population groups with varying socio-demographic characteristics. Moreover, access to multiple data sets is required often. For instance, equity of access measurement requires say, income groups, and knowledge of health status distribution across those groups. Similarly, equity in finance measurement requires knowledge of disposable household income distribution.

2.8.4 Indicators of Efficiency

WHO and OECD in different ways, conceptualize high level, indicators of general efficiency. The WHO has actually made performance estimates for all of its Member

countries involving a composite measure of performance, which in relation to resources weights achievements against equity and quality goals. The four OECD Member countries for the most part surveyed are proposing to use indicators of low level efficiency in the frameworks of their performance, such as ratios of day case surgery to all surgery, unit costs and length of stay.

2.9 DEVELOPMENT CHALLENGES OF SYSTEMS OF PERFORMANCE

MEASUREMENT

Fitzgerald et al. (1991) and Haselbekke et al. (1991) have identified various difficulties in measurement of performance in public organizations. Firstly, exactly what is produced in the service organization is not easy to identify. This could be because services may be produced and consumed simultaneously. Secondly, services cost allocation is difficult since they are mostly delivered without a price. Thirdly, service users to which this applies are not necessarily homogeneous hence, meaningful comparisons can be difficult. Fourthly, assessment of changes resulting from effectiveness within the organization may not be possible because outside elements of the production processes may affect results. Particularly in the health sector this is relevant, where status of health determinant are not only health services, but also influenced by behaviours of individual and predispositions as well as factors of socio-economy. Haselbekke et al. (1991) also indicated the possibility of staff and politicians resistance to the performance measurement introduction in public service organizations.

A poor evaluation system will result in inadequate effect. Rater stated that performance measure systems can be affected by problems like harshness or leniency or personal bias error, contrast error, central tendency error (Rasch, 2004). Performance measurements are

significant for the motivation, development of staff behaviours and attitude, communicating aims of organizations, and positive relationships fostering between staff and management. Performance measurement gives a recorded, formal and regular review of performance of an individual, and a development plan of the future.

The challenges identify by Fitzgerald & Co includes the following

- It is not easy to identify exactly what to be produced in service organization.
- Services are mostly delivered without a price.
- Comparisons can be difficult because service users to which it is apply are not necessarily homogeneous.
- Assessment of changes resulting from effectiveness within the organization may not be possible because outside elements of the production processes may affect results.

2.10 MEASUREMENT OF QUALITY IN HEALTH CARE

In health care, measurement of quality requires the use of data to evaluate health plan and health care providers' performance considering quality standards that are recognized. Quality measures can take different forms, and these evaluate measures of care across areas of health care, from the doctor's office to imaging facilities to hospital systems. In the process of improving quality health care, quality measuring of the health care is a key step. Research has consistently shown chronic underuse, overuse, and misuse of services.

2.11 HEALTH CARE PERFORMANCE MEASUREMENT AND POLICY

RECOMMENDATIONS

Quality measurement of health care is difficult technically and error prone. With the provision of this and the significant role of healthcare performance measurement, there is the need for several recommendations for policy development for field advancement.

2.11.1 Processes to Outcome Measuring

The challenges of operation in changing from measures of accurate production and outcome that are reliable is overwhelming. Healthcare stakeholders usually care of outcomes of care not considering the approaches adopted by the providers to achieve the results desired. Rewards and reporting and for public results other than care for processes should trigger organizations providing service to be involved in broader strategies to improvement in quality. As suggested by the U.S healthcare system, it is Ideal to rely on rapid-learning via analysis of teamwork and root cause instead of sticking to convenient process measures that are available and actionable. However, providing the limitations that are inherent considering administrative data, national, system for outcome reporting that are meet standard requirement should be developed (Pronovost et al., 2007). A new system for reporting outcome would be expensive, but current systems for data may not be sufficient to accurately support outcome reportage. In achieving better outcomes, it is important not to ignore processes of care that specifically contribute to such outcomes with less emphasis on outcome measurements. As part of an approach that is comprehensive to achieve better outcomes, adopting measures of process of high reliability y providers as an internal tactic could be beneficial (Cooper et al., 2010). As means to improve audit performance, maintaining a library of measures of process by Professional societies or governmental

agencies is important. However, quality measure improvement and public reporting distinctions becomes significant. In research that is clinically related, including such in the National Institutes of Health's Patient, patient-reported outcomes were measured by wide range of patient-level instruments which were related to social, mental and physical well-being, have been used (Deutsch et al., 2012).

2.11.2 Strategically using measures of quality, adopting approaches that improve quality where measures become ineffective.

In the U.S, it is ensured that measures of performance support efforts to improve quality to address deficiencies in provision of care while trying to develop means of measuring of outcome that are broader to aid attain the public accountability goals and consumer choice information. The focus of CMS' on preventable re-hospitalizations reduction for discharge within 30 days represents a strategic use of measurement of performance in addressing a problem that is evident (Jencks et al., 2009). Physicians and clinical staff of hospitals, have generally responded positively to the challenge of preventable readmissions reduction. In order to achieve readmission reduction rates, the statutory mandate for the provision of financial incentives to hospitals is complemented by the CMS. This could be achieved via the development new service codes to provide payment to community physicians so as to reduce the readmission likelihood (Bindman et al., 2013).

2.11.3 Organizational level of quality Measurement

Physicians have been perceived historically as leaders of medicine, for the care and patients' outcome they are responsible for. Such perception has led to interest in the measurement of performance of physicians individually (Pronovost et al., 1999). Within the health care system, systems-based care is emerging as a significant aspect of high quality care, while the

perception that the outcomes of patients is the accountability of a single health professional and their work environment is becoming the thing of the past (Rajaram et al., 2015). Ensuring assistance of patients through various health care settings require the service communication and coordination across healthcare providers (Pham et al., 2007).

2.11.4 Measuring the experience of patient care and outcomes reported by patients

Measurement of performance has been often bedeviled by inordinate focus on aspect of technicality in clinical care such that the perspectives of patient on care received may be totally insignificant. Moreover, disrespect is often felt by majority of patients considering the fact that patients care is always not only outcome oriented but also their personal experience with care. rapid recovery of function and strength is experienced among some patients, with minimal or no symptoms. In focus recommendation on outcome measures other than process of care, it is considered that obtaining the notion of patients via surveys or other approaches on the care they receive serves an essential aspect. Patient experience surveys provide robust quality measures when appropriately designed and administered, and can capture evaluation by patient on focused care (Shrank, 2013). Better outcomes have been correlated with report measure by patients it is therefore believed that whether or not better experiences are associated with improved clinical outcomes collecting data on patients report aid to improve outcomes (Manary et al., 2013).

2.11.5 Promoting the rapid-learning system of health care concept via measurement

Measurement of performance initiatives promotion requires the company of support to for care improvement. Data for measurement of quality should not only be technically correct, but should also be set such that they aid in improvement of quality via dissemination. As

such, measurement of quality should also include advancing the science of improving quality, improving care via capacity building for providers, reporting performance transparently, and systems for formal accountability. There are various approaches to making data for quality measure more actionable for purposes of improving quality. For instance, for measure of outcomes publicly reported, lists of the patients who are considered for the calculation are provided by the CMS to the hospitals.

2.12 THE PROFILE OF THE EASTERN REGIONAL MEDICAL STORES

2.12.1 Introduction

The Eastern Regional Medical Store (ERMS) is a section under the Health Directorate at Regional level (RHD). It reports to the Director of Health Services at the Region via the offices of the Deputy Director of Pharmaceutical Services (DDPS) and the Deputy Director of Health Administration and Support Services (DDHASS). The unit has a management team comprising the Manager, Senior Accountant, Regional Supply Officer and the pharmacist in-charge of program medicines.

The Governing board of the unit consists of the entire membership of the Senior Management Team and the Eastern Regional Medical Store Management Team. The Board meets on quarterly basis to appraise performance at the RMS and to review existing policies and to formulate new ones.

To facilitate smooth discharge of mandated functions, the RMS has been divided into Sections: Pharmaceutical section, non-medicine consumables section, programs logistic section, Public Health Commodities Section and Domestic Goods Section.

2.12.2 Mission Statement

Provision of high quality, safe and efficacious essential medicines and non-medicines to all Public Health Facilities, Quasi-Government, Private Hospitals and Non-Governmental Organization at competitive prices by highly motivated and professional team.

2.12.3 Vision

To become the most efficient and responsive Public Health commodity warehouse in the sub-region.

2.12.4 Key Strategic Objective

To improve efficiency of our operations and ensure responsiveness to our clients.

2.12.4.1 Specific Objectives

- To increase net worth by 20% at the end of the year
- To increase product variety by introducing at least ten new products based on need
- To reduce total cost of operation whilst improving the quality of service delivery
- To reduce rate and frequency of stock out of essential medicines and non-medicine consumables.
- To improve storage capacity utilization by decongesting the stores
- To enhance information flow to and fro our key stakeholders.
- To reduce level of expiry by 10% at the end of the year

2.12.5 Our Mandate

- Cross-docking and storage of all health commodities for the Region

- Inventory management prior to distribution of all stored commodities
- Receiving of commodities from the Central Medical Stores, open-market suppliers
- Outbound transportation of all health logistics to end-user facilities and inbound transportation from the Central Medical Stores and other partners to the Regional Medical Stores.
- Material management and handling to ensure minimal physical damage to products
- Provision of technical support on logistics and supply chain management to hospitals and Districts.
- Provision of inventory data for quantification of requirements and development of specification to support procurement activities.

2.12.6 Storage of Commodities

Commodities that are stored at the facility include essential medicines, non-medicine consumables, family planning products, laboratory reagents, public health logistics and other program logistics. To this end, the facility has been divided into sections: essential medicines section, non-medicine consumables medicine, program logistics section and public health logistics section.

To enhance storage capacity utilization, the Eastern Regional Medical stores ensures that all program and public health commodities are distributed upon receipt and facilities are quickly notified to pick them.

During the period under review, the Regional Medical Stores carried out an exercise to dispose of all expired essential medicines and non-medicine. The broken down airconditioners have been repaired and are fully functional.

2.12.7 Inventory Management

The Eastern Regional Medical Stores uses an electronic inventory management system (stockman) to generate inventory data on past consumption of commodities. This is used to determine appropriate quantities of inventory to be held based on maximum, minimum and re-order levels. This system ensures reduction in total inventory cost, reduces incidence of stock outs and expiry. The electronic inventory software also provides visibility of inventory situation and real time monitoring of stock status.

The use of other physical inventory control systems, i.e. bin cards and ledger books serve as back-up to the electronic inventory.

Stocktaking is conducted quarterly to determine the value of stocks held in storage and ensures that all stocks are usable. This also provides the Directorate a complete picture of the assets of the Eastern Regional Medical Stores.

2.12.7.1 Inventory Control Technique

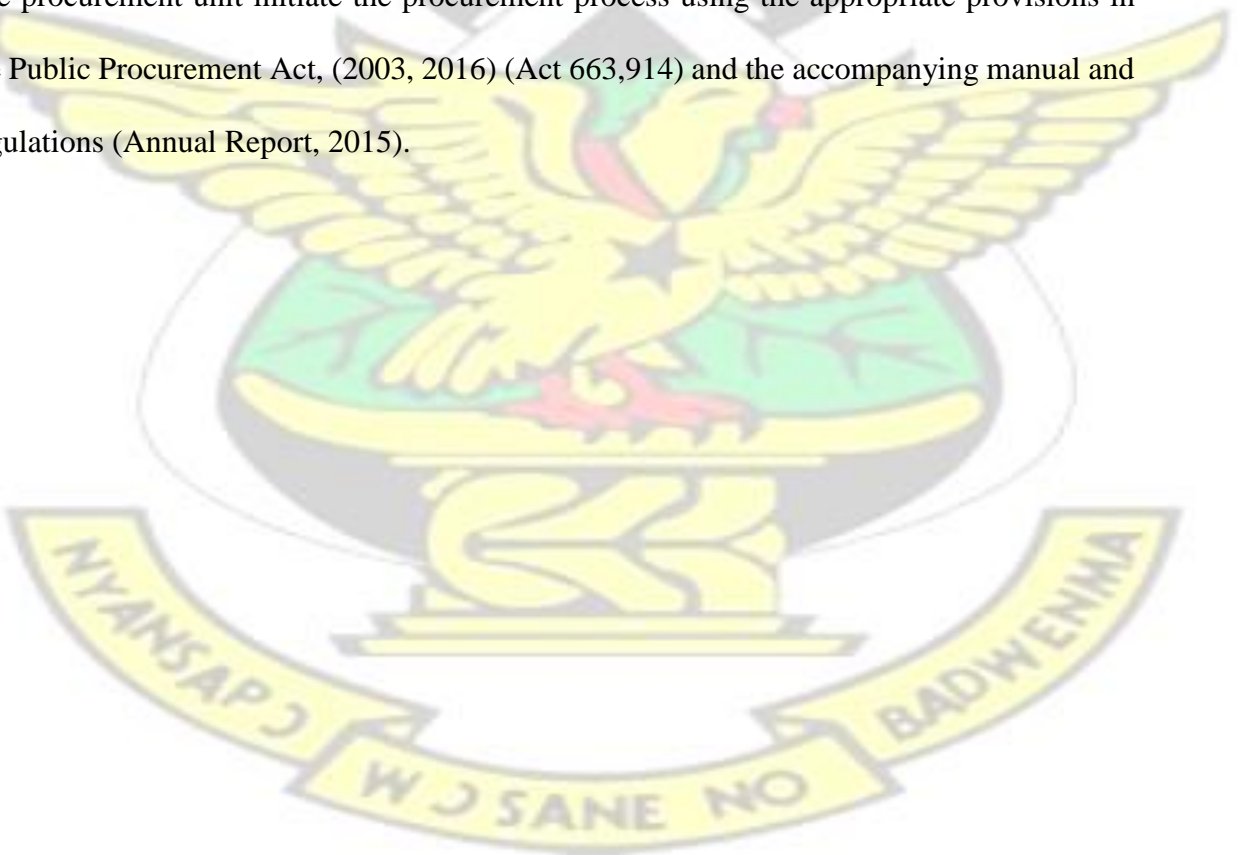
The RMS uses the ABC analysis as a primary inventory control technique and also to develop inventory policies for the various categories of products. Among the most significant considerations of inventory control is the value of consumptions reported annually for the inventory items. The concept of ABC analysis is that only a small number of inventory items consume a very large share of inventory consumption during the year. These items makeup the most important class of inventories so far as the proportion in the total value of inventory. The items consist approximately 15% of the total items, and account for 80% of the material usage.

ABC analysis of RMS inventory used up by facilities is presented graphically below. The graph shows the top 8.6% of inventory (medicines) that consume about 50% of the medicine resources.

suppliers, receiving of supplies and contract management. This task is achieved through coordination with all stakeholders of the procurement process. During the period under review, a procurement update template was developed to monitor the performance of suppliers as part of the contract management process.

The Eastern Regional Medical Stores uses inventory data to generate requisition and develop specification of commodities. Upon recommendation by the Deputy Director of Pharmaceutical Services and approval by the Eastern Regional Director of Health Services, the requisition is sent to the Central Medical Stores. List of products that are not available at the Central Medical Stores are sent to the procurement unit for open market purchase.

The procurement unit initiate the procurement process using the appropriate provisions in the Public Procurement Act, (2003, 2016) (Act 663,914) and the accompanying manual and regulations (Annual Report, 2015).



CHAPTER 3

RESEARCH METHODS

3.1 Introduction

The Chapter three of this study outlines the various steps through which the current research was conducted. The section describes the research choice of approach and the design for conducting the study. The chapter defines the participants that were recruited for the present study, the instrument used for measuring, the procedures followed and the statistical data analysis techniques used.

3.2 Approach to Research

The study focused on description, assessment and evaluation of the effect of performance measurement system of the Eastern Regional Medical Stores on the output of healthcare delivery, as well as on recommendations for the future implementation of performance measurement system. The researcher therefore chose both descriptive and explanatory research approaches. These approaches are two of three scientific approaches identified for conducting a research, the third being the exploratory approach. The researcher found these two approaches appropriate because it helped to understand factor interrelationship and influences.

3.3 Strategy of Research

Yin (2003) suggested several ways of conducting research. The approaches Yin describes are the experiments, surveys, case study, and an archival analysis. The researcher employed the strategy of case study for this research. This is because as Yin indicated, exploring an empirical subject includes following a set of activities that are pre-specified and procedures

as in case study. In order to maintain the holistic and meaningful characteristics of real-life events the choice of case study method is appropriate.

3.4 Study Population

According to Bryman and Bell (2003), the whole group of focus in a research is the target population. The population of the current study shall be made up of staff of the departments (Procurement, Accounts, Stores, Internal Audit, Estate) and customers including (Public Health Facilities, Quasi-Government, Private Hospitals and Non-Governmental). The choice of these was mainly due to the roles they play technically as far as the performance measurement system at the Eastern Regional Medical Stores is concerned.

Also all the registered suppliers, contractors and consultants of the Eastern Regional Medical Stores shall be included in the population. The inclusion of the registered suppliers, contractors and consultants is to find out what impact does performance measurement systems have on their operations and profit margins. Also to ascertain the challenges Health Facilities faces as result poor performance measurement systems at the Eastern Regional Medical Stores.

The importance of the target population was to help the researcher get a concise research work with regards to whom to collect data from for the work. Any information gathered was inductively explained to represent the situation. This formed the basis of research work in order to arrive at a good, reliable and well defined conclusion.

Table 3. 1 Guide: sample size and technique for selecting respondents

Target departments	Estimated sample
Procurement unit	10
Accounts	7
Stores	10
Internal Audit	7
Estate	6
consumers	10
Suppliers/contractors	10
Total	60

3.4.1 Sample Size

Population and size of sample as argued by De Vos (2002) should be indirectly related. Consequently, a large population would require a smaller percentage of that population. However, to draw representative and accurate conclusions and predictions, a relatively small population with a reasonably large percentage of the population is required. To be able to ascertain the sample, the process of selection has to take place in order to arrive at a section whose characteristics duly reflect the entirety of the population. This process is known as sampling. Purposive sampling technique was employed in selecting respondents for the study. In Purposive sampling the researcher has in mind the targeted group he is seeking to use for the study. It is also useful for situations where you need to reach a targeted sample quickly and where sampling for proportionality is not the primary concern. However, to be able to ascertain the actual sample size for the study, Yamane (1967) formula below was adopted.

$$n = \frac{N}{1+N(\alpha)^2}$$

n = Sample Size, N = Population size α =
margin of error (which will be 10% or 0.1)

$N = 40$

Therefore;

$$n = \frac{40}{1+40(0.1)^2}$$

$n =$

Therefore, $n = 29$

Therefore, minimum sample sizes of 29 respondents from the Eastern Regional Medical Stores were used for the research.

3.5 Collection of Data

Methods or techniques for the collection of data formed are significant aspect of this research. Patton (2002) suggested that using multiple instruments for the collection data strengthens and provides study credibility. The use of multiple instruments for the collection of data describes a true picture of the case under study. In this regard, the research data was collected from the staff of the Eastern Regional Medical Stores, customers (both health facilities and suppliers/contractors). A combination of quantitative and qualitative data collection instruments would be used. This comprised semi-structured questionnaires and interviews respectively. Permission was sought from management and individuals recruited for this study.

3.6. Contact Methods

Questionnaires were administered to staffs of the Eastern Regional Medical Stores, customers (both health facilities and suppliers/contractors) and carry out face-face

interview as well as for the purpose of effective analysis and discussion on the effective implementation of performance measure systems.

3.7 Data Analysis/Statistical Package and Analytical Tool.

The tools used in this study for data analysis, were both quantitative and qualitative methods. The Microsoft excel spread sheet and Statistical Package for Social Sciences (SPSS) version 20.0 were used for data entry and data analysis respectively. The initial step was data preparation in order to make more appropriate for analysis by convert raw gathered data into structured formats. A Likert Scale of (one) to five (5) with (1) representing strongly disagree and 5 strongly agree was used to analyze level of agreement or disagreement on questions asked by the researcher. The data collected was quantitatively analyzed by means of computation and graphical representations to illustrate the main objective of the study.

3.8 Ethical Considerations

Ethical issues are necessary when research is done through interaction with people, especially when conflicts of interest may occur (Babbie and Mouton, 2001). In order to ease the relevant departmental official's minds and to ensure their participation in the study, this research study was carried out for only academic purposes and any information provided was used confidentially.

CHAPTER 4

PRESENTATION OF DATA AND DISCUSSIONS

4.1 Introduction

This chapter discusses the findings of the study on the effective implementation of performance measurement systems in the health delivery system with the Eastern Regional medical stores as a case study. Findings are discussed under clearly described headings that reflect the study's research questions and objectives.

4.2 Demographics of Respondents

4.2.1 Position of respondent in the firm

Table 4.1 describes the various positions held by the respondents in their individual firms. Majority of the respondents were storekeepers (40.0%) with the least being executive director, 3.3%. Managerial positions and senior executive positions were held by 6.7% (2) each of the respondents. Positions of health administrator were held by 13.3% each of the respondents.

Table 4. 1 Position of respondents in the firm

Position in the firm	Frequency	Percentage (%)
Manager	2	6.7
Senior executive	2	6.7
Executive director	1	3.3
Health administrator	4	13.3
Finance officer	3	10.0
Procurement officer	6	20.0
Storekeeper	12	40.0

4.2.2 Number of years firm has been in existence

Response on the number of years respondents firm has been in existence indicates that 60.9% of the firms have existed for more than 20 years, 13.0% existed for eleven to fifteen years, 8.7% for five to ten years and 17.4% of the firms existed for less than 5 years (Figure 4.1).

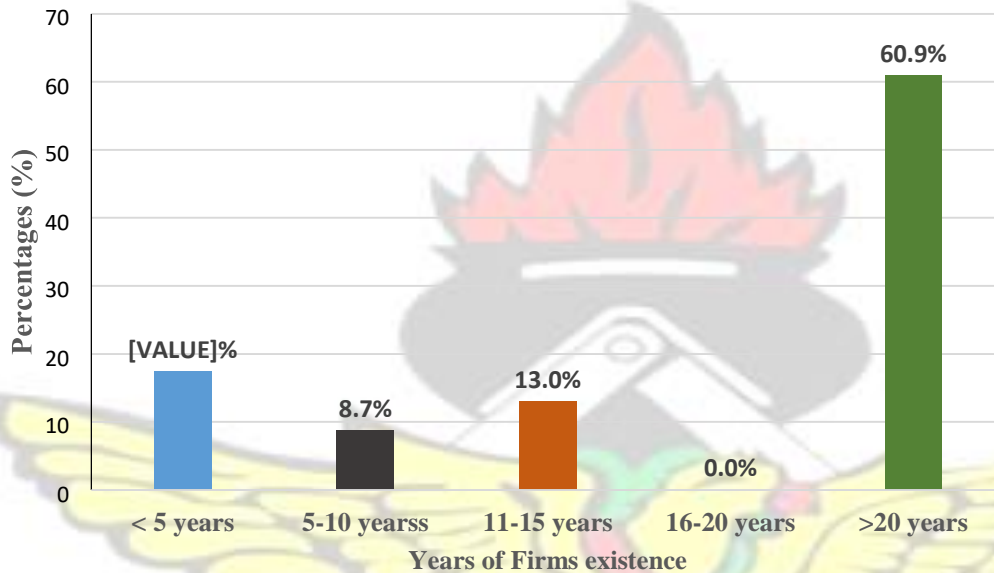


Figure 4. 1 Years of Firms existence

4.2.3 Year of Service of Respondents

The percentage distribution of the number of years served of respondents indicates that 34.8% of our respondents had served for less than 5 years, 39.1% had served for between 5-10 years, 13% had served for between 11-15 years, 4.3% had served between 16 to 20 years and the remaining 8.7% are nearing retirement (> 20 years) (Figure 4.2).

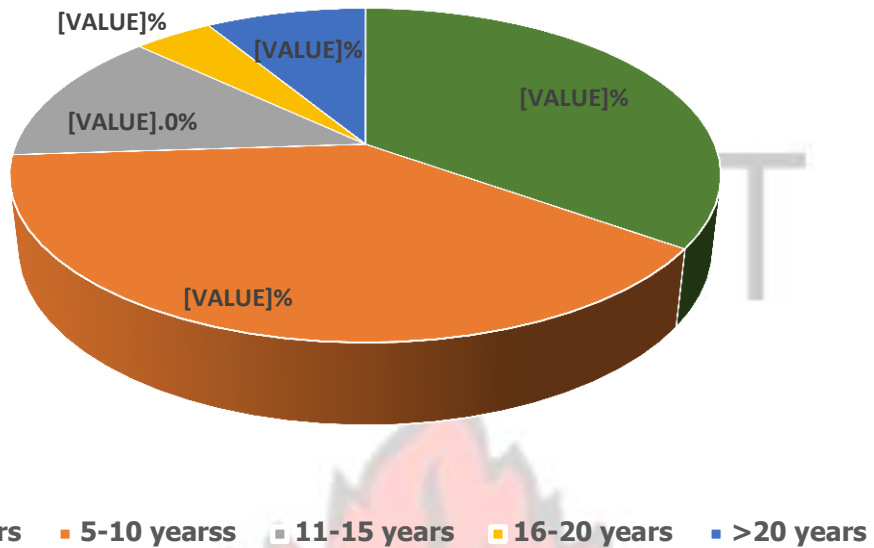


Figure 4. 2 Years of service of Respondents

4.2.3 Type of clients and services provided

The percentage distribution of the type of clients and service provided to them is indicated in table 4.2 below. The Public/Government is served by 40.0% of the respondents' firm, 16.7% serves the private clients and 30.0% of the firms serve both the private and the public clients. Management of inventory (82.6%), receiving and inspection of commodities (78.3%), Material management and handling (78.3) and storage and cross-docking of commodities (73.9%) were the most services proved to the various private and public clients. The least service provide by the firms to the clients was procurement planning and sourcing (21.7%).

Table 4. 2 Type of clients and services provided

Clients and services provided	Frequency	Percentage (%)
<i>Clients Firm works for</i>		
Private	5	16.7
Public/Government	12	40.0
Both	9	30.0
<i>Services provided to clients</i>		
Storage and cross-docking of commodities	17	73.9
Management of inventory	19	82.6
Cost planning	14	60.9
Receiving and inspection of commodities	18	78.3
Outbound transportation of all health logistics	14	60.9
Provision of technical support on logistics and supply chain	14	60.9
Material management and handling	18	78.3
Procurement planning and sourcing	5	21.7

*Multiple responses for the services provided

4.3 Performance measurement system indicators

4.3.1 Response to research questions 6-10

The figure 4.3 below describes some indicators that enhance the implementation of performance measurement system in health delivery. The response indicates that 60.9% and 39.1% of the respondents disagree that proper response to demand and services of clients and health facilities and the ability to test the quality of product and service on time enhances the implementation of performance measurement systems while 4.3% agree on such indicators. In addition, clients' satisfaction and experience and adherence to quality of

standard were agreed upon by 47.8% and 52.2% respectively to enhance the performance measurement system implementation. With respect to the adjustment of operations to react to changing market for enhancing the implementation process, 34.8% agree, 13,0% disagree, 8.7% strongly agrees and 4.3% strongly disagrees.

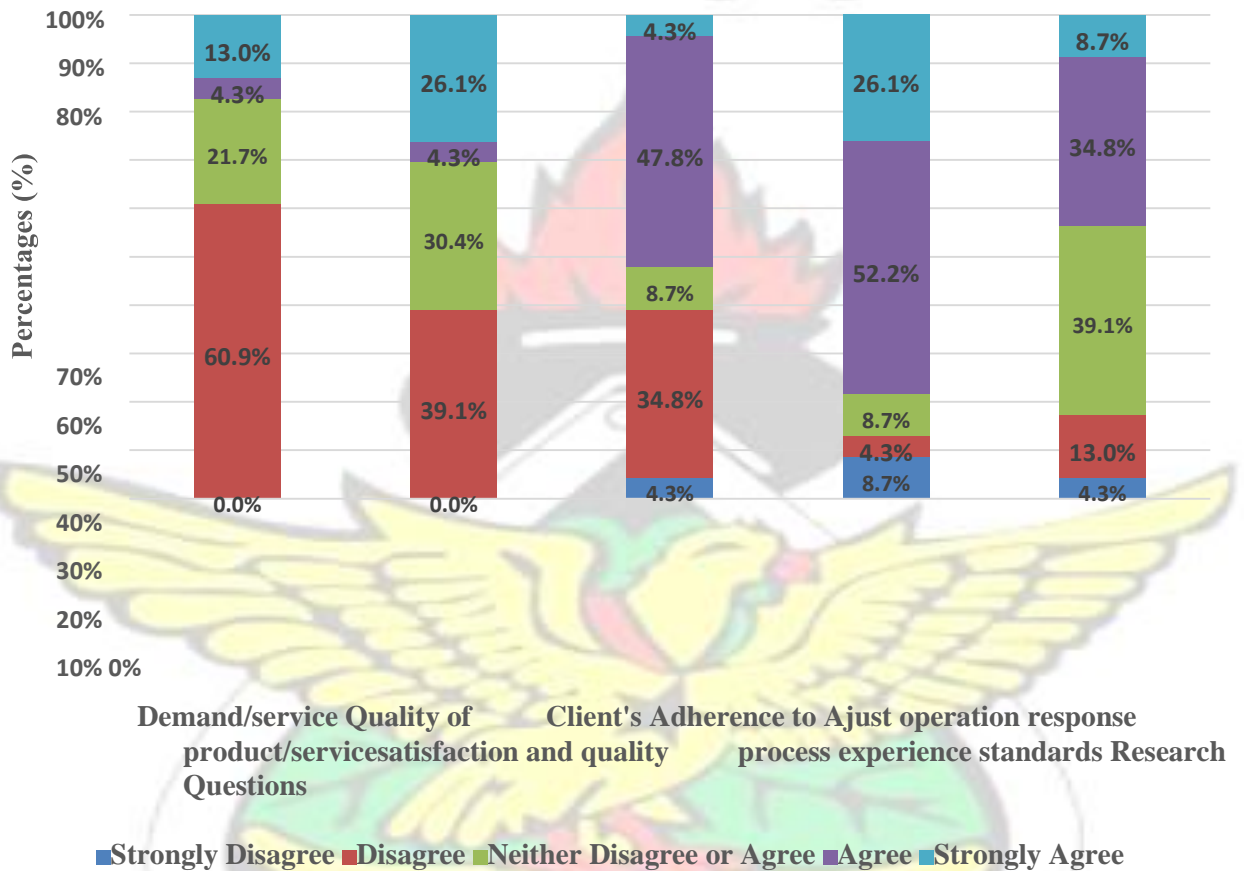


Figure 4. 3 Response to research questions 6-10 as indicators for the implementation of Performance measurement system

4.3.2 Response to research questions 11-15

Responses to some indicators for enhancing the implementation of systems of Performance measurement are indicated in Figure 4.3 below. Frequency at which clients and health facilities visit the Eastern Regional Medical stores and the time frame for the placement of

order were agreed to enhance the implementation of the measurement system by 43.5% of the respondents, however, 4.3% and 8.7% disagree respectively. Timely delivery, making prompt payment and prompt payment made by Health insurance scheme fairly enhanced the implementation of the performance measurement system as indicated by 39.1%, 26.1% and 30.4% agreement by respondents respectively. Similarly, 26.1% indicated that the ability to make prompt payment by health insurance scheme does not enhance the implementation process.

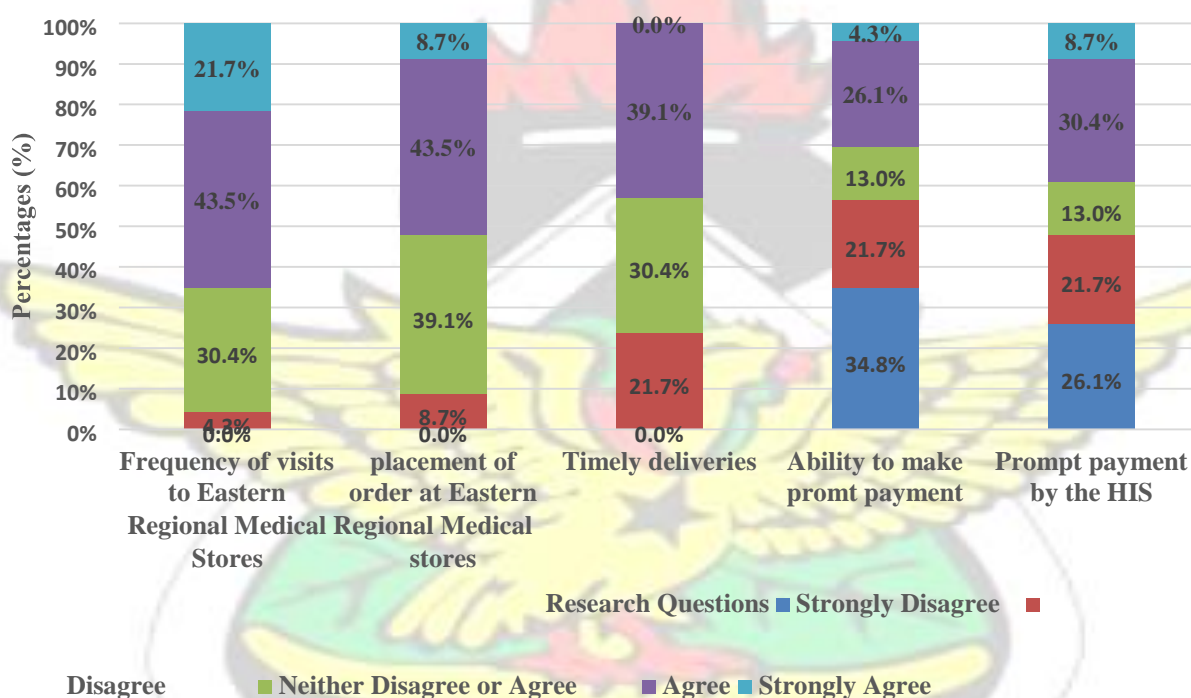


Figure 4. 4 Response to research questions 11-15 as indicators for the implementation of Performance measurement system

4.3.3 Response to research questions 16-20

Figure 4.5 describes some indicators that enhance the implementation of Performance measurement system. The level of negotiation tactics used, realistic price quoting by clients in relation to the lowest delivery price and consistency of delivery and quality were indicated

to enhance the performance measurement system implementation by 47.8% of the respondents, however, 47.8% of the respondents also indicated that the firms cash resources and financial stability over a reasonable period of time neither does or does not enhance the implementation of the performance system whereas 34.8% agrees it does.

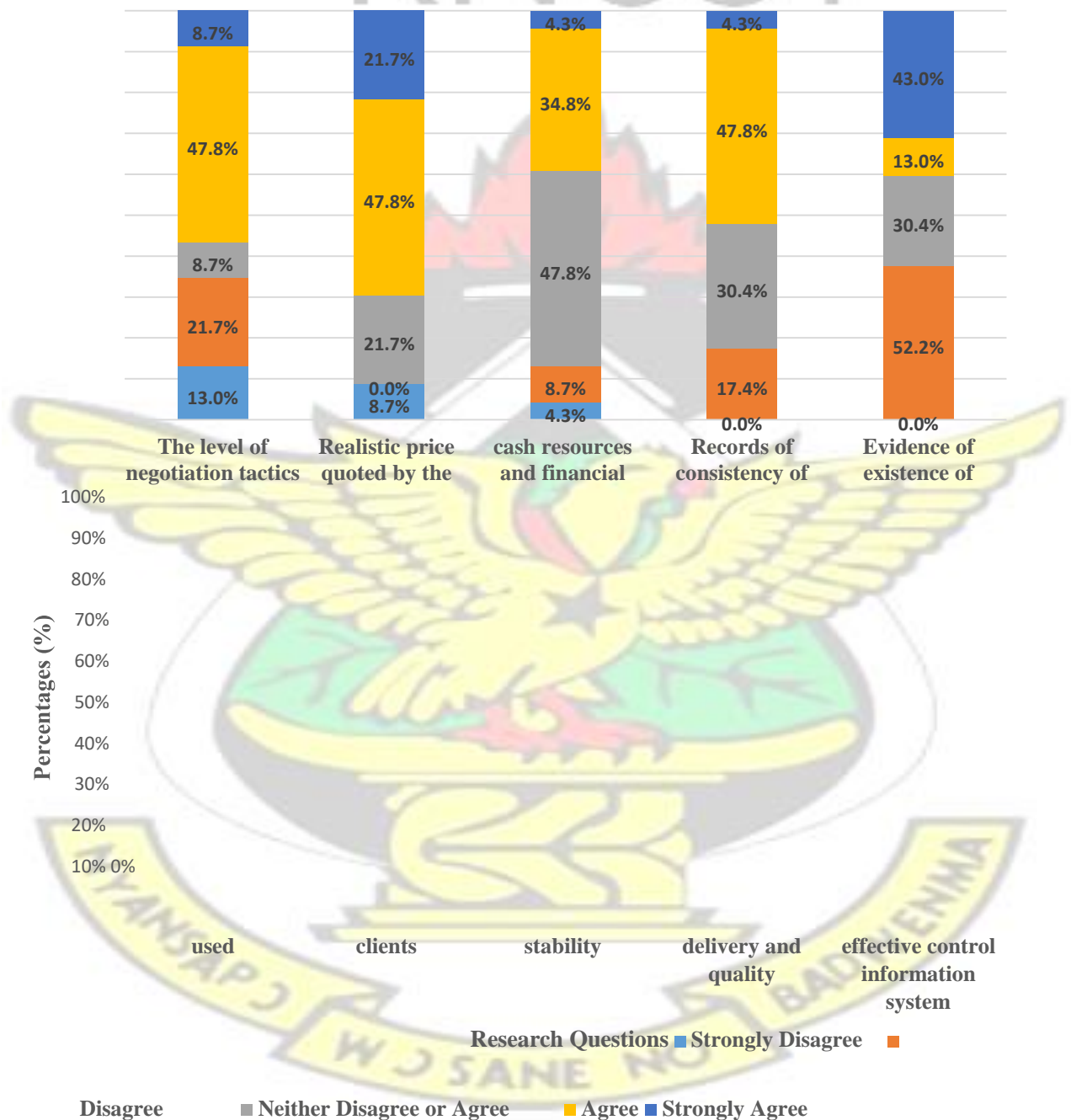


Figure 4. 5 Response to research questions 16-20 as indicators for the implementation of Performance measurement system

4.3.4 Response to research questions 21-26

Figure 4.6 describes some indicators that enhance the implementation of system of Performance measurement. In response to the prompt constituting of inspection team and responsiveness and prompt adherence to procurement schedules, 60.9% agree that such factors enhance the implementation of the performance measurement system. In addition, 47.8% and 56.5% of the respondents indicated that level of competence of key personal and prompt adherence to stocktaking procedures are indicators that enhance the implementation of the measurement system. On the other hand, 30.4% of the respondents disagree that the ability to use proper mode of delivery and distribution of all health commodities would enhance the performance measurement system implementation process.

100%



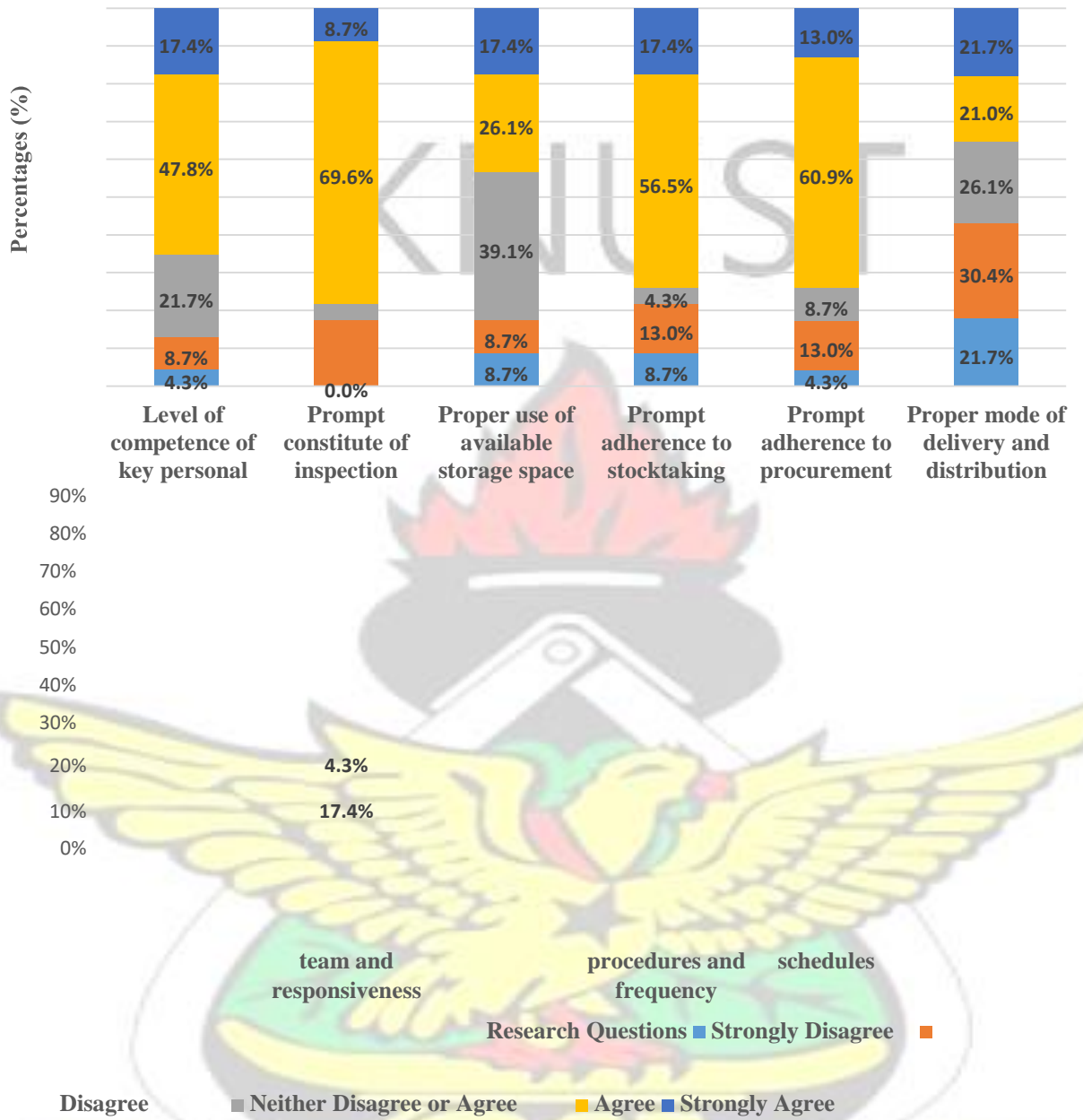


Figure 4. 6 Response to research questions 21-26 as indicators for the implementation of Performance measurement system

4.4 Challenges that impede Performance measurement system

4.4.1 Response to research questions 27-31

Figure 4.7 describes some challenges that impede Performance measurement system. The ability to meet the demands of client and health facilities, the ability of clients make payment on time and prompt payment of claims to health facilities by insurance providers were indicated by 30.4%, 43.5% and 34.8% respectively to impede the performance measurement system. Another challenge is the constituting of teams for inspection of health commodities (34.8%). In addition, the space availability for the storage of health commodities was indicated to be a minor challenge (Figure4.7)

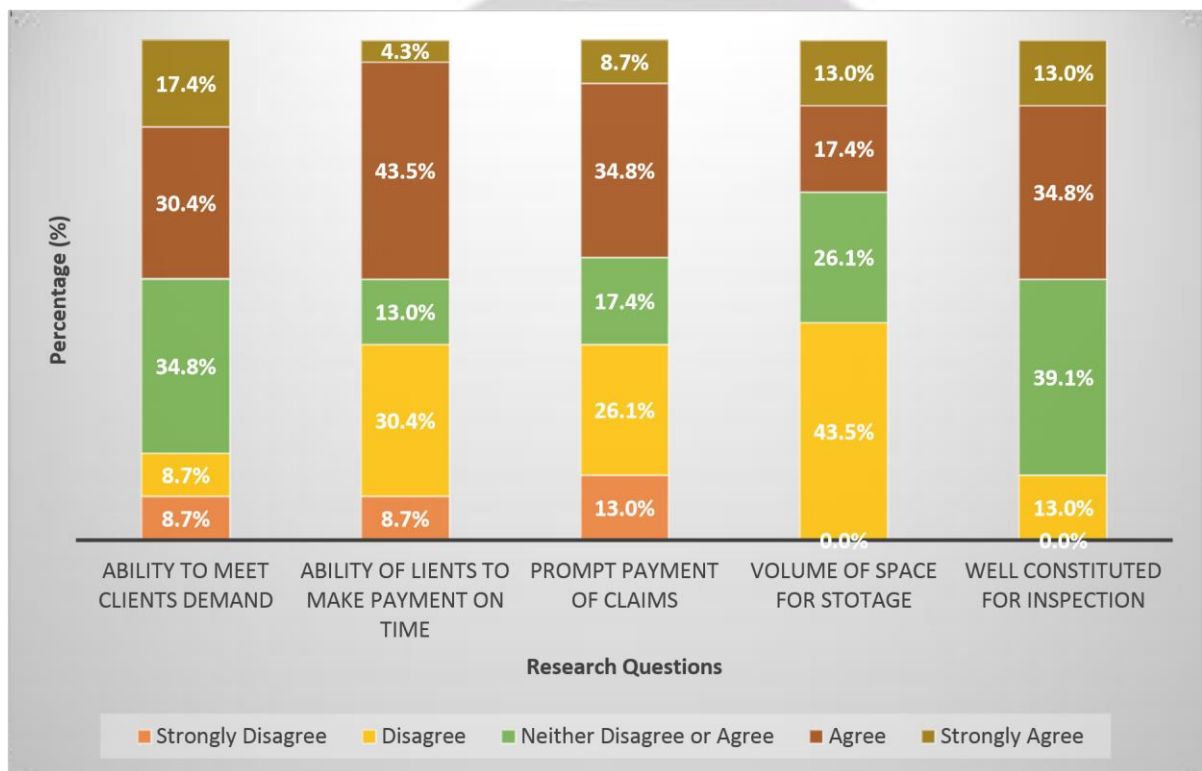


Figure 4. 7 Response to research questions 27-31 as Challenges that impede of Performance measurement system

4.4.2 Response to research questions 32-36

Presented in Figure 4.8 are some challenges that impede Performance measurement system. A major challenge that impedes the performance measurement system was good working relationship with health facilities and suppliers as indicated by 47.8% of the respondents. A minor challenge was early adoption of the measurement system. Further challenges were proper management and availability of vehicle for distribution of all health commodities, availability of alternative means of distribution of health commodities and monitoring of performance management system (Figure 4.8)

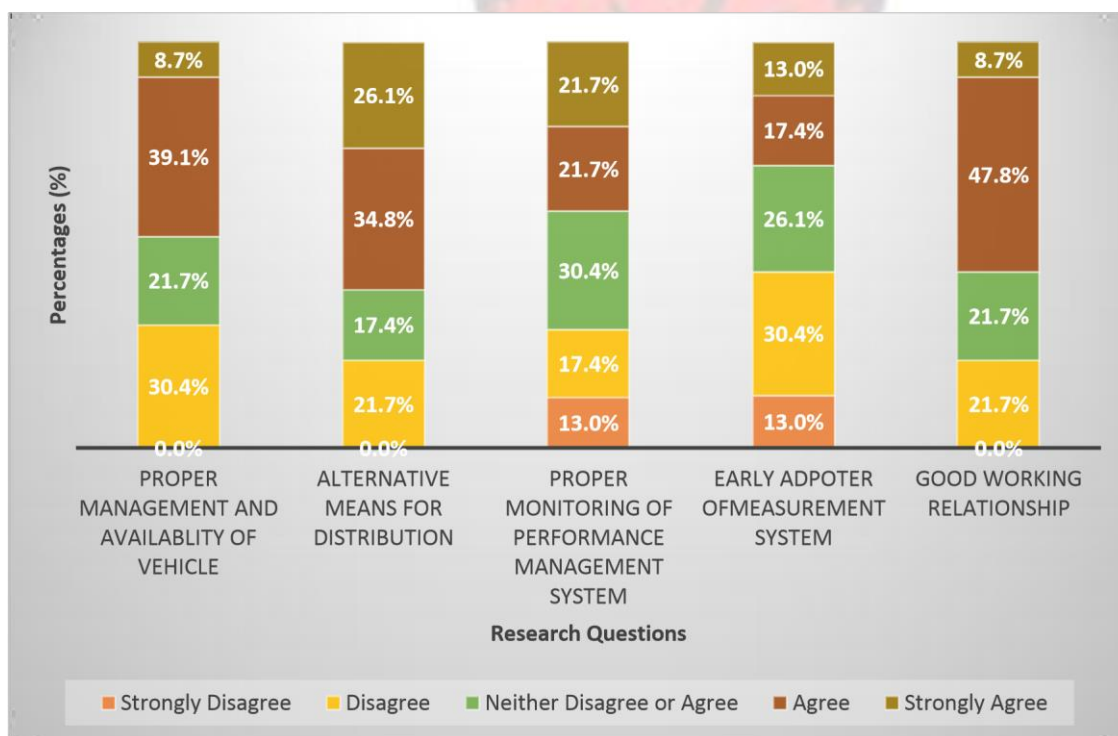


Figure 4. 8 Response to research questions 32-36 as Challenges that impede of Performance measurement system

4.4.3 Response to research questions 37-41

Presented in Figure 4.9 are some challenges that impede Performance measurement system. From figure 4.9, approximately 69.6% and 34.7% of respondents agree to a large extent that

the adherence to procurement procedures and lack of organizational resource and management respectively affect the implementation of performance measurement systems. The development of in-house information technology solutions, computerization at the firms and use of online service transactions were indicated to less likely hinder the implementation of the measurement system in various firms.

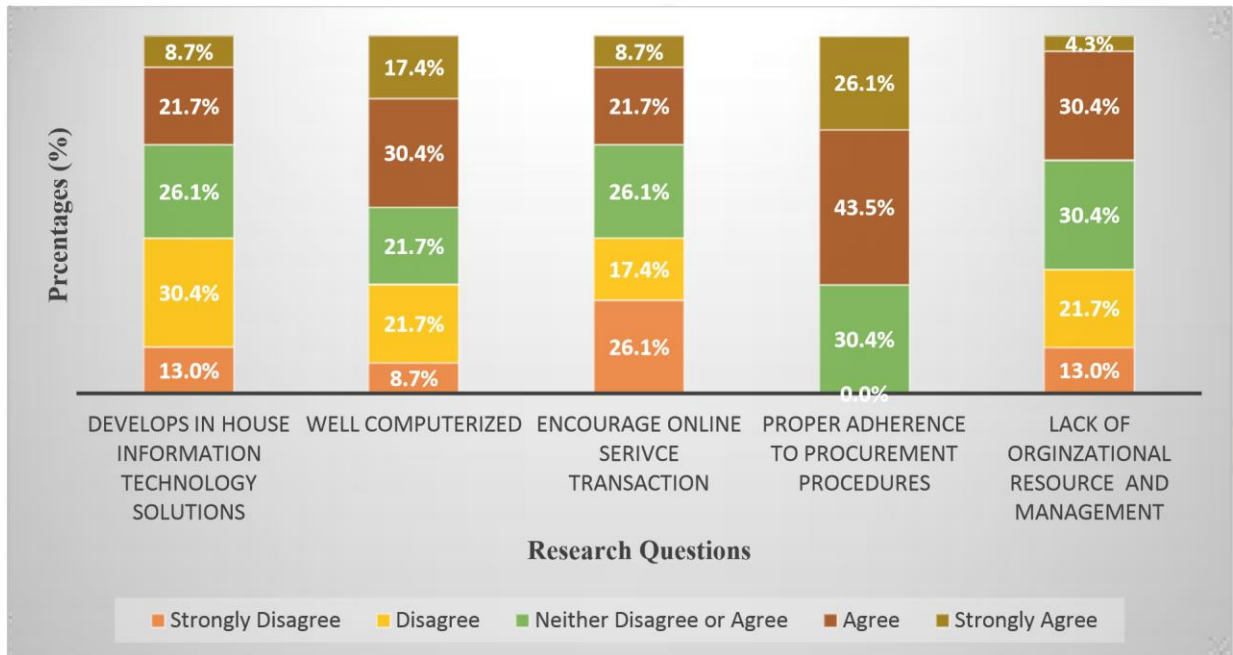


Figure 4. 9 Response to research questions 37-41 as Challenges that impede of Performance measurement system

4.4.4 Response to research questions 42-46

Figure 4.10 shows some challenges that impede Performance measurement system. Approximately 47.8%, 39.1% and 43.3% of respondents agree to a large extent that the improper implementation of demand planning and forecasting, bureaucratic procedures and improper selection of suppliers for products and services are some of the challenges encountered in the implementation process of the performance measurement systems. However, lead time uncertainty and cost and quality uncertainty were identified not to be

major challenges in the implementation process as 39.1% and 30.4% of the respondents respectively disagree that such factors hinder the performance system implementation.

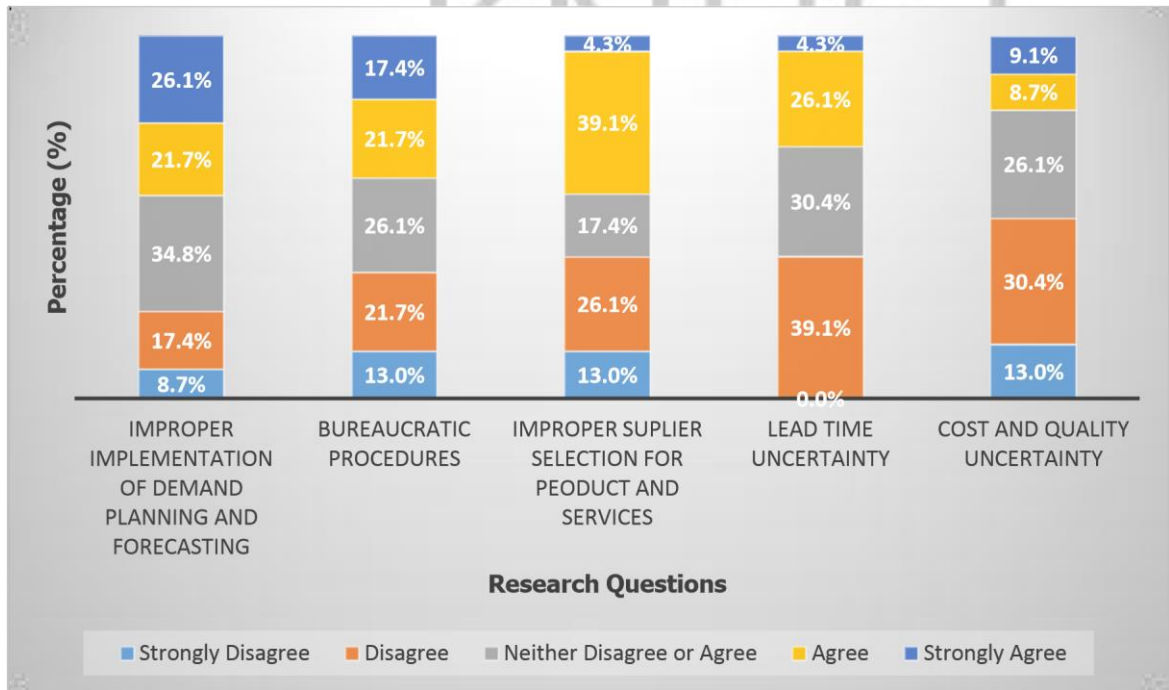


Figure 4. 10 Response to research questions 42-46 as Challenges that impede of Performance measurement system

4.5 Success factors of performance measurement system in healthcare delivery

4.5.1 Response to research questions 47-51

Figure 4.11 describes the extent to which the adoption performance measurement systems has been successful in healthcare delivery. Approximately 47.8% of the respondents have indicated that the adoption of the performance measurement system has results in prompt response to request from the Eastern Regional stores and also mechanism for debt recovery has been effective. Furthermore, data collection has become reliable and development of schedule delivery itinerary for all other health facilities have also become effective as 39.1% and 34.8% of the respondents indicated are mostly true.

60.0%

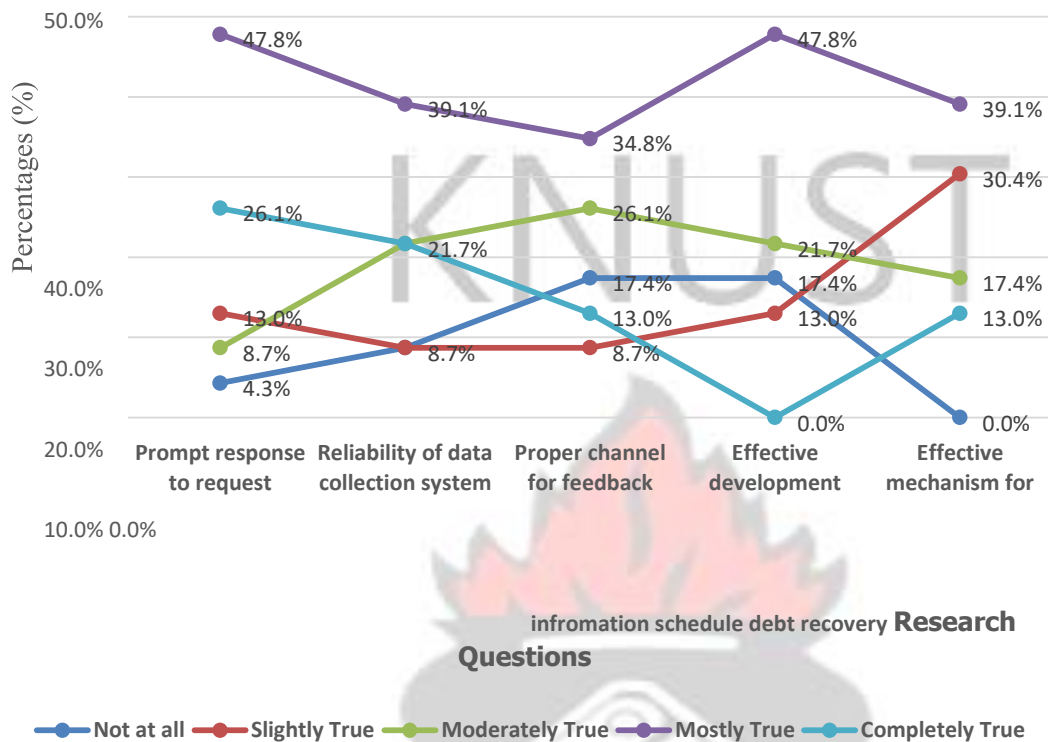


Figure 4. 11 Response to research questions 47-51 as Success factors of performance measurement system in healthcare delivery

4.5.2 Response to research questions 52-56

Response to some success factors of the performance measurement systems is presented in the Figure 4.12 below. Proper and efficient systems to monitor the movement of goods and proper establishment of baseline were indicated to be mostly true success for the adoption of the performance measurement system by 39.1% of the respondents. The continues stimulation of improvement was not mostly the case for the use of performance systems, however, business knowledge and credibility building among stakeholders are enhanced and baselines are properly established.

45.0%

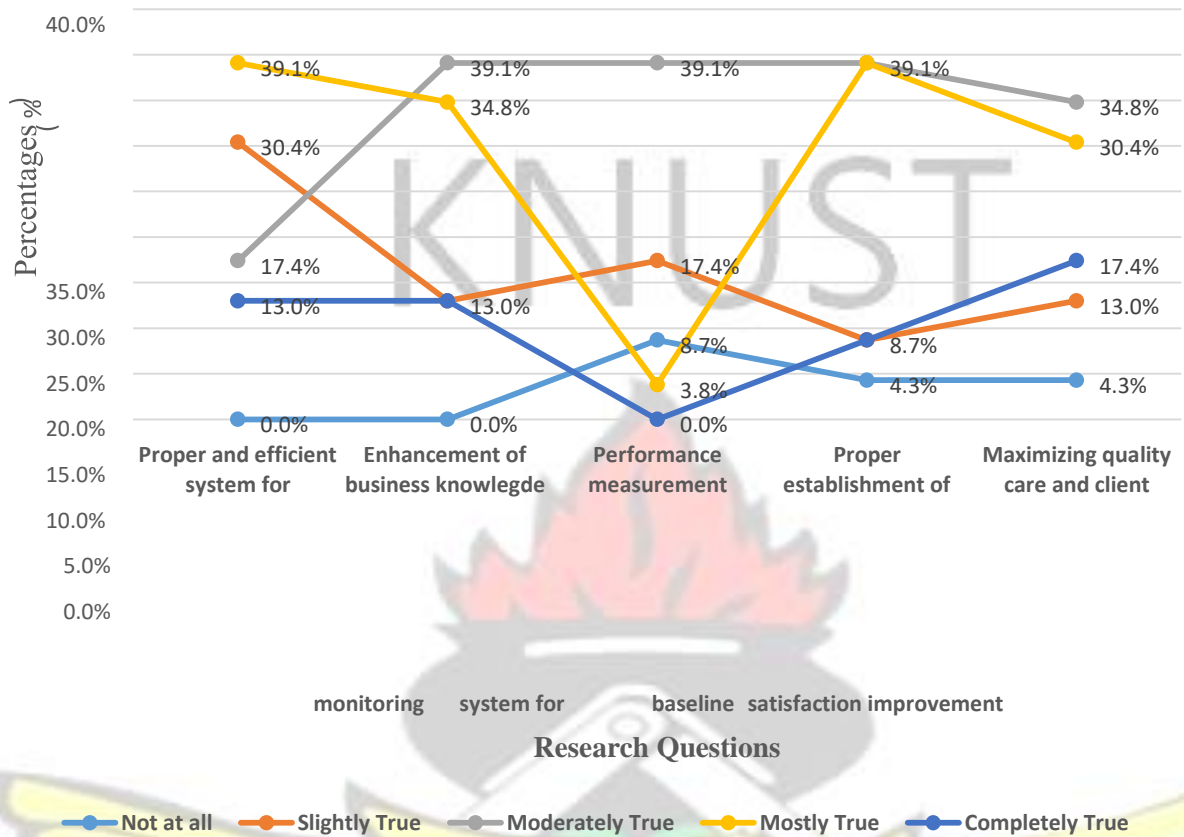


Figure 4.12: Response to research questions 52-56 as Success factors of performance measurement system in healthcare delivery.

4.5.2 Response to research questions 57-61

Response to some success factors of the performance measurement systems is presented in the Figure 4.12 below. The adoption of the performance measurement system has made the integration of budgeting and planning process effective and has improved the ability to adhere to proper procurement procedures in health delivery as indicated by 39.1% and 43.5% of the respondents to be mostly true. However, 13.0% of the respondents indicated the adoption of the system does not entirely identify competitive position, locate problem areas and to make aid make tactical decisions in health delivery.

50.0%

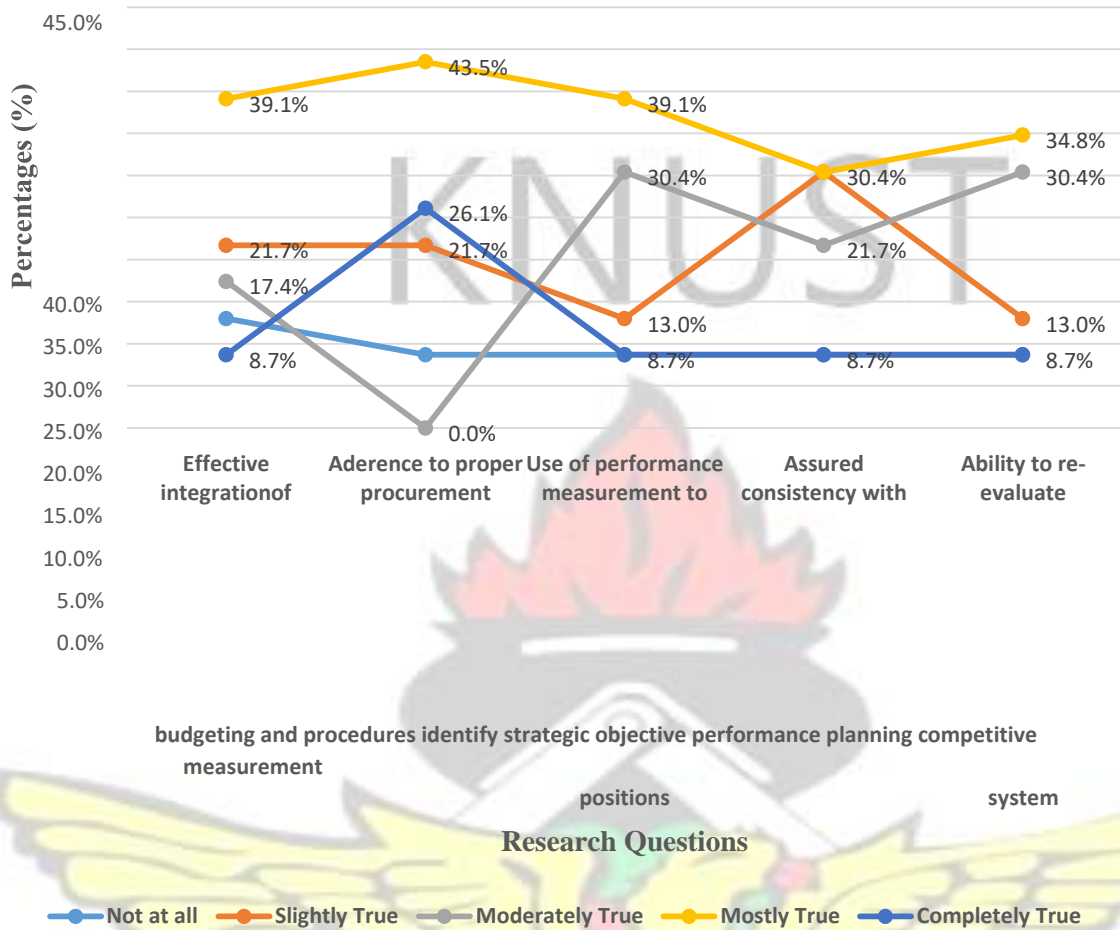


Figure 4. 12 Response to research questions 57-61 as Success factors of performance measurement system in healthcare delivery

CHAPTER 5

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter outlines summary of various findings, conclusion and recommendations. The findings are revelations of what the researcher found out during the study. In conclusion, this chapter sums up all the research work that was carried out and further suggestions are made for other researchers to carry out other equally important areas. Recommendations are however made for the effective implementation of performance measurement systems in the health delivery system at the Eastern Regional medical stores.

5.2 Summary

The research sought to evaluate the effective implementation of performance measurement systems in the health delivery system at the Eastern Regional medical stores. The study also sought to evaluate the performance measurement systems being developed in healthcare delivery, to identify challenges in the development of performance measurement Systems in health delivery and to identify factors that enable the development of performance measurement systems at Eastern Regional Medical Stores. After a series of reviews and analysis of the raw data collected, the following findings were outlined.

5.2.1 Indicators of Performance measurement system

This study revealed some indicators that enhance the implementation of performance measurement systems. The key indicators are as follows;

- Ability to test the quality of products and service on time
- Adherence to quality standards by clients and health facilities
- Frequent visit of clients and health facilities to the Eastern Regional Medical stores
- Time frame for the placement of order at the Eastern Regional Medical stores
- On time delivery of items in relation to the total number of deliveries recorded
- Prompt payment made by Health insurance scheme
- Level of negotiation tactics used
- Realistic price quotation by clients in relation to lowest delivery price
- Consistency of quality delivery
- Existence of effective control information system

5.2.2 Challenges in the development of performance measurement Systems in health delivery

Indications from this study revealed some challenges that impede the implementation of performance measurement systems.

- The ability to meet the demands of client and health facilities, coupled with the ability of clients make payment on time and prompt payment of claims to health facilities by insurance providers were indicated by more than 40% of the respondents to impede the performance measurement systems.

- Another major challenge that impedes the performance measurement system was working relationship with health facilities and suppliers as indicated by 47.8% of the respondents.
- Further challenges were proper management and availability of vehicle for distribution of all health commodities, availability of alternative means of distribution of health commodities and monitoring of performance management system
- Approximately 69.6% and 34.7% of respondents agree to a large extent that the adherence to procurement procedures and lack of organizational resource and management respectively affect the implementation of performance measurement systems
- Approximately 47.8%, 39.1% and 43.3% of respondents agree to a large extent that the improper implementation of demand planning and forecasting, bureaucratic procedures and improper selection of suppliers for products and services are some of the challenges encountered in the implementation process of the performance measurement systems
- Of minor challenges are the formation of teams for inspection of health commodities, availability of space for the storage of health commodities and early adoption of the measurement system

5.2.3 Factors that enable the development of performance measurement systems at Eastern Regional Medical Stores

With regards to how the performance systems are enhanced, success factors were sought from exiting performance measurement systems. The following were indicated to mostly enhance the development of performance measurement systems;

- Approximately 47.8% of the respondents have indicated that the adoption of the performance measurement system has resulted in prompt response to request from the Eastern Regional stores and also mechanism for debt recovery has been effective.
- Furthermore, data collection has become reliable and development of schedule delivery itinerary for all other health facilities have also become effective
- Proper and efficient systems to monitor the movement of goods and proper establishment of baseline were indicated to be mostly true success for the adoption of the performance measurement system.

5.3 Conclusion

Literature highlights the importance of performance information at all levels of the system: at the policy level, for external monitoring, and for internal use - for managers to assess needs and to plan services, to monitor implementation and the effectiveness and efficiency of services, and for the early identification of problems. From the above analysis and discussions, it can be concluded that performance measurement systems are very significant for improving healthcare services through activities of the Eastern Regional medical stores, however the Eastern Regional medical stores lack such measurement systems as indicated by the poor knowledge demonstrated by the respondents.

The development of performance measurement systems is based on some key indicators that relates to responsiveness, equity and efficiency. The above study showed that consistent delivery of products on time in response to timely placement of order to the medical stores and the provision of quality goods and services to clients and health facilities by adhering to quality standards were some key indicators for the development and implementation of the performance measurement systems at the Eastern Regional medical stores.

Furthermore, the implementation of such a system seems to face barriers as indicated in this study. Meeting clients and health facilities demand for goods and services and the ability of clients to make swift payment for service delivered is key to effective performance by service providers, however, these are major challenges faced by the Eastern Regional medical stores. In order to improve performance, there is the need for good working relationship with facilities and suppliers, proper adherence to procurement procedures to avoid improper and bias selection of supplier for delivery of goods and services.

Finally, the adoption of performance measurement system in health delivery is significant for effective and accountable services. The adoption of the performance measurement system has resulted in prompt response to requests, proper information feedback and made the integration of budgeting and planning process effective and has improved the ability to adhere to proper procurement procedures in health delivery.

5.4 Recommendation

The following recommendations have been made with respect to the findings.

- The Eastern Regional Medical Stores should have a reliable means of forecasting clients demand to avert the delay to response to clients. In view of this the system of Economic Order Quantity (E O Q), Blanket Ordering System, and Sales of Point Data actively be in place to monitor movement of commodities
- The management of Eastern Regional Medical Stores should find innovative ways of bridging the gaps between payment by stakeholder (National Health Insurance Authority) in order avoid collapse of the system
- The introduction of innovative automatic system to reduce human interactions between staff of Eastern Regional Medical Stores and its major clients.
- The introduction of electronic procurement software to reduce the long time spent on procurement processes.
- Proper procurement research should be done to secure in advance potential suppliers
- Both the Eastern Regional Medical Stores and the Central Medical Stores should integrate their supply chain management process to meet the needs of their facilities.
- The organisation should establish good storage and distribution system for all goods (medicines) with appropriate linkage with the procurement system.
- Both the Eastern Regional Medical Stores and the Central Medical Stores should adapt to effective implementation of Economic Order Quantity (E O Q), Blanket Ordering System, Enterprise Resource Planning (E R P) and Sales of Point Data to monitor the issuances of stock at all facilities.
- It is therefore recommended that the government and all institutions of the built environment (i.e. Ghana Institution of Architects, Ghana Institution of Surveyors,

Ghana institution of Construction and Ghana Institution of Engineers) must intensify education on the concept of performance measurement systems.

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