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Exploring the perceptions of pediatric health care workers on audit and performance feedback in Kenyan County Hospitals

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EXPLORING THE PERCEPTIONS OF PAEDIATRIC HEALTH CARE WORKERS ON AUDIT AND PERFORMANCE FEEDBACK IN KENYAN COUNTY HOSPITALS

BY

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DECLARATION

This MBA Dissertation is my original work and has not been submitted in any other university.

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LIST OF ABBREVIATIONS

A&F	Audit and Feedback
API	Application Program Interface
BPP	Basic Paediatric Protocols
CDM	Clinical Data Management
CIN	Clinical Information Network
CO	Clinical Officer
CPGs	Clinical Practice Guidelines
DHIS	District Health Information Software
EHR	Electronic Health Records
ELT	Experiential Learning Theory
EMR	Electronic Medical Records
ETAT+	Emergency Triage, Assessment and Treatment PLUS admission care
FGD	Focus Group Discussion
FIT	Feedback Intervention Theory
FI	Feedback Interventions
HBT	Health Benefits Theory
HCW	Health Care Worker
HRIO	Health Records Information Officer
IMCI	Integrated Management of Childhood Illness
KEMRI	Kenya Medical Research Institute
KNH	Kenyatta National Hospital
KWTRP	KEMRI-Wellcome Trust Research Programme
MBA	Master in Business Administration
MeSH	Medical Subject Headings

MO	Medical Officer
MOH	Ministry of Health
REDCap	Research Electronic Data Capture
SOP	Standard Operating Procedures
TPB	Theory of Planned Behaviour

ABSTRACT

Poor service delivery in the Kenyan public healthcare institutions can be attributed to non-compliance to evidence based practises and clinical guidelines by the health providers. This has resulted to drug dose errors, poor compliance with evidence-based standards and high mortality rates from avoidable and treatable illnesses in children. It is through audit that intervention approaches and processes are developed and implemented in a healthcare system to improve service delivery. Health systems must be improved if continued and sustained gains in health outcomes are to be made particularly in low and middle income countries.

Through an exploratory qualitative research design using semi-structured interviews and focus group discussions, the perceptions of the healthcare workers on audit and feedback were explored. A total of 53 paediatric healthcare workers from were purposively sampled through 10 focus group discussions and 10 semi structured interviews. Data were transcribed, themes explored, and revised in two rounds of coding and analysis in Microsoft Excel, subjected to a layered analysis, and reviewed.

Eight major themes of the perceptions and behaviour of the healthcare workers to A&F were identified: commitment to improve care; opportunity to reflect on quality of care delivered; understand hospital morbidity and mortality; reinforced standards on care; used data for planning; enhanced teamwork, A&F as an incentive; and enhanced supportive supervision. The reporting and the data within the hospitals were accurate and reliable and used for decision making.

The audit and performance feedback reports positively influenced the behavioural attributes and the leaderships and management skills of the health workers. The hospitals appreciated the feedback reports which elicited reactions they were never aware about their performance. There was general perception in the improvement of paediatric care and reduction in variation in practice and documentation process in the hospitals.

CHAPTER 1: INTRODUCTION

1.1 Background of the Study

Audit and Feedback (A&F) is one of the most widely recommended strategies for improving professional practice. Despite its potential as a quality improvement strategy, there remains considerable uncertainty regarding the determinants of its effectiveness in improving healthcare practice (Ivers et al., 2012). The understanding of the causes of the variability has been rudimentary due to the lack of attention to and inexistence of theoretical and conceptual frameworks for audit and feedback (Hysong, Teal, Khan, & Haidet, 2012). A&F is generally accepted as an important strategy for the implementation of clinical practise guidelines (Colquhoun et al., 2013).

According to the Medical Subject Headings (MeSH) database, Audit is defined as the detailed review and evaluation of selected clinical records by qualified professional personnel to improve the quality of patient care and outcomes. It establishes the extent to which a condition, process, or performance conforms to predetermined standards or criteria. Feedback is defined as a mechanism of communication within a system where the input signal generates an output response which returns to influence the continued activity or productivity of that system. This was the summary of clinical performance such as the mortality rates for children and mothers over a specified period of time aimed at providing information to health professionals to allow them to assess and adjust their performance.

It is through audit that interventional approaches and processes are developed and implemented in a healthcare system to try and improve service delivery (English et al., 2011). Health systems must be improved if continued and sustained gains in health outcomes are to be made particularly in low and middle income countries. Delivery of quality health care has considerable potential in reducing childhood deaths in low-income countries where infant mortality and under 5 mortality rates are considerably high at 48 and 73 deaths per 1000 live births respectively (Breu, Guggenbichler, & Wollmann, 2008). However, both anecdotal and empirical evidence have identified that poor compliance with evidence-based and clinical standards for care as some of the problems facing paediatric service delivery (Irimu et al., 2012).

This research project explored how the regular A&F implementation strategies influenced the behavioural attributes and leadership and management skills of the paediatric healthcare within the Kenyan public county hospitals currently being implemented by the KEMRI-Wellcome Trust Research Programme (KWTRP) collaborative project. Based on the different theories of

behavioural change this study evaluated how the feedback delivery interventions affected the knowledge, attitudes, practises and behavioural attributes of health workers in improving their performance of delivering quality care.

1.2 Clinical Information Network

This was a collaborative research program that was started in September 2013 by the KEMRI-Wellcome Trust Research Programme (KWTRP), Ministry of Health, Kenya Paediatric Association (KPA) and the 14 participating county hospitals coded in this report as H1 – H14. All these collaborating partners constituted the Clinical Information Network (CIN). The aim of the network was to collect standardized routine data on paediatric admissions that provided the basis for promoting adoption of evidence-based interventions, improving quality of care and, ultimately, support for pragmatic intervention trials designed with all stakeholders. CIN collected paediatric clinical data abstracted from medical records and data was in the domains of biomedical data history, examination, laboratory investigations, diagnosis, treatment, and supportive care. The variables included in the tool were those that reflected the Ministry of Health Basic Paediatric Protocols (BPPs), thus the CIN project evaluated the adherence to the BPPs. The CIN project was focussed on improving the delivery of quality care for the seriously sick children by making knowledge and data work at scale.

This collaborative research program worked with selected county hospitals in strengthening and improvement of the quality of hospital data collection and utilization of the health information to improve health outcomes in paediatric care. The KWTRP supported the improved collection and use of the hospital data through the CIN by promoting and implementation of better patient records documentation. The initial focus in these hospitals was in-patients' paediatric wards and the ultimate objective was to improve the quality of routine mortality and morbidity data available to hospitals to develop and integrate systems for enhanced data collection. The aim of the CIN was to work within, and not parallel to, the existing health systems and with the healthcare workers that provided routine care. The CIN project was a pragmatic research study and the source documents for research data were those used in practice and not for specific study case report.

The CIN collaborative research project was designed and developed to improve inpatient data following the inability to use the routine data that was available in the hospitals then in the implementation and evaluation of uptake of the clinical practice guidelines (CPGs). The data clerks were trained by KWTRP on REDCap and application of the standard operating procedures

and all the necessary skills that were required in quality data collection methods. Data were abstracted manually from paper records, entered into electronic tool using REDCap API (Linux based program/tool for capturing data). Data quality was validated using R cleaning scripts and then the data were synchronized with the central data base in KWTRP. The data were further cleaned using an automated R script that provided secondary quality checks on the master data store, containing data from all sites and generated a daily error report that was communicate to the data clerks for correction. There was one data clerk per hospital who were supervised closely by the Health Records Information Officers (HRIOs) of the participating hospitals in ensuring that the data captured was apt and accurate (Tuti et al., 2015).

The data were analyzed and the audit reports produced that were provided to the hospitals after every three months through feedback reports by the leading clinical coordinators at KWTRP. The reports were sent to the respective hospitals through email to the Medical Superintendent, hospital pediatricians, the nurses' in-charge and the heads of the records department before the actual delivery of the feedback and also through a face to face presentation of the feedback by the CIN clinical coordinators. Figure 1 illustrates the diagrammatic presentation of the data management process flow.

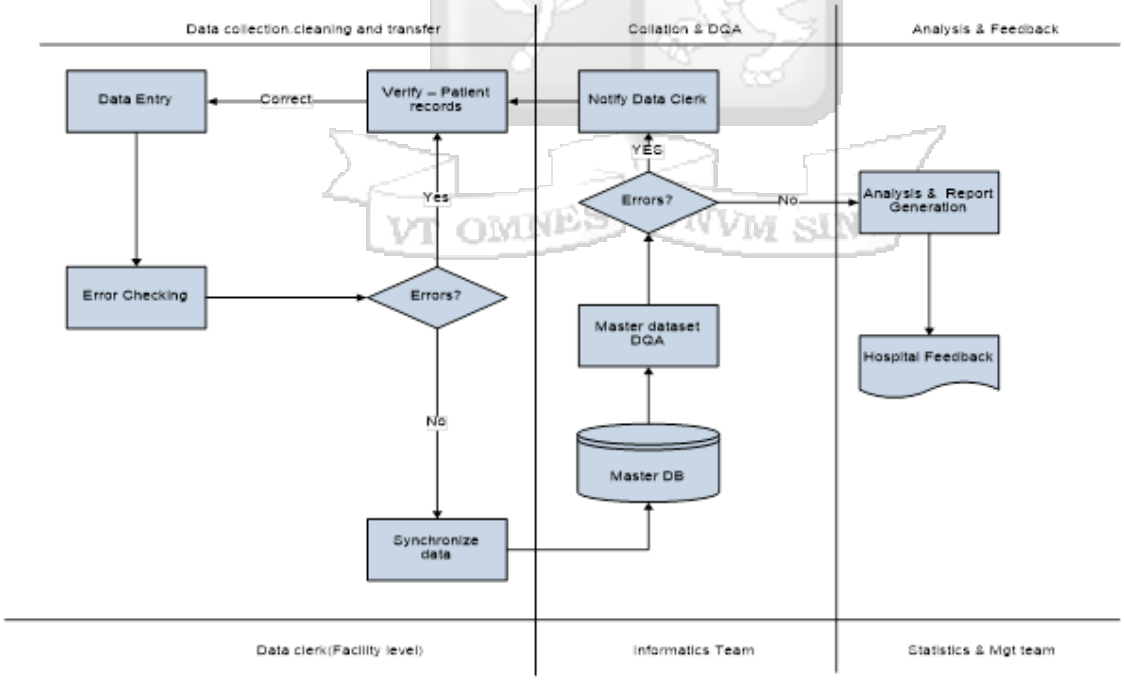

Figure 1: Data management process (Tuti et al., 2015)

The presentation of the audit reports allowed hospitals to compare with self by depicting the previous performance and graphically presenting the trend of change of the various quality indicators. It also allowed them to compare their performance with that of the other 13 hospitals in the CIN project.

For easy of interpretation and comparison of performance the quality indicators were presented in colour codes where green represented excellent documentation and red represented poor documentation (Table 2). An example of the presentation of the audit reports are shown in Table 2.

Table 1.1: Colour codes

Color	Intepretation	Range
	Excellent documentation	>90%
	Good documentation	80 - 90%
	Some documentation	60 - 79%
	Poor documentation	<60%

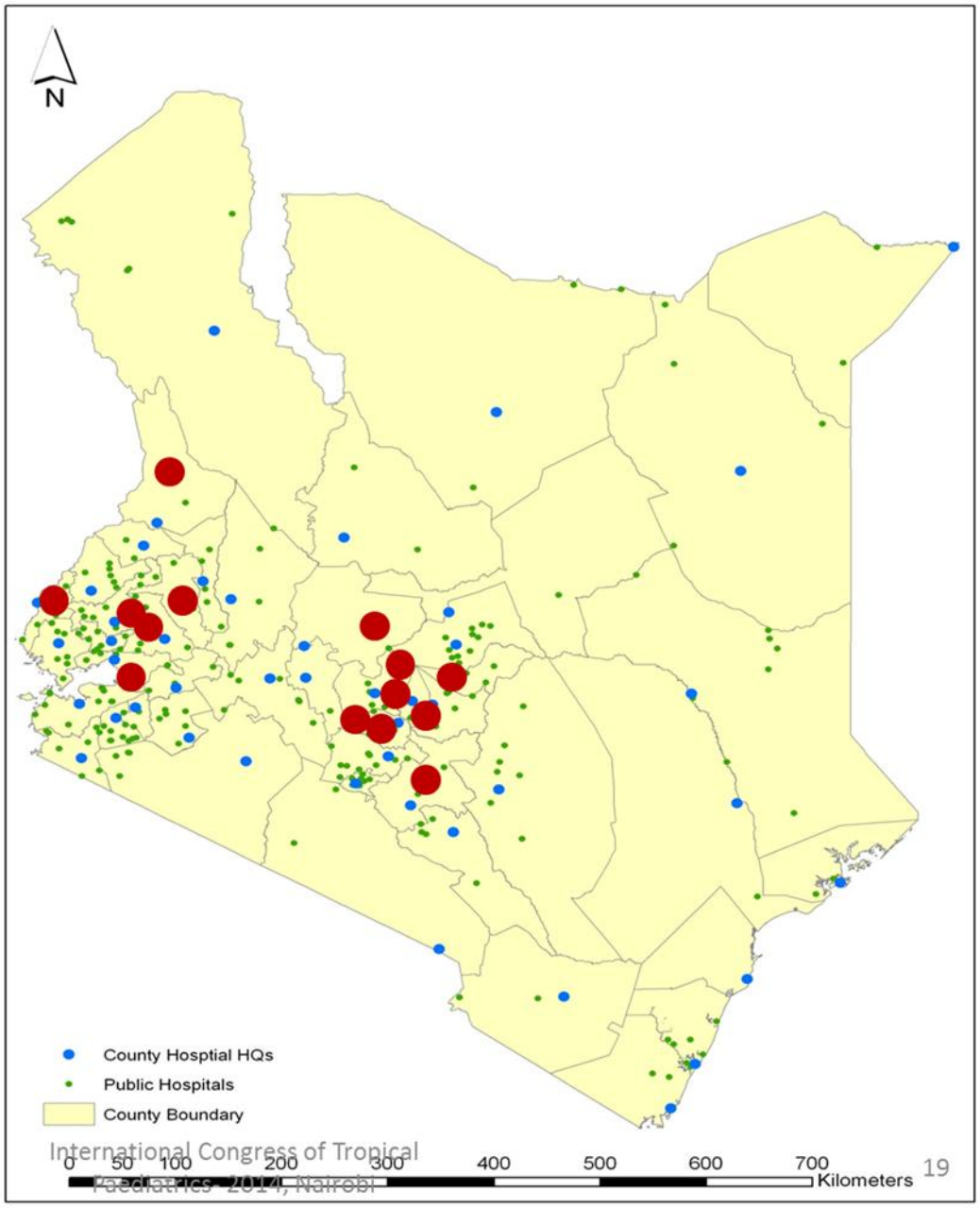

Figure 1.2: Map showing the CIN Hospitals (Tuti et al., 2015)

1.3 Problem Statement

Traditionally, individual healthcare professionals audited and evaluated their own clinical practice which was largely based on intuition and definitely informed by the acquired knowledge (Flottorp, et al., 2010). This view is no longer favourable among the health workers. Suboptimal service delivery in the Kenyan public healthcare institutions can be attributed to several factors, including: inadequate responsibility and ownership in service delivery, insufficient motivation, inadequate leadership and management skills, poorly prepared middle-level managers, inadequate

information, presence of wrong, inadequate and inconsistent data and information for decision making and the lack of monitoring and assessment tools of the quality of care (Irimu, et al., 2014). Previous studies have shown poor compliance with evidence-based standards, wrong diagnosis, drug dose errors, and high mortality rates from avoidable and treatable common serious childhood illnesses such as diarrhoea and pneumonia. This is not withstanding the inadequate routine evaluation of the quality of care delivered to the patients due to lack of proper documentation.

The performance of the health care workers in the documentation practises was likely to be influenced by A&F and specifically on how it was delivered, how it affected their attitudes, how it was perceived, and how it affected their routine operations. It was not automatic however, that the introduction of feedback loops in a system led to an improvement in performance. This research qualitatively explored the perceptions of the healthcare providers to performance feedback. This research study moreover, evaluated the role of communication and information, decision making and leadership in improving the leadership in delivering paediatric care. The study also explored the perceived impact of the A&F on the behavioral attributes of the paediatric medical providers. Do feedback reports influence the health workers to change and improve on their performance?

1.4 Main Objective

To explore the perceptions of health care workers on audit and performance feedback in the fourteen (14) selected Kenyan county hospitals

1.4.1 Specific Research Objectives

a) To establish the perceptions of health care workers on performance feedback in the selected Kenyan county hospitals.

b) To explore how audit and feedback influenced the behavioural attributes of the paediatric health workers.

c) To identify the role of audit and feedback in improving the leadership and management skills of the paediatric healthcare workers.

1.4.2 Research Questions

a) What were the perceptions of health care workers on performance feedback in the selected Kenyan county hospitals?

b) How did audit and feedback influence the behavioural attributes of the paediatric health workers?

c) What is the role of audit and feedback in improving the leadership and management skills of the paediatric healthcare workers?

1.5 Justification

There have been significant improvements in the general health outcomes in children under-five years since the introduction and uptake of the BPPs (Irimu et al., 2012) (Ayieko et al., 2011). These BPPs have had significant reduction mortalities of the hospitalized child (Irimu et al., 2012), These protocols were developed to standardize the delivery of care. There is widespread acceptance and appreciation of the benefits of peer review and audit in clinical care for the purposes of standardization improvement of the health outcomes in children.

Quality, accessible and affordable paediatric care demanded a paradigm shift in the process of delivery of care by the health care workers; the entire health care system should work with unity of purpose at improving the quality of paediatric care. The paediatricians, general physicians, clinical officers, nurses, nutritionists, social workers and health records information officers were required to work in harmony as teams to improve the standards of care putting in to consideration the complexity of the healthcare system. It was important however, to understand how audit and feedback was perceived by the health care workers in order to improve the performance and leadership and management skills.

Feedback is the most powerful yet the most under-utilised quality improvement tool particularly in the healthcare industry. Consequently, healthcare organizations, providers, and patients alike thus stand to gain significantly from a well-designed and well-implemented audit and feedback intervention strategy (Ivers et al., 2012). Recent research has made some important insights in how feedback interventions work in the healthcare setting. A participatory action research by Irimu *et al*., (2014) on the introduction of the Ministry of Health Basic Paediatric Protocols (BPPs) and A&F mechanisms in a teaching hospital showed that there were some improvements of key performance indicators in the process of care.

CHAPTER 2: LITERAURE REVIEW

2.1 Introduction

Audit and feedback (A&F), which can be described as furnishing providers with "summaries of clinical performance of health care over a specified period of time" has had a longstanding tradition as an intervention to change provider behavior, and consequently, quality of health care (Hysong, 2009). As a form of "knowledge of results," it was thought to improve performance by offering providers current performance information and the motivation to improve. A&F is used widely in healthcare by a wide range of stakeholders, including research funders and health system payers, delivery organizations, professional groups and researchers, to monitor and change health professionals' behaviour, both to increase accountability and to improve quality of care.

Audit and feedback implementation strategies were intended to enhance professional performance and thereby improve the quality of health care and patient safety. However, a systematic review by Forsetlund on the effectiveness of A&F in changing clinical practice suggested that A&F may improve the performance of health care providers marginally (Forsetlund et al., 2012). Despite its use as a quality improvement strategy, there remains uncertainty regarding both the effectiveness of A&F in improving healthcare practice and its characteristics that lead to greater impact (Tricco et al., 2012).

However, a systematic review by Flottorp *et al.*, showed that: 1. Audit and feedback would probably be more effective when baseline adherence to the good practice is lacking, and if the intensity of the feedback is high. 2. Feedback was more effective when it was delivered in a timely fashion, individualized, non-punitive and actionable. It seemed less effective when it focused on the recipient rather than on specific suggestions for improvement. 3. The provision of adequate support to programmes for A&F appeared to be important for maintaining effectiveness when interventions were being scaled up. 4. Audit and feedback can be components of a multifaceted strategy to improve the quality of health care. An example was the quality circles, where feedback reports constituted a basis for discussion around the achieved and desired levels of health care quality. 5. The impact of A&F, with or without additional interventions, to be monitored routinely by auditing practice after the intervention and finally the decisions about whether and how to use audit and feedback to improve professional practice ought to be guided by pragmatism and consideration of local circumstances and settings. This study was founded

mainly on the experiential learning theory and a host of behavioural and cognitive theories as described below:

2.2 The Experiential Learning Theory

The Experiential Learning Theory provided a holistic integrative perspective on learning that combined experience, perception and cognition and behaviour. The Experiential Learning Theory which was based on the Kolb's cycle involved the acquisition of abstract concepts that could be applied flexibly in a range of situations. In Kolb's theory, the impetus for the development of new concepts was provided by new experiences. The construction of the experiential learning theory was based on contributions from Lewin, John and Paiget.

According to the Lewinian model of action research, learning change and growth were best facilitated by an integrated process that begun with the observation experience, collection of data, analysis of the data and finally providing feedback of the process to the actors (Cliffs, 2006). This model was based on feedback processes to generate valid information to assess deviations from the desired goals. This feedback provided the basis for a continuous process of goal-directed action and evaluation of the consequences of that action. Lewin believed that much of the individual and organizational ineffectiveness could be traced ultimately to a lack of adequate feedback processes. This ineffectiveness resulted from an imbalance between observation and action and ultimately due to lack of information (Cliffs, 2006).

John's Dewey model of the learning process borrowed from the Lewin's concept of feedback processes but went further to describe how learning transforms the impulses, feelings and desires of concrete experience in to higher order of purposeful action (Cliffs, 2006).

Piaget's Learning Model which also formed part of the entire Kolb's experiential learning theory, the key to learning lied in the mutual interaction of the process of accommodation of concepts or schema's and the process of assimilation of events and experiences. In all the three models of learning, experiential learning was described as the process whereby concepts were derived from and continuously modified by experience (Cliffs, 2006). The figure 2.1 illustrated the entire Kolb's Experiential Learning cycle.

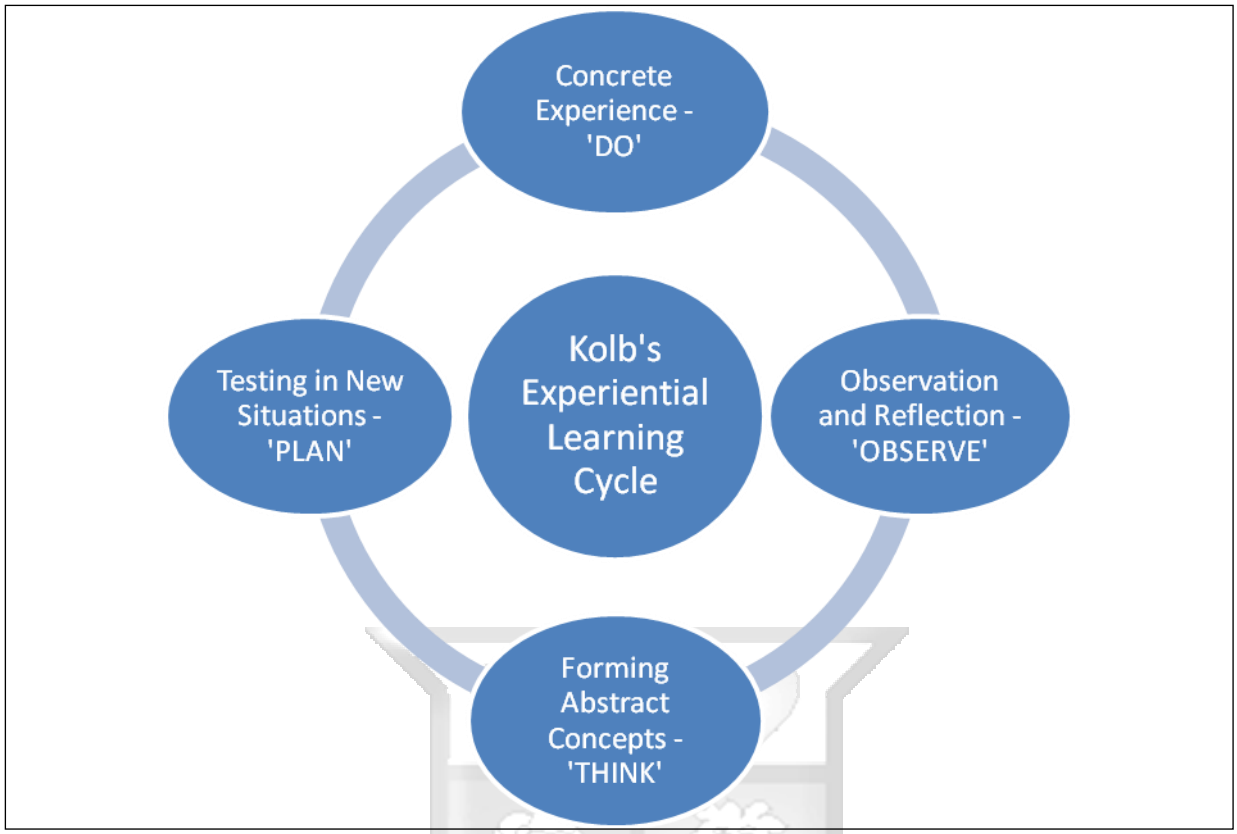

Figure 2.1: Kolb's Experiential Learning Cycle (Cliffs, 2006)

There were important factors to learn and consider from the experiential learning theory in relation to providing feedback to healthcare workers to influence their performance in delivering and improving the quality of care. The experiential learning theory emphasized on processes of adaptation and learning, as opposed to the content or the outcomes of the processes. Secondly, it acknowledged that knowledge was a transformation process that was continually created and recreated and it was not an independent entity to be acquired or transmitted. Thirdly, the theory appreciated that learning transformed experience in both its objective and subjective forms (Cliffs, 2006). This theory was the basis on which the CIN was built and hence important in referencing this study.

2.3 Behavioural and Cognitive Theories on A&F

Individual behaviour change and cognitive theories suggested that feedback may work in many ways, including (but not limited to) changing recipient awareness and beliefs about current practice and subsequent clinical consequences, changing perceived social norms, affecting self-efficacy, or by directing attention to a specific set of tasks (sub-goals) (Colquhoun et al., 2013). The study was informed by three relevant behavioral and cognitive theories that supported the provision of A&F in relation to assessing the performance of the health care providers.

2.3.1 Feedback Intervention Theory

According to the Feedback Intervention Theory (FIT), a theory derived from industrial/organizational psychology explained the observed variability in health care A&F research (Hysong, 2009). This theory postulated that A&F would be more effective to performance when feedback emphasized features of the clinical task to be performed. For example, it specified a target performance, outlined information on how it can be attained and provided a commentary on the degree of change in performance observed since previous feedback. The FIT also predicted that A&F would be less effective when it focused on the feedback recipient such as discouragement or praise verbiage.

According to the FIT, A&F had a modest, though statistically significant effect on performance and there were four measures that significantly impacted on its effect: The provision of possible correct solution information in written format increased the effect of feedback, whereas verbal and graphic feedback delivery reduced the effect. More frequent feedback sessions significantly increased the effect of feedback on performance. The normative information and public delivery of feedback did not seem to have any impact on the outcomes.

FIT proposed three basic arguments: 1) Behaviour was regulated by comparing feedback with goals or standards and identifying gaps. According to Kluger & DeNisi, Feedback Interventions (FI's) were used with goal setting making sure that the FI's related to previously established goals and not did to let FI's focus on the self (Kluger & DeNisi, 1998). 2) If Feedback Interventions (FI) were directed at self, be it praise or cues that threatened the self for example; destructive criticism, then performance was affected as it reduced cognitive resources necessary for the performance of that specific task. However the feedback was given, either verbally, written or computerized if it was directed to self, it negatively affected performance. Thirdly, FI's changed the locus (centre) of attention and therefore had the possibility of affecting the behaviour of the health workers who were the recipients of the feedback. This FIT was applied during the delivery of feedback reports to the health workers by the CIN team.

2.3.2 Theory of Planned Behaviour

The Theory of Planned Behaviour (TPB) used intention to predict behaviour and according to the systematic review by Ajzen, the theory of planned behaviour had, by any objective measure, become one of the most frequently cited and influential models for the prediction of human social behaviour. The TPB was one that adopted a cognitive approach to explaining behaviour which centred on individuals' attitudes and beliefs. It was one of a closely

inter-related family of theories which also emphasised the role of intention in behaviour performance. It was intended to cover cases where an individual was not in control of all factors affecting the actual performance of behaviour (Ajzen, 2011).

The theory states that attitude toward behaviour, subjective norms, and perceived behavioural control, together shaped an individual's behavioural intentions and behaviours. This meant that the incidence of actual behaviour performance was proportional to the amount of control an individual possessed over the behaviour and the strength of the individual's intention in performing the behaviour (Ajzen, 2011). As time passed, an increasing number of intervening events could change people's behavioural, normative or control beliefs, modify attitudes, subjective norms or perceptions of control, thus generating revised intentions. Regardless of how people arrived at their behavioural, normative and control beliefs, their attitudes towards the behaviour, their subjective norms and their perceptions of behavioural control followed automatically and consistently from their beliefs. Even if inaccurate, biased or otherwise irrational, individual beliefs produced attitudes, intentions and behaviours consistent with these beliefs (Geraerts et al., 2008). According to the Control Theory people were most likely to change their performance behaviour if feedback was accompanied by comparison with a behavioural target and action plans. The key component to this model was behavioural intent; behavioural intentions were influenced by the attitude about the likelihood that the behaviour would have the expected outcome and the subjective evaluation of the risks and benefits of that outcome.

The understanding of this theory was important in this study because the study explored the influence of the A&F strategies on the behavioural attributes and leadership and management skills of the paediatric health workers.

2.3.3 The Health Belief Theory

This was a behavioural theory model developed to explain and predict health-related behaviours, particularly in regard to the uptake of health services. It was a cognitive theory where the behaviour of healthcare professional was determined by a number of beliefs about threats to an individual's well-being and the effectiveness and outcomes of particular actions. It was developed in the 1950s to explain why medical screening programs offered by the U.S. Public Health Service particularly for tuberculosis were not very successful (Constructs & Concept, 2003). The underlying concept of the original HBT was that health behaviour was determined by personal beliefs or perceptions about a disease and the strategies available to decrease its

occurrence. It was triggered by a stimuli or a cue of action which elicited the actual adoption of a particular behaviour and it was directly linked to a person's readiness to take action.

It was founded on four theoretical constructs about an individual's perceived seriousness, perceived susceptibility, perceived benefits and perceived barriers (Rosenstock, Strecher, & Becker, 1988). There were individual modifying factors and characteristics such as culture, education levels, past experience, skills and motivation that influence personal perceptions. Cues to action consisted of events, people, or things that influenced people to change their behaviour. Self-efficacy was the belief in one's own ability to do something. People generally did not try to do new things unless they thought they could do them. If someone believed a new behaviour was useful, but did not think he/she was capable of doing it chances were high that they would not have attempted it. Finally the modifying variables, cues to action and self-efficacy affected the perceptions of the health care workers susceptibility, seriousness, benefits and barriers and ultimately the behaviour (Constructs & Concept, 2003).

This model was expanded to include cues to action, motivating factors and self-efficacy and this theory would have informed on the cues or the variables in the feedback strategies that triggered the health care providers to improve paediatric care.

2.4 Audit and Feedback as an Intervention Tool

Few studies have directly investigated the relative effectiveness of different characteristics of audit and feedback, it seemed that feedback had the greatest effect when baseline compliance with recommended practice was low (Flottorp et al., 2010). Due to both the heterogeneity of the studies and the different methodologies of the reviews, there was very limited opportunity in making general recommendations regarding characteristics most likely leading to successful feedback interventions. A&F effectiveness was improved when feedback was delivered with specific suggestions for improvement, in writing, and frequently. Practice consistent with these standards required proactive management of patients and involvement by the entire practice team. Other feedback characteristics could have potentially improved effectiveness; however, such a research needed stricter experimental controls to identify the specific feedback characteristics that maximized its effectiveness (Hysong, 2009).

This study was largely based on the experiential learning theory which offered a fundamentally different view of the learning process from the behavioral and cognitive theories of learning based on an empirical epistemology or the more implicit theories of learning that underlie traditional education methods (Cliffs, 2006).

Audit and feedback (A&F) has had a longstanding tradition as an intervention tool that can influence the provider behaviour, and consequently, quality of health care. According to the Feedback Intervention Theory (DeNisi & Kluger, 2000), behaviour was regulated by comparing the feedback to hierarchically organized goals and standards. Feedback interventions worked by providing new information that redirected recipients' attention either towards or away from the task. Feedback was effective in improving the targeted performance based on its characteristics (content, context, and format), the nature of the tasks performed and other situational and personality variables. Despite its use as a quality improvement strategy, there remains uncertainty regarding both the effectiveness of A&F in improving healthcare practice and its characteristics that lead to greater impact (Tricco et al., 2012).

Audit and feedback was often used in healthcare organizations to improve health professionals' performance. A&F, as a system for improving both the quality and safety of health care, could be applied in the healthcare setting in many different ways. The aspects of performance being audited may vary, depending on the interests of the auditors and the available information. An audit can also be based on routinely available data from electronic patient records or medical registries or on data that are collected by the health professionals. A&F mechanisms could be implemented alone or linked with other interventions. Most research on A&F mechanisms studied the system as a component of a multifaceted intervention, often combined with educational activities or reminders. A&F therefore, was a mechanism intended to enhance professional performance and thereby improved the quality of health care delivery, care and patient safety (Colquhoun et al., 2013).

Audit and Feedback was widely used as a strategy to improve professional practice either on its own or as a component of multifaceted quality improvement interventions. This was based on the belief that healthcare professionals were prompted to modify their practice when given performance feedback showing that their clinical practice was inconsistent with a desirable target. It was often used together with other interventions, such as educational meetings, trainings or reminders (Ivers et al., 2012). A&F was used to influence the performance of the healthcare providers in different areas, such as the proper use of treatments, laboratory tests and improving the overall management of patients with chronic disease such as heart disease or diabetes (Tricco et al., 2012).

In practice, health care professionals received feedback on their performance based on the data collected from their routine practice in the delivery of care. It was however inconsistent and

not always the case that health care professionals would be prompted to modify their clinical practice performance if they received feedback. The available evidence from the systematic reviews (Hysong et al., 2012) and (Colquhoun et al., 2013) suggested that A&F could be effective in improving professional practice but the effects were generally small to moderate but very significant. Nonetheless, depending on the context, if these slight effects were shown to be cost-effective they could be worth consideration and implementation.

This study aimed at understanding the perceptions of the A&F strategies on the performance of the paediatric HCWs in regard to their documentation practises for the seriously sick child admitted in the Kenyan County hospitals. This study revealed that A&F helped in enhancing the some of the medical professional values such as: 1. General conduct and behaviour – A&F mechanisms enhanced the professional behaviour of the healthcare workers in a supervised environment that was safe for the sick children such as patients confidentially and maintaining trust and responsibility. 2. Good clinical care – A&F supported and promoted good clinical paediatric care among the health care providers. 3. Maintaining good medical practice – A&F enabled the HCWs to apply the knowledge necessary for good clinical care. 4. Relationships with patients – A&F enhanced the HCWs in the CIN project in building relationships with patients based on openness, trust and good communication. 6. Working with colleagues – A&F enhanced the healthcare workers to effectively work with colleagues from the different departments to deliver the highest quality of paediatric care.

According to a systematic review by Bosch-Capblanch *et al.*, there was insufficient high quality evidence to advocate for any particular form of implementing supervision to health care workers. Interestingly, available evidence suggested that more intensive supervision (for example, with more frequent visits) was not necessarily more beneficial in changing the attitude of the HCWs. Policy makers and managers there needed to consider a wider range of options that ensured the link between the periphery of the health services and the central unit balancing costs and feasibility (such as meetings at the district centre, integration with managerial activities of other sectors at district level or peer-to-peer support). Due to the lack of quality evidence, supervision ought to be implemented together with other activities to evaluate its effects, including costs.

This study implemented where supervision was delivered as part of the feedback reports to the hospitals. Supervision and Leadership was part of the feedback reports delivered to the hospital teams during the routine feedback meetings.

2.5 Conceptual Framework

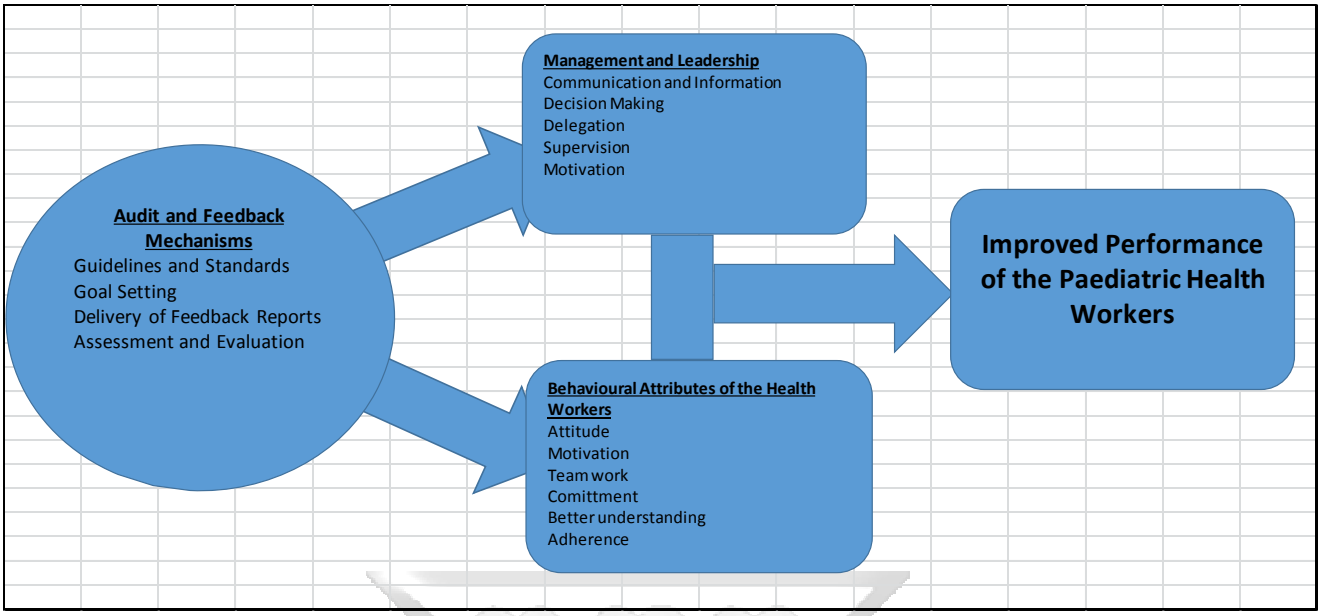

Figure 2.2: Conceptual Framework of improved performance of healthcare workers.

It was assumed that the performance of the paediatric healthcare workers determined the quality of the paediatric care depending on how feedback reports were delivered. The study explored how implementation of A&F influenced the behavioural attributes and the leadership and management skills of the paediatric healthcare workers. The changes in the behavioural attributes had a consequence on their performance and ultimately the quality of paediatric care. Leadership and management skills were influenced by the A&F and they also influenced the performance of the paediatric health workers.

The strategy of delivering feedback involved detailed review of the paediatric care process in the selected health facilities based on the basic paediatric protocols and guidelines. The delivery of paediatric care must meet the standards as stipulated in the basic paediatric protocols and hence the basis of the measurement and assessment. All the participating hospitals had targets and goals to achieve as stipulated by the hospital teams and the CIN team. It was these targets and goals that formed the measurement points against which performance was evaluated through the collected data. The performance/feedback reports covered all the care points and departments involved in paediatric care and were delivered to all the healthcare workers in these specific departments. Depending on the category of the hospital the composition of the healthcare workers may vary.

The conceptual framework (Figure 2.2) illustrated how audit and feedback influenced the behavioural attributes of the health care workers and also how the leadership and management

components were influenced by the A&F strategies which together influenced the performance of the health workers.

The mechanism of feedback was informed by the feedback delivery strategies and mechanisms according to the summary of findings by Flottorp *et al* in the systematic review on Audit and Feedback (Flottorp *et al.*, 2010). This was corroborated by the behavioural theories as discussed above where, if feedback was delivered in the correct format, content and context then there was high expectancy of a positive correlation of performance and the healthcare professionals.

CHAPTER 3: METHODOLOGY

3.1 Research Design

The research study employed the exploratory qualitative research design to establish and evaluate the understanding of the effect of performance feedback in improving the performance of health providers in paediatric care. The research design was chosen because the study sought to understand more on the impact of A&F in improving the quality a field that has not been well studied particularly in Africa.

3.2 Population and Sampling

This research focused on the healthcare workers involved in the paediatric care in the selected **14** Kenyan county health facilities. The study engaged a total of **53** health care providers delivering paediatric care comprising of pediatricians, clinical officers, pediatric nurses, and health records information officers from the **14** participating hospitals. The CIN research project started in September 2013 and it is currently going on in 14 selected county hospitals. Structured interviews and focus group discussions were conducted during the annual workshops held for the CIN project.

The research study conducted a total of 10 FGDs comprising of all the paediatric health care workers. The participants in the FGDs were purposively selected because they were the CIN focal persons in their respective hospitals. The (10) ten respondents for the semi-structured interviews were randomly selected paediatricians and the hospital in charges (medical superintendents) attending the annual CIN workshops.

3.2.1 Inclusion Criteria

This study only engaged the healthcare providers from the selected health facilities that had received their performance feedback from the CIN project team. The paediatric health care workers comprising of paediatricians, clinical officers, nurses, HRIOs, medical officers, public health officers and nutritionists must have received the routine feedback reports at least once from the KWTRP team.

3.3 Qualitative Data Collection

Informed written consent (Appendix 1) was obtained from all the participants to participate in the semi structured interviews and FGDs as well as recording of the discussions. Data was collected using topic guides that were piloted during the first CIN focal persons

workshop held in Nairobi in May 2014. Data were analysed (not included in this report) and they informed the revision of the topic guides.

The FGDs and the semi-structured interviews were conducted during the annual workshop held in Nairobi in October 2015 for the three focal persons (hospital paediatrician, nursing officer in-charge and HRIO) from each of the 14 participating hospitals. The composition of the FGDs was based on the availability of the participants in the workshop. Due to logistical challenges modified FGDs were conducted because of difficulty of having eight participants free to participate. The heterogeneity of the groups ensured that maximum variation of the opinions was captured in the discussions which continued until point of saturation was reached. The FGDs were moderated by the principal investigator and the proceedings recorded using an audio recorder. Notes were taken verbatim by a professional note taker indicating salient observations of non-verbal behaviour, such as facial expressions, hand movements and other group dynamics noted and recorded.; these complemented the audio recordings.

The focus group discussion topic guide (appendix 1) and semi-structured interviews topic guide (appendix 2) led the discussions and the interviews. The FGDs were used to explore the responses of the paediatric healthcare workers to feedback and performance. The semi-structured interviews explored the role of audit and feedback in improving the management and leadership components of the paediatric health care workers.

3.4 Data Analysis

The audio recordings were transcribed and the information collated and the verbatim report carefully studied. Using the Microsoft Excel, the unstructured information was classified, sorted, and arranged for data analysis. The Microsoft Excel provided a workspace and tools that helped in first and second level coding and organizing the transcribed data for analysis. The important notes and statements were compared among the different FGDs and the semi-structured interviews. The data were coded in to broad categories, categories and sub-categories based on the topic guide (appendix 1) and the conceptual framework (figure 3).

The analysis involved comparison of transcripts from all the FGDs, and the semi-structured interviews. The qualitative analysis involved the identification of the important categories and subcategories in the data, as well as patterns and relationships, through a process of discovery. The coding was validated by one of the supervisors who is also an expert in qualitative studies (Irimu, et al., 2014) (Irimu, et al., 2012).

3.5 Research Quality

The research study sought to explore the influence of the A&F on the behavioural attributes of the paediatric health care workers as well as the its influence on the leadership and management skills of the health care workers. The research findings described the opinions and perceptions of the healthcare workers who were working in the paediatric units which were obtained through semi-structured interviews and FGDs.

The research was conducted with the CIN focal persons in the 14 participating hospitals which represented all the county hospitals (former district hospitals) in the country. These hospitals were purposively selected and represented the settings and conditions of all the other county hospitals and therefore the outcomes of the CIN project would be replicated in all the county hospitals in Kenya.

The research findings of this study were consistent with other studies conducted in low income countries where provision of A&F impacted on the performance of the healthcare workers. Direct non-participatory observations allowed for triangulation of the data collected, but it was noted that often health workers appeared more open, relaxed, and engaged during informal chats with the researcher. The perceptions of the health care workers who did not attend the CIN annual workshops were not captured and this could have introduced some information bias in the collection of the data.

3.6 Ethical Consideration

The ethical approval (appendix 4) for the overall project was obtained from Kenya Medical Research Institute (KEMRI). All the important legislations that assisted in the daily operations of the project were duly fulfilled. These included CIN data access policy, CIN manual document, Standard Operating Procedures (SOPs) for all the team members and the CIN function flow document. All participating hospitals and healthcare workers thereof were aware and informed of the on-going feedback sessions and data collection programs.

CHAPTER 4: RESEARCH FINDINGS

4.1 Introduction

A total of **53** healthcare workers responsible of delivery of paediatric services in the 14 selected county hospitals participated in the study from ten (10) semi-structured interviews and 10 Focus Group Discussions (FGDs) which included the modified focus group discussions. The findings were based on the major discussions points with the health care workers according to the topic guide as follows:

Eight major themes of the perceptions of the healthcare workers to A&F were identified: commitment to improve care; opportunity to reflect on quality of care delivered; understand hospital morbidity and mortality; reinforced standards on care; used data for planning; enhanced team work; A&F as an incentive; and enhanced supportive supervision. These themes satisfied the objectives of the study which were to explore the perceptions of A&F on the performance and leadership and management skills of the health workers and the behavioural attributes of the HCWs.

4.1.1 Commitment to Improve Care

The healthcare workers felt that A&F were useful identifying the gaps in care and helped to formulate and develop strategies to improve on their performance. In particular, they helped to formulate and develop topics for the weekly Continuous Medical Education (CME) sessions and discussions points during the weekly ward rounds by the senior paediatricians CMEs. The education sessions were based on real life cases because it was what the paediatric healthcare workers had experienced which made the sessions more informative, practical and directed their efforts in solving the problems they identified in the delivery of care.

"during CMEs clinical officer present the story and then the more senior person (Medical Officer) *discuss the science in the case, how will manage and how we should have managed and the professors are also there to top up so in those sessions, it's sort of like pushes people to continuously improve care."* ***DR BM 06 2014***

"It also helps in the continuity of patients care and especially when you document something you will be able to detect any faults or any, any mismanagement of the patient, any misdiagnosis you will be able to at least find gaps yourself plus your supervisors. So I believe that whatever feedback is very important because we've been seeing that and been trying to address the gaps." ***FN 01 2015***

"It has affected the way we do our things positively; if you realize that here we have been going down because the report is there to educate us. If you realize that here we are going down then you put you add more weight to the affected area so that you can uplift and provide a better health care." ***MFGD2 27 2015***

4.1.2 Opportunity to Reflect on Quality of Care Delivered

The feedback reports were believed to have provided self-directed reflection on the quality of care delivered to patients by the health care professionals. They felt they were able to monitor and evaluate their performance without coercion and close follow up by the supervisors. The areas of suboptimal performance and gaps identified prompted the HCWs to address the gaps to avoid appearing in the colour code (red) corresponding to poor performance in the next feedback report. The healthcare workers appreciated the feedback reports and the fact that these reports revealed aspects of their performance they had no insight of previously. The HCWs felt that there was improvement in the delivery of the health care services in the way the patients were assessed and managed.

The health care workers felt that the reports enabled them to change their practise for the better.

To my side I've seen an improvement in health care services yea they have really improved, about how the patient are being clerked, how they are seen, treatment, the kind of treatment that they get ok despite that there could be some challenges because even if there is on-going project…. ***Kiambu DH 14 2014***

They are eye openers for us, yea they make us now try to focus on our weaker areas, because feedback basically give you which areas you were not performing well in yea so I think it has given us at least that opportunity to improve on those areas that we are weak in. The feedback also gives you the areas that you are strong in, so we hope that we can maintain ***GO 01 2014***

4.1.3 Understand Hospital Morbidity and Mortality

It was felt by the HCWs that A&F reports revealed some serious childhood illnesses which had previous been assumed to be uncommon were in reality common cause of admission. For example in H1 cases of malnutrition were considered to be rare cause of admission in that hospital on the assumption that the hospital was situated in a county where food was not considered a scarce commodity. The audit reports showed that there many cases of malnutrition.

Yea, but we have a lot of malnutrition, so where are these children who have malnutrition? Because in the file you find we are (now) *diagnosing malnutrition so why isn't reflecting* (before the A&F) ***GO 20 2014***

It was generally agreed that the documentation process had improved and the hospitals had better information on causes of mortality. Previously, the names of the deceased patients were recorded in a book with no easy way of tracking the mortality patterns. Previously, the books were not available for verification by the records departments which led to wrong reporting of the paediatric mortalities to the DHIS.

In fact previously we have not been writing discharge we've not been writing death summaries so the discharge, the copies of the discharge summaries that would be entered in our records were those ones will be in the files. Some of the discharge summaries were missing, they are not just lying around, and patients went with them home. Those ones who died, previously we were not writing, we are now trying to write, previously we were not writing, so the thing that we relied on was this book ***DR BM 01 2014***

4.1.4 Reinforced Standards on Care

The HCWs felt that the feedback reports exhibited that after the admission of the new interns (COs and MOs interns), the performance of the paediatric unit plummeted. They attributed this due to lack of familiarity and experience by the interns on the good documentation process and the basic paediatric guidelines. The feedback reports helped these hospitals develop orientation plans to induct new interns on delivering high quality paediatric care in the participating hospitals. It was also felt that staff attritions and change-overs due to the rotations and academics affected the overall performance of the health facilities and also affected the consistency of performance consistency of the HCWs.

The orientation process became the norm for the most of the participating hospitals to avoid a drop in performance every time new interns (either MOs and COs) on-boarded. Some of the participating hospitals also assigned extra responsibilities to all the paediatric staff to make sure that the data capture was correct and accurate.

The HCWs also felt that the delivery of the feedback reports enhanced correct diagnosis and adherence to the set paediatric guidelines and standards.

….the interns because of the change of when the new ones come they are oriented and they are make sure so that they can at least get the insight that it is very important for them to follow the guidelines because this is totally going to give them directives how to manage these patients. So in our hospital I think there is a good compliance of the use. ***MFGD2 05 2015***

…..examining the most important thing paediatric patient and truly guides you because most of your correct diagnosis you actually draw from the history you have taken from the patient and also the examination so it really helps, it makes our work easier for in terms of training the interns coz we already have some guidelines. ***MFGD2 41 2015***

I think they have enhanced adherence because when you have the feedback sessions, you see like things like pneumonia, some people never used to write the respiratory rate, but you see if the feedback sessions comes and tells you percentage of when they come to pneumonia then they say respiratory rate you are only recording 60% six out of every 10 children who have pneumonia don't have those are the only ones with respiratory rate recorded… ***GO 11 2014***

The records department appreciated the documentation process and particularly the reports that the REDCap system generated. They felt that the reports made their work easier in reporting

to the Ministry of Health (MoH) through the Health Information System. The reports assisted the HRIOs in submitting accurate monthly reports to the DHIS.

I think because of feedback, they are doing it perfectly I think I have seen that we don't, come to wards to complain the way we have been complaining before ***Kiambu DH 54 2014***

In addition the HCWs felt that feedback reports improved their self-efficacy in using the BPPs.

The protocol nowadays is not as difficult to implement as before, because it's just becomes part of your daily, yea the way you do your things so it's not difficult anymore. ***GO 39 2014***

4.1.5 Used Data for Planning

The feedback reports were helpful in highlighting the lack of resources in the facilities vital in the delivery of paediatric care. Through these feedback reports the administration of the hospitals felt they were able to properly plan for purchases and other commodities that were highlighted to be lacking in the reports and in some cases they realised that missing commodities were due to poor forecasting.

So there is that pre planning of a even the and also lack of kits, it can, you can lack kits not that there are lacking everywhere but coz the hospital, the hospital did not call whoever was supposed to project how much to use was unable to project and so they are run stock outs. ***FN 15 2015***

One it must, might have been contributed by lack of counsellors, it might have been contributed, yaani (as in) the other contributing factor might be lack of documentation you have counsellors and we, so when we are planning, when we are planning we plan for more counsellors if it is lack of counsellors. We now also plan as to how and the way documentation will be enhanced is going to be enhanced if that is the gap. ***FN 15 2015***

Proper planning and decision making were enhanced due to the provision of feedback reports. The healthcare workers appreciated that the availability of correct patient data was essential in making correct diagnosis and treatment decisions.

…… planning for your resources, planning for I have to go on leave planning in terms generally even in your work life balance, has it enabled you the fact that you know am going to handle that 30 files how long does it take to handle 30 files mmh 2 days so I don't need to sleep for two days has it enabled you to think objectively and probably plan ***Kiambu DH 24 2014***

4.1.6 Enhanced Team work

The HCWs perceived that the feedback reports had positive impact on their own performance and that the reports enhanced team work among the different teams which resulted to performance improvement among themselves. The emphasis on the use of the basic paediatric

protocols enhanced team work amongst the teams with the senior paediatricians providing guidance and leadership in unique and complicated cases. Follow up on patients was made possible because of the concerted efforts by all the HCWs to capture and store accurate patients' records. Good documentation practise and availability of the patients' records enhanced the follow up on patients that ultimately reduced the cases of drug dose errors, misdiagnosis, and treatment errors.

For example, the diagnosis and treatment of meningitis was always in "red" in the reports and it was felt the feedback reports helped the laboratory team to appreciate their role in ensuring the availability of the meningitis results

We have talked to the lab people, talked with them about whatever we are doing or the standards yaani (as in) how we are keeping them on their toes so as at least to have everything documented. ***FN 07 2015***

The HCWs felt that feedback reports created opportunities for them to have a common shared purpose.

It is enlightening, it enlightens and it also shows you the weak areas so you can be able to act and because I have already discussed this report with my department they also come out and they tell us what their problem is and also as we also had an issue in the dosages of Penicillin and some of those areas is because sometimes somebody doesn't have the protocols ***MFGD2 14 2015***

It was reported that the interns collectively owned the documentation process and they did not want any non-performance to be attributed to them.

When the new group comes and they know that the next report is coming when leaving, so everybody wants to win so they put an extra effort so that they are not blamed for the bad changes that might be seen. They all want a positive report and no group, nobody wants to see a negative, so they work on it so even their group performance can be better. ***MFGD2 15 2015***

4.1.7 A&F as an Incentive

The identified gaps from the A&F reports formed the basis of new trainings for staffs throughout the CIN project. The HCWs felt that A&F created a desire to learn among the HCWs and particularly from the paediatric department. The paediatricians also took the initiative of training the new interns on how to use the basic paediatric protocols and emphasized on adherence to the guidelines.

The healthcare workers appreciated the progress and the milestones made by the CIN project in improving the quality of paediatric care in the respective participating hospitals. They felt that their interaction with project had borne some good fruits and they were eager to further

work with the project in improving their individual performances and that of their respective hospitals.

So that is, I attribute the success to the program and the program has helped us because this program also has brought in some training and I think that training is positive ***GO 30 2014***

4.1.8 Enhanced Support Supervision

The paediatricians felt that the regular A&F reports enabled them to provide support to the HCWs compared to what used to happen before the CIN project started. They (paediatricians) also felt that they received support from the hospitals' administration in the implementation of the good documentation practises. They closely monitored and supervised the performance of the health care workers and regularly provided their feedback.

*Yea I receive support but if you give support to people below you I think it works very well, [[*M: It works very well*]] yea it works very well. They look like they are seeing like you are taking care of them, you are concerned about what is happening* ***GO 32 2014***

4.2 Challenges in the Study

The hospitals experienced challenges in bringing people together for the feedback meetings during the feedback delivery meetings in the respective hospitals. Putting all the paediatric health workers together for the meeting would have compromised the quality of care at that time and hence could have affected the performance of the hospital and the HCWs. Other healthcare workers on night shifts particularly had to attend the feedback sessions and therefore, in addition to putting up memos on the main notice boards within the hospitals, they also had individualized invitations with close follow up and constant reminders to the health workers.

What I normally do like when we have a department meeting, I personally speak to those people whom I want to attend the sessions and insist have you heard we put a memo outside in relevant areas but then to ensure attendance and inform them that we have a meeting this time, this date, come so when that day comes, because I spoke to them, they sort of feel they have to come but the memo alone doesn't work, never.... ***DR BM 05 2014***

The HCWs felt that staff rotations and transfers affected the quality of care in the hospitals because of moving teams that had already been trained on good documentation process and thus not able to sustain good performance. This meant that the movement of the trained and experienced healthcare workers in the good documentation practises affected the performance and the hospitals were obliged to invest in training the new trainees. The trainee HCWs who joined

other departments from the paediatric units who were better trained felt discouraged when they went for rotations in other departments where the good documentation practices were not being implemented. This meant that the paediatric unit had to continuously train the new trainees on the good documentation practises every time they received new trainees which affected their performance before the new trainees assimilated and adopted the process.

What I can say initially the moment we started the program we were low in performance so there were staff who were trained, and then were transferred so it affected us a lot such that our performance went down. ***MFGD2 24 2015***

The paediatricians felt that the working conditions in some of the health facilities were not ideal because they lacked basic infrastructure to support service delivery in paediatric care. The new born units were not well equipped with basic equipment like heaters, proper ventilation and even the design and layout of the rooms was wanting. This affected the performance of the health workers as they tended to dwell more on the wellness of the new-borns and the mothers other than the process of administering care. Some of the healthcare workers felt that the CIN project was just a waste of time and a source of more workload which did not come with compensation.

… it takes quite a heart and dedication to serve humanity to continue working in a place like H04 and especially for someone like me, who has been in better places, because you wish things will run in an ideal situation….. ***DR BM 12 2014***

CHAPTER 5: DISCUSSION

5.1 Introduction

This research study explored the perceptions of MOs, COs, nurses, and hospital administrators in implementing new documentation practices in a Kenyan hospital setting. The findings from this study indicated that A&F enhanced the commitment of the health care workers to improve the quality of care. These findings were consistent with the systematic review by Flottorp *et al*., which argued that commitment and support was important in the implementation of the A&F strategies.

5.2 Strengths of the Study

The CIN project involved 14 selected county hospitals (Figure 2) which were representative of all the county hospitals in the country. The composition of the medical professionals in the FGDs was heterogeneous comprising of a mix of paediatricians, COs, Nurses, and HRIOs. This heterogeneity ensured that rich discussions and diverse opinions of the healthcare workers on A&F were captured. The annual CIN focal persons' workshops organized by the KWTRP team presented an opportunity for the health care workers from the 14 hospitals to interact and exchange ideas and experiences on A&F. The workshops were also important in discussing the delivery of quality paediatric care; due to the complexity of the healthcare where functions are interrelated and an improvement of might have unanticipated effect on another.

The FGDs and the semi-structured structured interviews applied different tools of data collection which ensured enriched discussions and feedback. Finally the paediatric health care workers in the 14 hospitals positively embraced and accepted the project and were willing to implement the good documentation practise. There was also sufficient support from the hospitals' administration and management and provided the adequate resources for the project to be implemented within the hospitals. The success of the implementation of the project relied on to a large extent on the willingness of health workers in practice to devote a portion of their limited time to the learning enterprise.

The feedback reports provided self-directed reflection on the quality of care delivered to patients by the health care professionals. They HCWs felt they were able to monitor and evaluate their performance the areas of suboptimal performance and gaps identified prompted them to address the gaps. According to the systematic reviews by Ivers *et al*., and Flottorp *et al*., different ways of monitoring or auditing practice (audit based on routinely collected data from electronic patient records, paper-based forms, patient surveys, peer audits through practice visits, etc.);

which was what was employed by the CIN project was one of the strategies that provided data to the HCWs and showed significance in changing practise. From our study, A&F reports revealed some serious childhood illnesses which had previous been assumed to be uncommon within some counties were in reality common cause of admission. These conditions were previously undetectable without the good documentation practise and with such fundamental discoveries A&F actually enhanced the improvement of the quality of paediatric care.

A&F enhanced proper planning and evidence based decision making due to the provision of feedback reports. The healthcare workers also appreciated that the availability of correct patient data which was essential in making correct diagnosis and treatment decisions. These results resonated with the theme that evidence-based medicine (EBM) was the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients as discussed by Nzinga *et al*., 2009. According to the study by Nzinga *et al*., evidence-based guidelines was a means by which the best evidence was aggregated to define optimal and sequential decisions in providing clinical care, for example, to a child presenting with pneumonia. According to Tricco *et al*., 2012 there was increasing recognition of the need to improve the quality of care and pragmatic research to evaluate the effectiveness of feedback interventions in real-life practice, which was essential component of evidence-informed policy making.

The healthcare workers appreciated the progress and the milestones made by the CIN project in improving the quality of paediatric care in the respective participating hospitals. They felt that their interaction with project had borne some good fruits and they were eager to further work with the project in improving their individual performances and that of their respective hospitals. A&F as a form of "knowledge of results, was thought to improve performance by providing the health care providers with the current performance information and motivation to improve (Hysong, 2009). According to Hysong A&F had been used to improve a wide range of behaviours in clinical practice across many different settings, making it a highly flexible intervention. According to Nzinga *et al*., other relevant studies on A&F conducted in low-income country settings focused on health worker performance, satisfaction, and motivation to improve their performance which resonated well with the finding of this study.

The implementation of the CIN project on good documentation practices combined initial training with limited reinforcement training, close supervision, feedback and local facilitation over the period of the project. Establishment of accepted and realistic standards of care at facility levels (including orienting new staff to standards) improved the performance of the HCWs and

these standards were implemented using mechanisms such as supervision and recognition (Nzinga et al., 2009). From our study, the paediatricians felt that the regular audit and feedback reports enabled them to provide support to the HCWs compared to what used to happen before the CIN project started. They also felt that they received adequate support from the leadership of the hospitals' to implement the good documentation practises.

The delivery of the feedback reports to the participating hospitals followed the feedback delivery strategies and mechanisms as described in the summary of findings by Flottorp *et al* in the systematic review on Audit and Feedback (Flottorp *et al.*, 2010). From this study it was perceived that the behavioural attributes and the perceptions of the paediatric healthcare providers were positively influenced by these reports. This was corroborated by the behavioural theories and the experiential learning theory as discussed in chapter two above; if feedback was delivered in the correct format, content and context then there was high expectancy of a positive correlation with the performance and the healthcare professionals.

It was important to note however, that despite its use as a quality improvement strategy, there remained uncertainty regarding both the effectiveness of A&F in improving healthcare practice and its characteristics that led to greater impact (Tricco et al., 2012). The main aim of the CIN was to work within, and not parallel to, existing health systems and with the healthcare workers that provide routine paediatric care. In this study the source documents were those there were used in practice rather than the specific study case report forms typically completed by an entirely separate study team (Tuti et al., 2015).

The strategy of delivering feedback involved detailed review of the paediatric care process in the selected facilities based on the basic paediatric protocols and guidelines. The delivery of paediatric care was matched against the standards as was stipulated in the basic paediatric guidelines and which was the basis of the performance measurement. All the participating hospitals had targets and goals to achieve that formed the measurement points against which performance was evaluated through the collected data. The performance/feedback reports covered all the care points and departments involved in clinical paediatric care and were delivered to all the healthcare workers in these departments. The composition of the healthcare workers varied with the category of the hospital that received the feedback.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

6.1 CONCLUSION

The performance feedback reports to the hospitals and the entire CIN project were appreciated and taken positively by the hospitals and the implementing healthcare workers. The general reporting structures had improved and continued to improve with accurate information to make evidence based decisions on the administration and paediatric clinical practise. The audit and performance feedback reports positively influenced the attributes and the leaderships and management skills of the health workers. The hospitals appreciated the feedback reports which elicited reactions they were never aware about their performance. There was general perception in the improvement of paediatric care and reduction in variation in practice and documentation process in the hospitals.

6.2 RECOMMENDATIONS

From the study, some recommendations were drawn as highlighted below based on the audit and feedback reports delivered to the health workers of the healthcare workers;

It was highlighted that the feedback sessions needed to be all inclusive so that everyone could feel part of the team and understand and appreciate the reasons for failing on the gaps highlighted in the reports. During the feedback meetings it was important to have representation from all the departments that touch the service delivery in paediatric care. The challenges that arose with having all the departments in the feedback meetings were lack of adequate number of health workers (some departments would only have a single staff at a time) and the shift and duty patterns. This meant that service delivery would not be compromised for the delivery of the feedback reports and therefore there was need to device innovative and effective ways of delivering these feedback reports.

It was observed from the study that the hospitals that provided supportive supervision and leadership in the documentation process performed well in the audit evaluations. It is therefore important to enhance the leadership and management capacities in all the hospitals skills that are critical in ensuring adherence of the basic paediatric protocols by the health care workers.

It was observed from the study that not all departments within the referral hospitals were under the hospital administration and leadership. Departments such as public health were under different dockets and this meant if cleaning of the paediatric ward was delayed, then the

subsequent services would be delayed which included meals, administration and prescription of drugs and the routine ward rounds affecting the entire process of delivering care. Leadership is required in the administration of the hospitals and in making the important decisions about the human resources working in the hospitals. The Leadership should cascade for the national level to the counties to ensure effective and efficient service delivery.

Medical Officers interns from the University of Nairobi were familiar with the use and application of the basic paediatric guidelines because the basic paediatric protocols had been incorporated in to the university's curriculum. It was important for the basic paediatric protocols to be adapted by the other medical training institutions as this would make the orientation process and the rotations much easier. This would eventually eliminate sporadic fluctuations of the performance every time new interns arrived in the hospital.

The CIN project elicited thoughts of installing EMR and Health Management Information Systems in the hospitals to avoid the use of paper based traditional way of collecting data. It was however noted that installation of Health Management Information Systems required a comprehensive study of the hospital needs and several dry runs to make sure that the system was able to capture all the required information in the simplest way. The system also needed to have the capacity to be expandable in case the portfolio and services in the hospital changed. This is

Social cultural issues of family and religion played a part in compromising the quality of care within the hospitals. These were very pertinent issues that the hospitals and the health care workers needed to address intelligently because of the compromise in the health outcomes in children. There was a very thin line between the patients' rights and balancing care and social cultural issues.

6.3 STUDY LIMITATIONS

The CIN project however experienced some weaknesses and challenges which included; some of the healthcare workers supporting the good documentation practise in the participating hospitals did not participate in the interviews and FGDs because they did not attend the annual CIN workshops. The participants and respondents in the study were invited by the KWTRP and therefore there was the likelihood of the participants' not giving negative feedback and responses about the project but this was not true according to the study. Finally there was no sufficient time for the all the health care workers to participate in the interviews and the FGDs because of the limited time in between breaks during the annual workshops and we did not want to dilute the objectives of the workshops by diversions of the interviews.

However, given the magnitude and relevance of this research study I felt that the weaknesses highlighted did not undermine the benefits of the study in improving the quality of care. According the healthcare workers the feedback reports delivered to the participating hospitals were clear, understandable and resonated well with most of the middle level health workers working in these facilities. The healthcare workers appreciated the reports and they also felt that the reports were of high quality**.**

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APPENDICES

Appendix 1: Research Instrument 1

FOCUS GROUP DISCUSSION TOPIC GUIDE

Instructions:

1. This form was used as a topic guide to record the proceedings of the focus group discussions
2. The entire discussions were recorded using an audio recording device.
3. Note taking will be done by a trained assistant.
4. The notes were recorded and written in verbatim.
5. Any salient observations of non-verbal behaviour, such as facial expressions, hand movements and group dynamics were noted and recorded in the notes.
6. The composition of the participants was heterogeneous composed of Clinical Officers, Medical Intern Officers, Nurses and HRIOs
7. Each focus group comprised of a minimum of 8 participants and a maximum of 12.
8. The FGDs took an average of one hour, modified FGDs an average of 30-45 minutes.
9. Semi-structured interviews were conducted to healthcare workers where the FGDs are not feasible.
10. The FGDs were conducted at the participating hospitals during the routine feedback sessions or during the routine the quality checks by the KWRTP.

Inclusion Criteria

The participants in the FGDs included all the medical providers who have received written feedback reports and/or attended feedback sessions.

<table>
<tr><td>Date of discussion:</td><td colspan="2">Interviewer:</td></tr>
<tr><td>Venue:</td><td colspan="2">Note taker:</td></tr>
<tr><td>Time start:</td><td colspan="2">District:</td></tr>
<tr><td>Time stop:</td><td colspan="2">Interviewee's code:</td></tr>
<tr><td rowspan="2">Interview completed</td><td>Yes</td><td></td></tr>
<tr><td>No</td><td></td></tr>
<tr><td rowspan="3">Reason for Incomplete interview</td><td colspan="2"></td></tr>
<tr><td colspan="2"></td></tr>
<tr><td colspan="2"></td></tr>
</table>

The below question template guided the note taker in capturing the key areas that the researchers seek to understand the perceptions of the health workers on audit and performance feedback.

The focus groups started with an introductory session of the entire study to break the ice and to familiarise the participants. The FGDs covered the four major topics in the process of audit and feedback; The introduction addressed the rules of engagement during the FGDs and the interviews.

Communication and Information

1. Has your hospital embraced the use of the Basic Paediatric Protocols (show the booklet)?

   Probe: Are these protocols used frequently within your departments? How frequently?

   Is non-conformity to these basic paediatric standards a concern of staff here?

   How are these concerns made clear if any?

   In what ways?

2. In the ongoing project for improving the quality of inpatient clinical data, feedback reports have been given. What is your feeling about these reports? How do the reports reach you? What is your take on the content?

   Are they discussed by staff? **Probe** How? What is discussed?

   Do these reports give a true picture of the hospital performance? **Probe** In what ways? Listing

   Do you think people take any notice of the reports and feedback sessions or act in response to this feedback? **Probe**: What steps are taken? Are duties performed differently after the feedback?

3. Do you think the feedback reports are useful to you as an individual?

   How are the feedback reports delivered to you? Do you think this is effective? Would you suggest how you would want to receive the reports?

Strategy for improving performance

1. From the ongoing collaborative project on good documentation practice; do you feel feedback has influenced the performance in the paediatric unit? **Probe**

   In what ways? What has improved? **Probe** for pros and cons

   How do the feedback reports affect your way of doing things?

2. What strategies/activities have your hospital implemented to improve the documentation practices? Free listing and rank. Do you feel it is sufficient?

   Does your hospital department have clear plans on how to improve the paediatric care? **Probe** In what ways?

   Has the audit and feedback reports and sessions influenced your planning to improve the paediatric services? How?

3. Are there any challenges you are facing in trying to improve your performance? Listing

Engagement with the Collaborative Project

Your hospital has been engaged with this collaborative project since September 2013

1. What do you feel are the benefits of audit and feedback at the individual, department and hospital levels? **Probe** Benefits may include enhancing skills, role identity, supervisory skills, resources (literature) **Probe:** what do you feel should be done differently?

2. What challenges are there being involved with the network?

   Probe: Do you feel the feedback reports are useful to you as an individual? Do you understand them?

   How are the feedback reports delivered to you? Do you think this is effective? Would you suggest how you would want to receive the reports?

Appendix 2: Research Instrument 2

STRUCTURED INTERVIEW TOPIC GUIDE

Instructions:

1. This topic guide assisted to record the proceedings of the structured interviews with the paediatricians and the hospital administrators or in-charges.
2. The entire interviews were recorded using an audio recording device.
3. Note taking was done by a trained assistant.
4. The notes were recorded and written in verbatim.
5. Any salient observations of non-verbal behaviour, such as facial expressions, hand movements were noted and recorded in the notes.
6. The semi-structured interviews were conducted with the paediatricians, and the hospital in-charges
7. The semi-structured interviews were done separately or at the same time in case of the two paediatricians.
8. The semi-structured interviews took an average of 30 minutes

Inclusion Criteria

The participants in the semi-structured interviews included all the medical providers who had received written feedback reports and/or attended feedback sessions.

Date of Interview:	**Interviewer:**	
Venue:	**Note taker:**	
Time start:	**District:**	
Time stop:	**Interviewee's code:**	
Interview completed	**Yes**	
	No	
Reason for Incomplete interview		

The below question template guided the note taker in capturing the key areas that the researchers seeked to understand the perceptions of the health workers on audit and performance feedback.

The FGDs started with an introductory session of the entire study to break the ice and to familiarise the participants.

Communication and Information

1. Has your hospital embraced the use of the Basic Paediatric Protocols (show the booklet)?

   Probe: Are these protocols used frequently within your departments? How frequently?

Is non-conformity to these basic paediatric standards a concern to you? And the staff?

How are these concerns brought to your attention?

In what ways?

2. In the ongoing project for improving the quality of inpatient clinical data, feedback reports have been given. What is your feeling about these reports? How do the reports reach you? What is your take on the content?

   Do you attend the feedback sessions? Are they discussed by staff? **Probe** How? What is discussed?

   Do these reports give a true picture of the hospital performance? **Probe** In what ways? Listing

   Do you think the staff take any notice of the feedback reports and or act in response to this feedback? **Probe**: What steps do you take? Are duties performed differently after the feedback?

3. Do you feel the feedback reports are useful to you as an individual?

   How are the feedback reports delivered to you? Do you think this is effective? Would you suggest how you would want to receive the reports?

Strategy for improving performance

1. From the ongoing collaborative project on good documentation practice; do you feel feedback has influenced the performance in the paediatric unit?

   Probe

   In what ways? What has improved? **Probe** for pros and cons

   How do the feedback reports affect your way of doing things?

2. What strategies/activities have your hospital implemented to improve the documentation practices? Free listing and rank. Do you feel it is sufficient?

   Does your hospital department have clear plans on how to improve the paediatric care? **Probe** In what ways?

   Has the audit and feedback reports and sessions influenced your planning to improve the paediatric services? How?

3. Are there any challenges you are facing in trying to improve your performance? Listing

Supervision, delegation, decision making and motivation

1. As the team leader of the staff delivering paediatric care in your hospital do you feel that there is teamwork among the different health workers in the paediatric unit? **What is the** nature of the administrative system (decentralized or centralized)? Do they have support from their direct supervisors?

2. In your absence how are the duties delegated? What criteria do you apply? Do you teams feel that they receive adequate support from the administration? In what ways? **Probe**

   In your opinion what kind of support would you value?

   Do you work or plan together? In what ways?

   Are everyone's opinions valued? Why? Are they considered in developing/implementing quality initiatives?

   Would comment on the general motivation of your team. Has feedback influenced their motivational levels? How?

3. Do you think the feedback reports have brought any change in the hospital? On your peers, seniors and HMT.

4. Has the feedback influenced your supervisory and management skills? In what ways? Listing

   What are key challenges to working with the team you have and in your hospital?

   What has been your role in the improvement of performance of the paediatric health workers? Can this be attributed in any way to performance feedback?

Engagement with the Collaborative Project

Your hospital has been engaged with this collaborative project since September 2013

1. What do you feel are the benefits of audit and feedback at the individual, department and hospital levels? **Probe** Benefits may include enhancing skills, role identity, supervisory skills, resources (literature) **Probe:** what do you feel should be done differently?
2. What challenges are there being involved with the network?

   Probe: Do you feel the feedback reports are useful to you as an individual? Do you understand them? How are the feedback reports delivered to you? Do you think this is effective? Would you suggest how you would want to receive the reports?

Appendix 3: Focus Group Discussion and Structured Interview Consent Form

KEMRI Wellcome Trust Research Programme & Ministry of Medical Services:

Group 1 Hospital Staff Information Sheet and Interview / Focus Group Discussion Consent Form

Understanding service delivery and the role of performance feedback in District Hospitals in Kenya

KEMRI - Wellcome Trust Research Programme, Nairobi	Mike English (PI), David Gathara, Jacinta Nzinga, Naomi Muinga, Philip Ayieko, Paul Mwaniki
Ministry of Medical Services	Jalemba Aluvaala, Rachel Nyamai, Wycliffe Mogoa
Kenya Paediatric Association / University of Nairobi	Fred Were, Aggrey Wasunna, David Githanga
London School of Hygiene and Tropical Medicine (UK)	Jim Todd, Elizabeth Allen, Jeni Gosling
Warwick University (UK)	Gerry McGivern
Institute of Tropical Medicine, Antwerp (Belgium)	Bruno Marchal

What is KEMRI and what is this study about?

- KEMRI is a government organisation that carries out medical research to find better ways of preventing and treating illness in the future for everybody's benefit. Sometimes research involves only asking questions to health providers, about what they know, feel or do.
- All research at KEMRI has to be approved before it begins by several national [and international] committees who look carefully at planned work. They must agree that the research is important, relevant to Kenya and follows nationally and internationally agreed research guidelines. This includes ensuring that all participants' safety and rights are respected.
- In this research, we want to learn more about how hospitals work or make efforts to provide good quality services within the resources available to them and how the actions and relationships of the different staff in the hospital and the policies and actions at the national and county level influence good practice and ultimately hospital performance.
- We are particularly interested in whether hospital staff feel they have good information on the quality of services they provide and whether efforts to provide such information in the form of feedback reports to hospitals are useful. In this area we are interested in things like whether people are aware of the feedback reports that are now being provided, whether they think the reports are a fair assessment of services in the hospital, whether the reports help people make efforts to improve services or not and if there are efforts to improve services what sort of efforts are made, do they succeed or fail and what influences whether they succeed or fail.
- We would like to hold discussions with staff from all levels of the hospital from the senior hospital managers to the heads of the various departments in the hospital and those providing routine services.
- We are asking some people to talk to us individually and sometimes we will ask people to join a group to talk to us, this really depends on how many people are available from the different areas of the hospital to talk to.
  We are asking you to (tick which applies):
- □ **A focus group discussion**: This is a discussion with [7-8] other persons from similar areas of work who may be your colleagues. The discussion will be guided by a trained facilitator. We will ask questions about the way hospitals make efforts to deliver good services and people's knowledge of and opinion of the feedback reports being provided to the hospital. You do not need to discuss any information you are not comfortable in sharing. The

discussion will take place within or near to the hospital grounds in a quiet and private space of convenience to you. Only the people involved in the discussion, the person asking the questions, and a note-taker will be present.

- **A private discussion (interview)**: The discussion will be guided by a trained researcher / facilitator. We wish to ask questions about the way hospitals make efforts to deliver good services and people's knowledge of and opinion of the feedback reports being provided to the hospital. You do not need to discuss any information you are not comfortable in sharing. The discussion will take place within or near to the hospital grounds in a quiet and private space of convenience to you.

INFORMATION FOR ALL PARTICIPANTS

Are there any risks or disadvantages to me taking part in this research?

- The discussions should take approximately 40-60 minutes.
- The discussions we have will be recorded to assist later in fully writing up the information. No-one will be identified by name in the recording and we will take great care to make sure the recording or the interview notes are not made available to anyone other than the research team.
- We do not believe there are any risks to taking part in this research

Are there any **benefits to me of taking part?**

There are no individual benefits to taking part. In talking to us, you will contribute to knowledge of how hospitals are working and what influences the way services are provided and the quality of care. This knowledge may help us learn how to support hospitals and staff in better ways to improve services and may then help people in Kenya and elsewhere in the future.

Who will have access to the information I give?

- Only the research team will have access to the information you have given us. All of our documents/ recordings are stored securely in locked cabinets and on password protected computers.
- The knowledge gained from this research will be shared in summary form, without revealing individuals' identities. We are collecting information from a number of hospitals and will make a report based on all these experiences – we will not make a report that talks directly about a named hospital. The report on findings across hospitals will be shared with people within this hospital in an open forum so that people have the chance to comment on things or amend things. Final reports will be shared with the Ministry of Health and other health stakeholders in Kenya and with others interested in this research.
- [*For group discussions*]: We will ask everybody in the discussion to keep what is said in the group confidential, but it is important to recognize that we cannot stop participants sharing what they have heard.

What will happen if I refuse to participate?

All participation in research is voluntary. You are free to decide if you want to take part or not. If you do agree first you can change your mind at any time without there being any consequences.

What if I have any questions?

You are free to ask me any question about this research. If you have any further questions about the study, you are free to contact the research team using the contacts below:

Ms Jacinta Nzinga, KEMRI Wellcome Trust Research Programme, P.O. Box 43640 – 00100 Nairobi, Kenya
Telephone: [0722 206 046] or 20 2719936

Dr Mike English, KEMRI Wellcome Trust Research Programme, P.O. Box 43640 – 00100 Nairobi, Kenya
Telephone: [0722 628700] or 20 2719936

If you want to ask someone independent anything about this research please contact:

Community Liaison Manager, KEMRI – Wellcome Trust, P.O.Box 230, Kilifi. Telephone: 0723 342 780/0738 472 281 or 041 7522 063

Or

The Secretary - KEMRI/National Ethics Review Committee, P. O. BOX 54840-00200, Nairobi, Tel number: 020 272 2541 Mobile: 0722 205 901 or 0733 400 003

KEMRI-Wellcome Trust Research Programme consent form for Understanding service delivery and the role of performance feedback in District Hospitals in Kenya

NB: Verbal consent can be obtained for interviews in which the information being sought is non-sensitive. In such situations the person giving consent will not sign but the person seeking consent can sign as below to document that informed consent was obtained. For FGDs, one person can sign on behalf of the group with permission from the group.

I have had the study explained to me. I have understood all that has been read/explained and had my questions answered satisfactorily

☐ **Yes** *please tick* **I agree to be interviewed**

☐ **Yes** *please tick* **I agree for the interview to be recorded**

I understand that I can change my mind at any stage and it will not affect me in any way.

Signature: _____ **Date:** _____

Participant Name: _____ **Time:** _____

(please print name)

[Following section is recommended, and where verbal consent is obtained, must be signed by person undertaking informed consent.]

I have followed the study SOP to obtain consent from the [participant/guardian]. S/he apparently understood the nature and the purpose of the study and consents to the participation [of the child] in the study. S/he has been given opportunity to ask questions which have been answered satisfactorily.

Designee/investigator's signature: _____ Date _____

Designee/investigator's name : _____Time _____

(Please print name)

Appendix 4: The Ethical Review Committee Approval

KENYA MEDICAL RESEARCH INSTITUTE

P.O. Box 54840-00200, NAIROBI, Kenya
Tel (254) (020) 2722541, 2713349, 0722-205901, 0733-400003; Fax: (254) (020) 2720030
E-mail: director@kemri.org info@kemri.org Website:www.kemri.org

KEMRI/RES/7/3/1 **March 30, 2015**

TO: **DR. MIKE ENGLISH,**
PRINCIPAL INVESTIGATOR

THROUGH: **DR. BENJAMIN TSOFA,**
DIRECTOR, CGMR-C,
KILIFI

Forwarded 8/4/15

DIRECTOR
CENTRE FOR GEOGRAPHIC INE
RESEARCH, COAST

Dear Sir,

RE: **SSC PROTOCOL NO. 2465 *(RESUBMISSION-REQUEST FOR ANNUAL RENEWAL AND PROTOCOL DEVIATION):* EVALUATING THE EFFECT OF FEEDBACK TO HOSPITALS LINKED TO PARTICIPATION IN A SUPPORT NETWORK ON KEY QUALITY OF PAEDIATRIC CARE INDICATORS IN KENYAN HOSPITALS**

Reference is made to your letter dated 17th March 2015. The ERC Secretariat acknowledges receipt of the revised document on 23rd March 2015.

This is to inform you that the Scientific and Ethics Review Unit (SERU) reviewed the document submitted, and determined that the issue raised at the 236th B meeting, has been adequately addressed.

This study is granted approval for continuation effective this **March 30, 2015.** Please note that authorization to conduct this study will automatically expire on **March 29, 2016.** If you plan to continue with data collection or analysis beyond this date please submit an application for continuing approval to the ERC secretariat by **February 16, 2016.**

You are required to submit any amendments to this protocol and other information pertinent to human participation in this study to the SERU for review prior to initiation.

You may continue with the study.

Yours faithfully,

EAB

PROF. ELIZABETH BUKUSI,
ACTING HEAD,
KEMRI SCIENTIFIC AND ETHICS REVIEW UNIT

KEMRI WELCOME TRUST RESEARCH PROGRAMME
P.O. Box 230
08 APR 2015
DIRECTOR'S OFFICE
KILIFI