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**UPTAKE AND IMPLEMENTATION OF THE 5S QUALITY IMPROVEMENT  
MODEL AT THE KENYATTA NATIONAL HOSPITAL'S PRIME CARE CENTRE**

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**MASTER IN BUSINESS ADMINISTRATION-HEALTHCARE MANAGEMENT**



**UPTAKE AND IMPLEMENTATION OF THE 5S QUALITY IMPROVEMENT MODEL  
AT THE KENYATTA NATIONAL HOSPITAL'S PRIME CARE CENTRE**

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**STUDENT NUMBER 093703**

**A RESEARCH DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE  
REQUIREMENTS FOR THE AWARD OF DEGREE OF MASTERS IN BUSINESS  
ADMINISTRATION IN HEALTHCARE MANAGEMENT AT STRATHMORE  
UNIVERSITY**



**STRATHMORE UNIVERSITY BUSINESS SCHOOL  
NAIROBI, KENYA**

**(OCTOBER 2020)**

## DECLARATION

I declare that this work has not been previously submitted and approved for the award of a degree by this or any other University. To the best of my knowledge and belief, the dissertation contains no material previously published or written by another person except where due reference is made in the dissertation itself.

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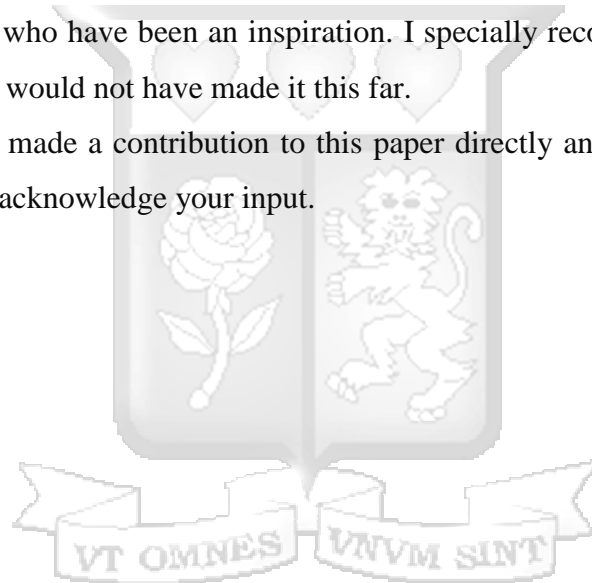
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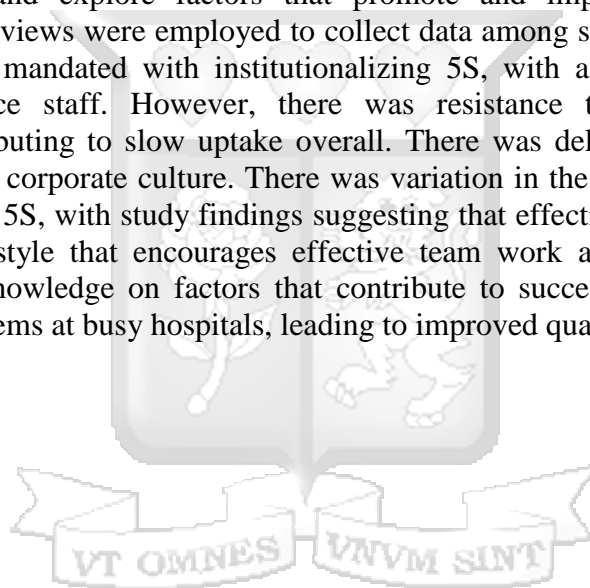
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## ABSTRACT

The 5S quality management approach involves, sorting, setting in order, shining, standardizing and sustaining the improvements. The concept has been adopted by the Kenyan Ministry of Health, through the Kenya Quality Model for Health (KQMH) framework because it provides a solid foundation for achieving operational excellence. While it is a relatively straightforward concept, most facilities find it hard to sustain 5S improvements over time, reverting to poorly organized work places and unsafe practices. This study sought to describe the process of uptake and implementation of the 5S continuous quality improvement model at the Kenyatta National Hospital's (KNH) Prime Care Centre (KPCC). It also sought to understand the opinions of staff in its implementation and explore factors that promote and impede its implementation. Qualitative in-depth interviews were employed to collect data among staff. The study found that the Hospital has a unit mandated with institutionalizing 5S, with assigned coordinators and trained quality assurance staff. However, there was resistance to changing practice to accommodate 5S, contributing to slow uptake overall. There was deliberate effort to promote uptake through changing corporate culture. There was variation in the extent to which different units were implementing 5S, with study findings suggesting that effective adoption was strongly reliant on a leadership style that encourages effective team work and discipline. The study findings contribute to knowledge on factors that contribute to successful deployment of new quality management systems at busy hospitals, leading to improved quality

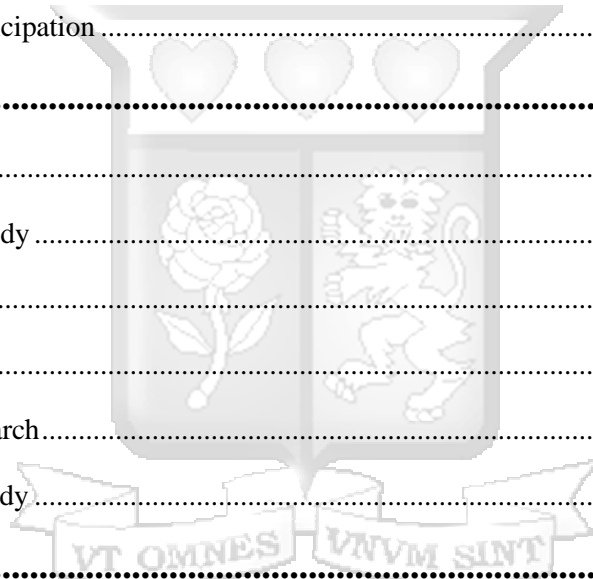


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## DEFINITION OF TERMS

**5S:**A Japanese business philosophy that advocates for small and incremental continuous steps by workers to improve operations

**Seiri:** means sorting and it involves removing unnecessary items from what is needed

**Seiton:** stands for setting in order and in involves items in order for easy access

**Seiso:** stands for shining and it involves keeping things tidy and clean at the workplace

**Seiketsu:** means standardization and is concerned with establishing standards and guidelines to keep work place clean and safe

**Shitsuke:** it means to sustain and involves making habits and commitments as a way of life.



# CHAPTER ONE

## INTRODUCTION

### 1.1 Introduction

5S is a Japanese concept that was initiated after the devastating effects of the Second World War (Takahara, 2010). 5S is practiced in most companies in Japan and their affiliated entities as a method of improving production, eliminating wastage, improving both quality and customer satisfaction. It advocates taking small steps to achieve economic results. The 5S concept is known as a strategic method which increases productivity, quality, efficiency and safety (Titu & Bucur 2016). According to Ortiz (2015), 5S is described as an abbreviation for the five steps namely- Seiri, Seiton, Seiso, Seiketsu and Shitsuke in Japanese which translates to Sort, Set, Shine, Standardize, and Sustain respectively, these summarize the process of constant improvement.

In an increasingly competitive healthcare market, organizations that devise and adhere to strong evidence informed systems and processes have a better chance of survival. Of importance is the role of proper planning, organization and management of the work place environment. The 5S concept stands for sort, set, shine, standardize and sustain. It is a quality management concept that specifically aims at preparing workplace environments for proper delivery of services and minimizing error and wastage. The 5S model is used to improve service delivery as well as reduce waste.

### 1.2 Background Information

Hospitals and other providers of healthcare services are vital components of society, often consuming a large chunk of government and private resources. The quality of healthcare facilities and other providers of healthcare services are therefore of significant importance. The safety features are embedded in the designs, the construction and the operation of hospitals and other healthcare facilities. By putting focus on safety within the health facility, administrators in the health facility can change the hospital and its environs into a critical part of the healing process.

In Kenya, the three most commonly employed global hospital safety standards include: The Quality Improvement (QI) standards, the Joint Commission International (JCI) standards, and the 5S standards (Theilla, et al., 2013). First, is the Joint Commission International. This is an American based Not-for profit organization (NGO) whose main aim is to improve the safety of patient's care and organization's management by providing certification and accreditation. The standard's main focuses are on the 10 key aspects, viz: the performance measurement control of Infection, assessment of health care process, access to healthcare, collaborative integrated management, the education and rights of the individuals, facilities management, the management of information and the human resources, the safety of facility, education and the rights of patients (Theilla et al. 2013).

Improvement of quality standards entail systematic approaches to planning and the implementation of continuous improvement in the organization's performance. They emphasize the continuous review of the work by trained staff. It advocates for workers to be equipped in basic statistical skills and various tools used in problem solving and empowerment to make various decision based on the analysis of the data. The systematic focus of the QI complements are increasingly recognized in the healthcare field given that the quality of healthcare delivery by the clinical practitioners relies on performance (Rahman et al., 2010).

QI combines a set of three components:

- 1) The use of a cross-functional team in the identification and provision of solutions to quality problems,
- 2) The use of a scientific method and a statistical tool by the teams to monitor and analyze the process
- 3) The application of processes management tool to aid the members of the teams to use the collective knowledge effectively (Joosten & Bongers, 2009).

5S is a Japanese philosophy that focuses on continuous improvement; it is a long-term approach to work that systematically seeks to achieve small, incremental changes in processes to improve efficiency and quality (Bursan, 2010).

**Table 1.1 Summary translation of 5S Concept**

| <b>Japanese</b> | <b>English Translation</b>  | <b>Meaning</b>   | <b>Examples</b>  |
|-----------------|-----------------------------|--|--|
| Seiri           | Sort                        | Separating necessary things from unnecessary ones.                         | Discarding old and obsolete items.                                   |
| Seiton          | Set in order                | Arranging neatly and the identification of items for use.                  | Arranging in shelves, racks and cabinets.                            |
| Seiso           | Shine                       | Maintaining a hygienic workplace.  | Establishing individual responsibility for daily cleaning.           |
| Seiketsu        | Standardize                 | Ensuring that the first 3S and individual well-being and personal hygiene. | Settings Standard Operating Procedures and following the guidelines. |
| Shitsuke        | Self- discipline or Sustain | Making a habit of conforming to the rules.                                 | Executing the standards in a disciplined way.                        |

**Source:** Researcher (2020)

The 5S concept was executed in a progressive way beginning with the first step Seiri (Sort) which refers to removal of all undesirable, unnecessary and discrete material from the workplace to reduce confusion and clear space (REF). This was done to by attaching red flags on unwanted items and deciding if to move or discard these items and by “green flagging” items that are in use (Gombrii & Solhkonan, 2010). The next step is Seiton (Set in order) entails putting things in the right place for ease of access. This can be done by labelling or painting with reflective paint or tape the floor plan layout. The location of inventory, tools, equipment and files should be easily and conspicuously identifiable (Chapman, 2015)

The third step is Seiso (Shine) which means to clean and make it shine. It involved cleaning the shop floor and issuing instruction to clean machines (Avari et al., 2011; Becker, 2011). Step four of the process is Seiketsu (Standardize) which involved setting up centralized locations or stations with inventories, consumables and materials alongside a checklist of responsibilities and schedules (Chapman, 2015). Upholding hygiene and safe working environment is important in this stage. The final step is Shitsuke (Sustain) which calls for inculcating self- discipline and a culture of consciousness and re-training. To sustain 5S, Chapman (2015), recommends that management staff conduct period and regular audits of the 5S principles and “post check sheets that communicate what to clean and inspect and how to do it and who is responsible and the

frequency of the checks”. Adhering to these five principles ensured a clean work place and an organized work flow that allowed supervisors to establish when production is lagging behind or when something is out of order and needs attention. 5S was the foundation and implementing it well is vital because a lack of 5S system will render the other lean tools ineffective(Chapman, 2015).

In as much as QI promises revival of quality of healthcare, hospitals in many occasions do not cope with the implementation. This is because it demands leadership, expansive training and support, robust measure and systems of data, realignment of incentives and the human resource practices, as well as cultural reception to change (Ikuma & Nahmens, 2014).

Apart from the above three standards, majority of the hospitals in Kenya have also implemented the 5S standard(Kazmierski, 2015). This 5S standard provides a platform to reduce wastage and optimization of productivity by maintenance of an organized workstation by the use of visual cues to attain improved consistency in the operational outcomes. The implementation of the process leads to cleaning up and organization at the workplace basically in its the current configurations. This standard considers the implementation of 5S, including Sort, Set, Shine, Standardize, and Sustain. It is however not clear if the standard can be implemented in all the hospitals, irrespective of the size(Kanamori et al.,2016).

The 5S approach is a simple but effective way of bringing quick improvement in the working environment and service quality. This includes the involvement of all hospital staff towards efficient use of resources and waste reduction. 5S also brings a practice of quality culture, morale, motivation and job satisfaction among staff(Kanamori et al., 2016).

### **1.3 Problem Statement**

Healthcare markets are changing globally and demanding increased quality at low cost(Zanten & MacAulay, 2013). The survival and the growth of health facilities largely depends on ability to innovate, improve operational efficiency and increase customer satisfaction(Ferreira & Saurin, 2019). The provision of high quality and affordable health care services remains a challenge mainly because of the multifaceted nature of healthcare services(Shortell & Alexander, 2017).

Desired health care results are achieved through quality hospitals and healthcare services. Various standardization models including the Joint Commission International standards, The Quality Improvement standards and the 5S quality improvement model have been found to achieve these desired outcomes. The commonly used practice in recent times is the Japanese 5S quality improvement model that is geared towards enhancing human capability and productivity.

Many organizations locally are trying to improve quality to survive in the increasingly competitive market. Some developments the government has adopted on quality improvement include the adoption of Kenya Quality Model for Health (KQMH), Safe Care standards championed by the National Hospital Insurance Fund (NHIF), Pharm Access Foundation and the Ministry of Health (MOH). Kenyatta National Hospital adopted the 5S quality improvement model in 2007 to improve its quality performance. However, the process has not effectively been adopted as there are some challenges being faced. Some of these challenges include the lack of alignment of the concept by the institution top management. The hospital still experience staff inadequacy because of poor sustainability strategy (WHO, 2009). Kenyatta National Hospital has limited theater space and insufficient supply of drug. Based on these challenges it is evident that there is a gap in adoption and implementation of the 5S model (Withnachchi & Karandagoda, 2007).

Assuring quality is a major determinant of utilization of formal healthcare services, which is an important component of the universal health coverage goal. The 5S practice is a valuable quality improvement approach that specifically seeks to improve the workplace environment. 5S seeks to improve operational and socio-technical aspects. This mutually reinforces standardization and improves processes, contributing to better quality care (Joosten et al., 2009).

This study sought to assess the implementation of the 5S model at the Kenyatta National Hospital, Prime Care Centre (KPCC). Through the assessment, information was generated towards designing effective strategies for the 5S quality model implementation in a busy hospital.

Full adoption and implementation of 5S quality improvement model leads to improved healthcare services operations by optimizing the use of available resources, including staff time,

improved safety and reduced space used for storage and less waste. This in turn reduces variations in systems and outcomes which results to improved patient flow.

## **1.4 Study objectives**

### **1.4.1 General objective**

To describe the uptake and implementation of the 5S quality improvement model at the Kenyatta National Hospital's Prime Care Centre.

### **1.4.2 Specific objectives**

- i) To describe the process of uptake and implementation of the 5S continuous quality improvement model at Prime Care Centre
- ii) To explore the perceptions of personnel on the relevance of the 5S model and their roles in its implementation.
- iii) To understand the factors that promote or impede successful implementation of the 5S quality improvement model at the Prime Care Centre.

## **1.5 Research Questions**

- i) What was the process of adoption and roll out of the 5S continuous quality improvement model like at the Prime Care Centre?
- ii) What views, opinions and perceptions do personnel have on the 5S model and their role in its implementation?
- iii) What factors promote or impede implementation of the 5S model at the Prime Care Centre?

## **1.6 Justification**

The critical nature of the health sector is articulated in the Sustainable Development Goals (SDGs). Out of the seventeen SDGs, four directly impact on health. According to the Abuja Declaration (2001), the participating nations committed to allocate 15% of their national

annual budgets for the health sector, yet Kenya lags behind significantly. In the 2017/2018 budget, only 4.5% of the total national budget was allocated to the Ministry of Health. For this reason, it is extremely important that measures are put in place to ensure the best possible use of available resources. Strengthening quality and operations is one way of optimizing the use of resources, including staff time. By having well organized workplace environments, staff spend more time on the core areas of service delivery.

This study provides the management of KNH with vital information on effective strategies of successfully adopting and implementing the 5S model towards enhancing service delivery. The findings will be used in strengthening quality and operations in the hospital. It will also be vital for regulators as a way of optimizing the use of available resources including staff time, improved safety, and reduced space used for storage and less waste. Also, the findings of the study will be of great help to the management and staff as it will reduce variation in the system and improve service provision efficiency. Finally, the management who is bestowed with policy making mandate in KNH will have insight on the importance of adoption and implementation of 5S model and its impact on overall hospital operations.

### **1.7 Scope of the Study**

The study will be conducted among staff working at the Kenyatta National Hospital's Prime Care Centre. This will include medical officers, consultants, nurses, laboratory staff, pharmacy staff and support staff. The study will also explore staff views, opinions and perceptions on quality improvement broadly.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter presents a detail review of literature related to the scope of study and the objectives. Various significant theoretical as well as practical issues are brought out. This section also presents a review of literature on the adoption and the roll out, perception and promotion and implementation of the 5S quality model in Kenyatta National Hospital's Prime Care Centre.

#### **2.2 Origin of 5S**

The 5S practice was commonly applied by most Japanese firms to facilitate the human capability as well as productivity. This concept was founded by Mr. Takashi Osada in the 1980s. The wide belief is that application of 5S techniques is a result to a direct improvement in the performance in the production line these including housekeeping, healthcare, and safety from hazards. 5S is an acronym of five Japanese words which stand for seiri, seiton, seiso, seiketsu and shitsuke which translate to organization, neatness, cleanliness, standardization and discipline respectively.

The practice of the 5S as a tool applies in the establishments and maintenance of a quality working environment within the organization in an effective way and promises all employees to be more self-disciplined (Sui, 2001). This concept is universally applicable to various industries and business settings among them the service sector. According to a study carried out by (Gilson and Schneider, 2010), 5S has a significant contribution to the success of the healthcare sector. They employed a case study of United Kingdom, where they took 205 from manufacturing and 106 from the services companies and found out that the implementation of 5S model ensured there was enough working space, supplies were done on time and in a consistent manner and finally there was adequate staff each assigned relevant responsibility. The adoption of 5S in Chinese

firms especially in China (Hong Kong) had successfully improved quality of product as well as increased the working life(Warwood & Knowles, 2004).

Willis (2016) is among the most advanced studies, it affirmed that 5S was a tool for improving the success of the healthcare sector. Moreover, (Dahlgard & Mi, 2006), found that 5S was an efficient technique applied to improve processes like environmental performance, as well as safety standards in a systematic way. On the other hand, (Warwood & Knowles, 2004) found that the application of 5S had a correlation with the stage at which the 5S quality model was at in the firm.

5S audit should be stated as a critical tool in ensuring accuracy in the deployment of 5S in an institution (Ho & Fung, 1994). It is through an audit process of the study environment that each organization can be able to identify the potential degree of quality improvement that can be achieved in a real situation. According to this, the audit process (which includes both internal or the external audit) can continuously monitor the 5S deployment and suggest to proper application. The 5S auditing however, needs to have a criterion that irrelevant to the business nature or work environment. There is also need for aligning these with the organizations policy and vision (Ho & Fung, 1994). Hospitals are under pressure to reduce costs and improve quality. Consequently, hospitals and health systems have adopted approaches whose aim is to streamline processes by eliminating waste in the system.

### **2.3 5S Standard factors**

The 5S standard is a program which is structured to achieve a systematic, organizational, sanitary levels and uniformity in the workplace. The common belief is that 5S implementation leads to a well-organized workplace which results in improved safety, efficient and a productive operation. 5S is among the various of the essential tools in a flourishing lean culture. It creates the foundational work at the workplace routine way to modify how staff approach their planned programs (Joosten et al., 2009). In 5S culture workspaces, tools are kept on a shadow board are easily available at a safe distance and the time required to locate them is significantly reduced (Kanamori et al., 2015).

### **2.3.1 Sort**

Sort can be defined as the discarding the unwanted and unrelated materials from the workspace. The goal is to be sure that all that is within the workspace is related to work. Sort includes elimination of non-necessary items from work areas, separating work-related as well as non-work related items and sorting own and nearby work areas (Lingareddy et al., 2013).

Setting is also called straightening or orderliness and is about efficiency (Sui Pheng, 2001). This level includes the keeping of the relevant tools at the assigned place so as to ensure accessibility and retrieval in a quick manner, as well as returning them at the required space quickly and easily. When everyone has a quick access to a tool or equipment, the work flow is more efficient and the staff becomes more productive (Kazmierski, 2015). Based on a number of hospital safety related literature, the sort factor consists of six items including documents and work related items in the organization, assigning items in appropriate places and providing signs indicating the designated areas, placing items in the designated areas, provide the designated area for fire hydrants, utilize colors to symbolize work operations and provide enough space for storage (Thanwadee & Nalin, 2013).

According to Visco (2017) in a study in 203 Spanish manufacturing plants, it was established that 5S was positively related to operational performances related to productivity and quality. The research design adopted was questionnaire survey. Ho et al., (2015) wanted to test a TQM model developed from the previous study using Standards and Industrial Research Institute of Malaysia (SIRIM) who later renamed it SIRIM 5S Green model for business sustainability organizational development. The results of the research indicated that there is a strong correlation between 5S and Lean 5S in quality improvement and indeed 5S and Lean 5S are effective tools to use. The research employed a questionnaire on 81 firms across different industries in Malaysia with two in depth interviews on 5D and Lean management. Their study cuts across many industries as well as different techniques while this study will be restricted to the application of 5S in healthcare industry.

### **2.3.2 Set**

Setting is also called straightening or orderliness and is about efficiency Sui Pheng, (2001). This level includes the keeping of the relevant tools at the assigned place so as to ensure accessibility

and retrieved from as well as returned to the required space quickly and easily. When everyone has a quick access to a tool or equipment, the work flow is more efficient and the staff becomes more productive (Kazmierski, 2015).

According to Goshime and Kitaw (2019) in their study, the notable and conspicuous gaps are space waste, material waste, waste in knowledge and talent and energy waste among others. This study added safety as the sixth in addition to the 5S in the kaizen strategies. Conflicts between human resource waste and unemployment due to fragmented implementation of 5S manufacturing were reconciled by this study. A model for improving productivity and customer satisfaction was developed and solutions to alleviate problems and speed up development were forwarded for adoption. The researchers restricted the study to uptake and implementation of the 5S quality improvement model whilst including the element of productivity.

### **2.3.3 Shine**

Shine entails the cleaning up the workspace and giving it a ‘glittering shine’ (Kazmierski, 2015). There must be a clean environment. This needs to be undertaken by everybody starting from the operators, to the managers. Having everyone assigned to an area of the workspace for cleaning would be a great idea. This can be done by individuals and groups of people in teams. From a range of hospital safety related literature, the shine factor consists of five items namely: Elimination of the impurities out of work place, provision of signs indicating types of trash cans, cleaning all equipment, publicly present responsibility chart and cleaning schedule and provision of hand sanitizers (Thanwadee et al., 2013).

Williams (2000) conducted a pre-test and post-test case study in a workshop facility to examine the effect of implementing 5S on climate safety of factory workers classified into two (case and non-control) groups. The two sets of employees completed a safety climate questionnaire a month after and two months after 5S events. The cycle time to assemble one-unit part impressively decreased by 4.5 minutes and from the empirical evidence from talks held with workers, they felt safer and in control of their work surrounding and majority of workers reported and eliminated hazards during the 5S activities. Employees were more involved and participated in decision making and took more responsibilities in cleanliness and work orderliness.

Ma et al., (2018) identified crucial factors for adoption in workspace management and quality control cycles for 5S support. It was noted from the analysis conducted, that not all workshop tools could help identify opportunities and areas for improvement. The study employed qualitative method and used questionnaires to obtain data from 371 respondents in Sino - Japanese automotive ventures. According to Chiarini et al., (2018), the results of the research carried out exhibited many theoretical similarities or parallelisms alongside lessons for practitioner's specifically regarding principles of JIT, challenge, team work , respect for people , waste elimination and 5S. The research methodology was the review of Taiichi Ohno's book dedicated to TPS, the Toyota way 2001 together with other relevant literature. The literature was analyzed and categorized using content analysis.

#### **2.3.4 Standardization**

Standardization entails the definition of the standards which staff will hold as a metric to ensure orderliness is maintained (Kazmierski, 2015). It includes both individual and the larger environmental cleanliness. From various literature on this area of safety, these factors include; Repairing damaged areas, repairing damaged equipment, providing signs that clearly indicate men and women toilets, cleaning toilets regularly, keeping electrical cords in safe places and providing adequate lighting and ventilation in work areas (Chinda & Tangkaravakun, 2013).

According to Ablanedo-Rosas et al., (2010), in their research study conducted in the state of Hidalgo Mexico, it was observed from the empirical evidence gathered that the first 3S are easy to implement. However, Standardization is never put into practice, or it's almost forgotten. This study looked at the

#### **2.3.5 Sustain**

Sustaining is about the discipline. It alludes to the maintenance of orderliness. This is the focal point of the earlier 4S discussed prior in this section. It gives more emphasis on the elimination of bad habits and practicing the good ones (Chinda & Tangkaravakun, 2013). According to Bursan (2010), the sustain factor consists of: Assigning individual responsibility to maintain the 5S implementation, motivating individuals to hasten the practice of 5S, providing a clearly-defined plan for practicing the 5S and setting up meetings to improve perpetually 5S implementation (Chinda & Tangkaravakun, 2013).

According to according to Ho & Fung (2014), sustaining an efficient environment is one of the greatest challenges in the 5S approach. Incorporating the 5S approach in hospitals, overall strategies to meet short- and long-term goals can help hospitals maintain efficiency. By committing itself to the customer experience and utilizing an approach that deters and eliminates waste, the hospital is deciding to set its organization on a path for continuous improvement and success. The customer keeps changing, to meet the expectations of the market; customer experience must follow a path conducive to promoting desired results, and the 5S is a simple way to promote service excellence according to Becker's hospital review.

Suarez-Barraza and Ramis-Pujol, (2012) observed from their studies that for Kaizen implementation and sustainability to succeed in an organization there shall be a strategic link or direction that lays emphasis on embedding or institutionalization of 5S; systemization and standardization accompanied with self-discipline. The research design was an exploratory case study of three multinational companies of which two were from automotive and the third one was from a manufacturer of hygiene products. Whilst their study included a manufacturing organization dealing with hygiene products, this study won't include entities from outside the auto industry.

Ishijima et al. (2014) conducted a study in Tanzanian Public hospitals on 5S implementation, it was established that involvement and commitment, clear team roles and responsibilities availability and use of 5S guidelines, feedback and information sharing were significantly present. Their finding echoed those of Gilson et al. (2010) that the establishment of assistance to managers and healthcare workers, boosting education and sharing of work skills is crucial to scaling up the Kaizen culture within the organization. A questionnaire item with 14 instructive variables was used.

From the paper that was presented during the 7<sup>th</sup> International Economics and Business Management conference proceedings held on 5<sup>th</sup> and 6<sup>th</sup> October 2015 in Malaysia by Maarof and Mahmud (2016), some factors contributing to successful 5S implementation and challenges were reviewed. It was noted that good communication, clear corporate strategy, employee empowerment and presence of a 5S champion counted for successful implementation. The review also established lack of employee motivation, not understanding the organization strategic goals, resistance to change and difficulties implementing continuous improvement posed challenges in implementing 5S. The paper provided insights beneficial to SMEs and other industry players formulating their 5S strategies

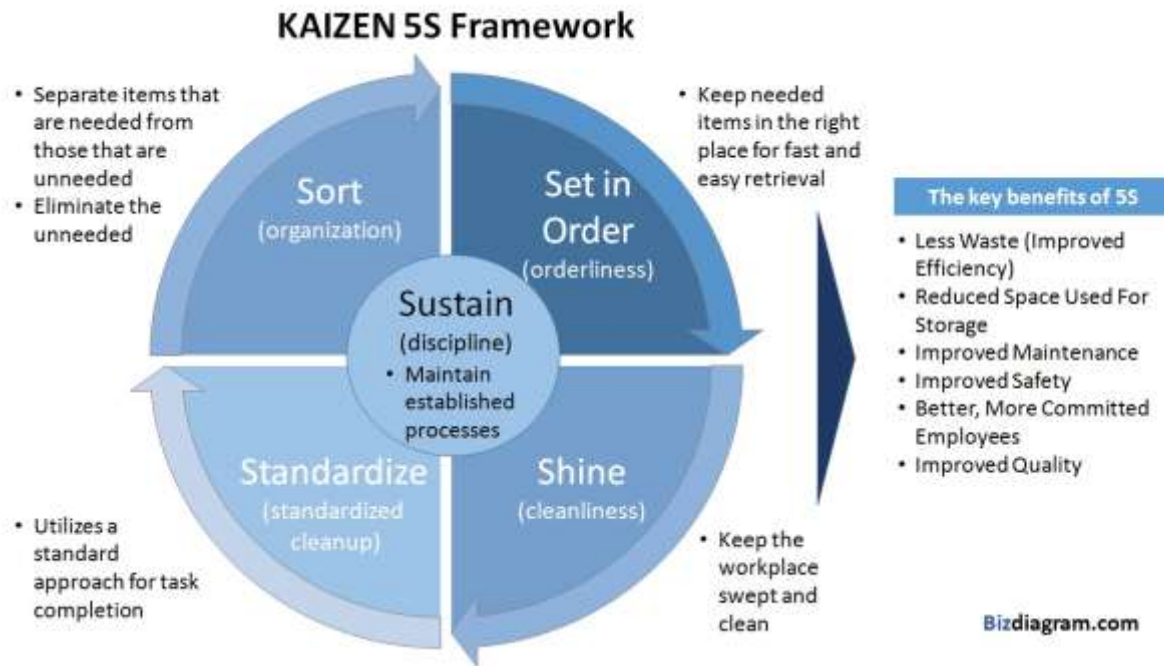


Fig 1. 5Sframework (Copyright © 2018 Biz Diagram)

## 2.4 Adoption and Roll Out of 5S Model

The 5S management method is a set of practices that aims to generate productivity improvements by creating and sustaining clean and well-organized workplaces. It is often called the commonsense approach and regarded as a low-cost and technologically undemanding participatory approach that workers can implement regardless of their technical knowledge (Bursan, 2010).

5S was initially applied by manufacturing entities in Japan in the early 1980s. 5S later spread to the manufacturing sectors in the Western nations, this was considered as the secret behind Japanese industrial development success. Eventually, 5S was applied to non-manufacturing environments, like offices. 5S has also been incorporated into the health-care entities. It has become the systematic way to organize workplace (Kanamori et al., 2015). In Japan also 5S has been commonly practiced at hospitals. It has also been recognized as a method for health-care quality improvement in several books published in the USA (Bursan, 2010).

Within the context of quality improvement in the health-care space, 5S has been considered among the “lean”, tools. Lean refers to sets of processes for continued improvement which aim

at ensuring maximum value addition by removing all the unnecessary factors that do not create value. The lean approach has become the norm when it comes to quality improvement methods in healthcare (Becker, 2010).

## **2.5 Opinion and Perception of Personnel on 5S Model**

The quality environment is known as conducive environment that emphasizes on the three main elements on healthy, comfortable, quality and productive life for everyone at work (Ho & Fung, 2014). The quality environment is fundamental to higher productivity and better quality, improved accident prevention, healthier corporate climate and increased employees' performance (Ho & Fung, 2014). In 5S practice the quality environment is known as environment design and concept to build a quality work environment both physically and mentally. When implemented successfully in an organization, 5S brings changes. Quality Environment practices use 5S concepts as tools towards achieving systematic organization, productive environment, and standardization in the workplace. The elements of quality and productive life are measured through systematic work process and practical, besides increasing the competency level, encouraging productivity and effectiveness of the work process and saving costs. This can also be a measure where all the necessary items are conveniently located, orderly arranged and kept clean (Ho & Fung, 2014).

The driving force for 5S program comes from people in the organization. In this respect, the last S of Shitsuke is vital to the success of the 5S concept. Shitsuke is to train people accordingly and make it as a habit so that they will follow good habits and always maintain correct procedures. The understanding of this concept is globally accepted as the effect towards the quality of environment. From two case studies done among big organizations, the implementation of 5S program in its nature is a tool that can help improve good environmental management that can lead to quality result (Becker, 2010). This quality focus becomes widely accepted in conjunction with other Japanese approaches to quality such as 5S methodology (Campbell, 2008).

According to (Raid, 2011), there are several advantages or benefits in 5S such as clean workplace, lower safety incident/ accident rate, less wasted labor time, transparent process flow, reduced set-up and cycle times, increased floor space and of course give better quality environment. (Arash & Kaluarachchi, 2012), believes that 5S principle is an effective way to improve health and safety, environmental performance and housekeeping. In addition

to 5S practices giving better workplace and maintenance system's procedures, decreasing waste and non-value-added activities. In addition, 5S practices help in the improvement of internal communication skill among staff. As supported by (Arash & Kaluarachchi, 2012) poor communication can cause wasting of resources, time and money, and lowering morale amongst staff.

In practice, enormous effort may be required to achieve this integrated management system. Researchers recommend considering 5S in a more philosophical or at least strategic way. When 5S becomes a way of doing business, operations need to be approached differently due to the behavioral changes required as a basis for 5S to succeed (Bresko, 2009). Once all members within an organization can fully understand and implement 5S, organizational readiness towards best practice becomes more realistic, since one of the outcomes of successful 5S practices is increased morale and organizational resilience (Daniels, 2010). Bresko (2009) suggested that 5S contributes to the following important strategic priorities: productivity, quality, costs, delivery, safety and morale. The method of 5S is one way to engage people and contribute to culture change. Daniels further explains the concept of 5S as a visually oriented system of cleanliness, organization, and arrangement designed to facilitate greater productivity (Daniels, 2010).

## **2.6 Promotion and Implementation**

The 5S concept is trusted to give improvement in productivity of an organization not only as a housekeeping tool but also for much more significance involving cost and quality. There are many examples of successful implementation of the principles of 5S. This is used in the service sector organizations, such as institutions, libraries, government buildings and leisure centers. (Gupta, 2015), for example, in his finding against application of 5S concept at a small-scale manufacturing company, found that 5S helps in saving of space by 50 square foot area or Rs. 50,000 was saved by removing inventories from the floor. The study also concluded that after 5S implementation, average time spent in search of tools is about 5 minute/ day or Rs 515/month, compared to 40 minute/ day before 5S implementation (Nolan, 2008).

According to Dilek (2013), implementing 5S in the workplace becomes cleaner and it's an important aspect for hotel industry since hygiene aspect is crucial especially in their housekeeping, food and beverage, safety and for image as well. It also added that the programs,

tasks, controls, conditions, performance criteria and guidelines related to hotel management should be standardized and be made continuous to get positive feedbacks from employees and customers. Those activities would be more effortless if the organizations had implemented 5S in their workplace(Nolan, 2008).

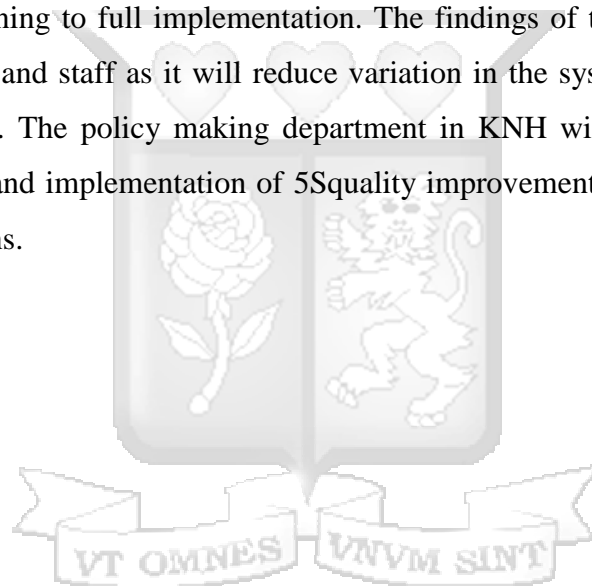
Furthermore, a main objective of 5S practices is to maximize the intensity of workplace health and safety in concurrence with improved productivity. The development and evolution of 5S between 1945 and 1998, survey done by the Japan Industrial Safety and Health Association (Jisha, 1999), showed there was a reduction in the frequency of work incidents. An additional sixth S, “safety”, was introduced and is occasionally added to promote the drop in numbers of work injuries. The significance of implementing 5S goes beyond direct productivity as it is associated with decreasing numbers of industrial accidents during the survey period (Jisha, 1999). The benefits of good workplace include the prevention of defects, prevention of accidents and the elimination of time wasted for searching tools, documentation and other ingredients of manufacture (Nolan, 2008). Research done in manufacturing industry by (Pasale, 2013) reported that 5S program is realizable within a short period of time and the employees in the organization become self-disciplined.

By implementing 5S in the workplace, it organizes the workplace physically and eventually it will help to develop staff attitudes and discipline. This will create a working environment that is more efficient, productive and more competent to the organization. In Malaysia, the Standards and Industrial Research Institute of Malaysia or SIRIM has played an effective role to encourage the utilization of 5S concept among Malaysian industries. In relation to that, most local government agencies in Malaysia have introduced and implemented 5S to simply clean up their work areas and improve organizational productivity as well as use it as a tool in improving housekeeping, environmental performance and safety standards in a systematic way (Fotopoulos & Psomas, 2010). This shows that 5S practices have a significant contribution to the effectiveness and efficiency of the organizational performance. Overall, the key elements of quality perspective in implementing 5S in workplace can be defined in terms of cleanliness, safety, cost efficiency, organized and standardization and delivery to gain customer satisfaction(Veenstra, 2013).

### **2.6.1. Research gap**

It's evident that whilst most of the studies have covered the concept of 5S to improve productivity and quality in the manufacturing sector, not much has been done on locally in the health sector and more so in the public health facilities to enable them achieve world class standards in production planning and management. There is need for government health facilities to step up efforts to re-invigorate these facilities by providing them with the much needed technical and expert support to upscale their production and business processes.

The research gap being addressed here is the process of adoption and implementation of 5S model at the Kenyatta National Hospital. So far, the model has been adopted and implemented. Despite this practice being used in the facility, there is little information regarding the process of its uptake and implementation. This research will provide insight into the processes that were involved from the beginning to full implementation. The findings of the study will be of great help to the management and staff as it will reduce variation in the system and improve service provision and efficiency. The policy making department in KNH will have an insight on the importance of adoption and implementation of 5S quality improvement model and its impact on overall hospital operations.



## 2.7 Conceptual Framework

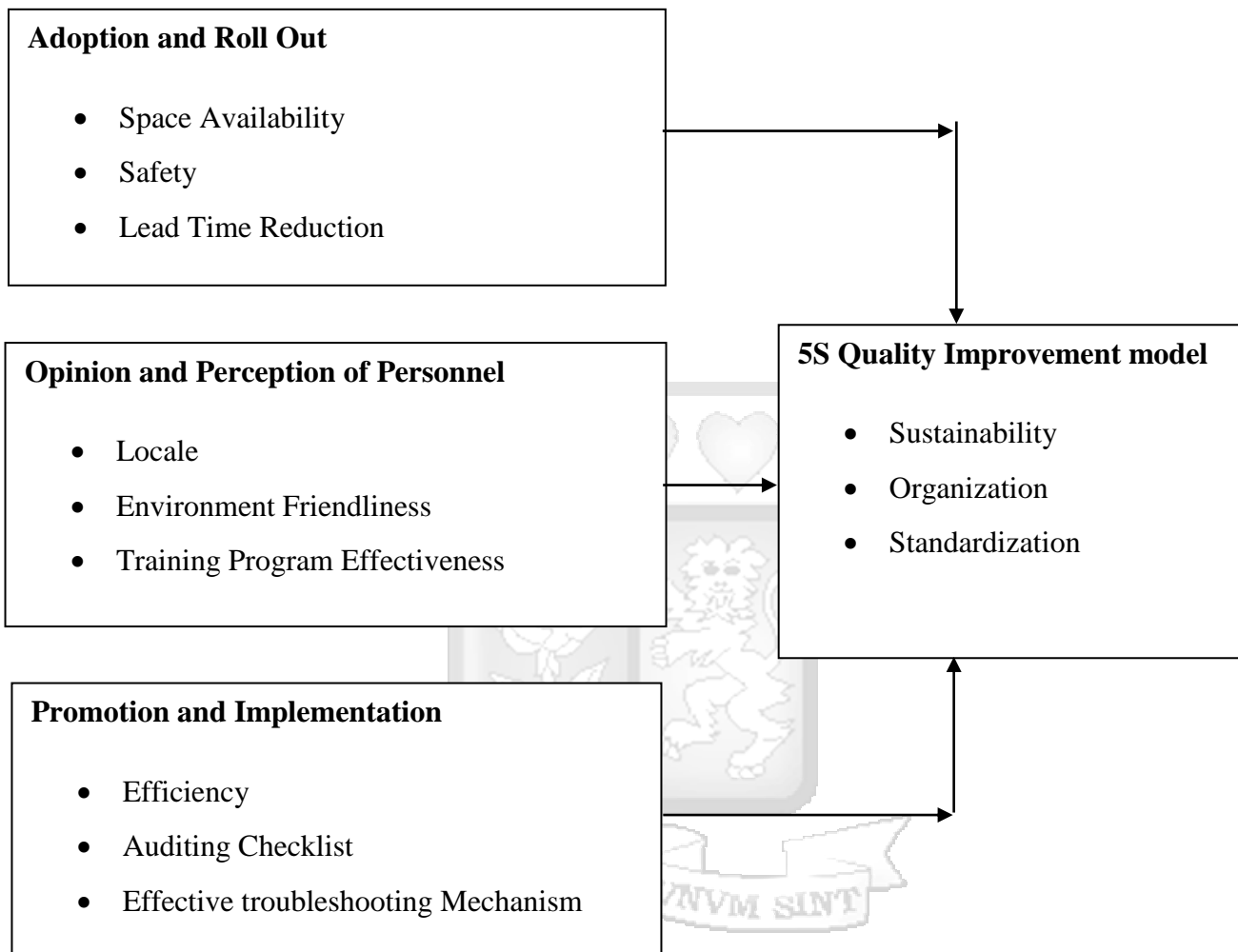


Figure 2.1 Conceptual Framework

Source: Author (2019)

### SUMMARY

Literature related to this area of 5S and is consistent with the objectives of this study, was reviewed. The 5S model was first introduced by Takashi Osada in the early 1980s and applying the techniques raised the environmental performance in production. This technique as stated by Sui Peng was used to establish and sustain an environment of quality in an organization and effectively promises employees to be more self-disciplined. This further deployed a systematic

way of achieving total organization, sanitary excellence and standards in the workplace leading to a successful and a more productive workplace. KPCC has so far managed to achieve a few factors herein since the adoption of the lean culture as described above. The 5S practices have a significant contribution to the effectiveness and efficiency of the organizational performance. The key elements of quality perspective in implementing 5S in workplace can be defined in terms of cleanliness, safety, cost efficiency, organized and standardization and lastly, delivery to gain customer satisfaction.



## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter presents the research methodology applied by the study. It describes and justifies methods that were used to collect data and to achieve the objectives and to answer the research questions.

#### **3.2 Research Design**

A qualitative approach was used. It was chosen because, it involves extensive exploration of phenomena and is particularly useful in gauging views, opinions and experiences of staff in implementing specific projects (Mugenda & Mugenda, 2003). This methodology is relevant to policy related studies. The study sought to understand why certain policies or strategies were not adopted or implemented fully or the barriers faced.

#### **3.3 Study Area**

The study was carried out at Kenyatta National Hospital's Prime Care Centre in Nairobi. KNH is in the upper hill area of Nairobi County, the capital city of Kenya. The hospital complex is situated 4km from the Central Business District. Nairobi is the most populous city in East Africa with an estimated urban population of about 4 million people.

Kenyatta National Hospital is a level 6 hospital meaning that it is a referral hospital. It is the largest of its kind in East and Central Africa with a bed capacity of 2000 and receives referrals from all the 47 counties. The hospital provides specialized health care services across the entire spectrum of health services and is mandated to act as a teaching and referral hospital, participate in research and training, national planning and policy making KNH strategy (2014-2018).

The study was carried out in the Prime Care Centre (KPCC) which is a directorate of the hospital. The Centre has a bed capacity of 220 and comprises of nine (9) wards, private wing theatres and a corporate outpatient Centre that serves as the entry point for admissions. The KPCC is located on the 1<sup>st</sup> floor (corporate-outpatient Centre-COC), Maternity ward and New

born unit-NBU, 9th and 10<sup>th</sup> floor (pediatrics, medical and surgical wards) of the main hospital block. The Centre offers nursing, medical- surgical care to private patients who are attached to specific physicians and surgeons; they also pay premium rates compared to general wards.

Patients are admitted at the KPCC following assessment and admission by specialists. On admission, the patients are required to pay an admission deposit of between Ksh. 40,000- Ksh200, 000 depending on the condition. The Centre admits patients based on availability of the beds. This differs from the general wing where beds are sometimes shared.

The Centre has undergone extensive physical and structural renovations. There is increased performance expectations from the clients who seek services. The production and quality of service given here is the benchmark used by the main hospital.

### **3.4 Study population and sampling**

Population is the unit of study and refers to the total group of elements about which a researcher desires to make some inference (Cooper & Schindler, 2008). The study population included nurses, medical consultants, pharmacists and support staff working at the Prime Care Centre. According to Cooper and Schindler (2014) a sample size of 20% or above is adequate for an academic research. Purposive sampling was used to identify 20 the study participants from wards 9A, 9B, High Dependency Unit, 10A, 10B, 10C, 10D, New Born Unit and ward 9D. 5 participants were from the who were actively involved in the roll out of 5S while 15 were actively involved in the actual implementation. The sampling ensured both older and newer nurses (those employed recently) were included to allow comparison, both male and female staff, older and younger staff was included to check for any cross –gender and age depended on achievement of saturation.

As explained by Creswell (2015) a sampling frame is provided in form of a list made up of the population of interest used for the study. It also has a set of individuals or elements used in the choosing of the sample of the study. Specifically, the sample size was 20 respondents distributed as shown in the sampling frame below;

**Table 3.1: Sampling Frame**

| <b>Category</b>                           | <b>Target Population</b> | <b>Sample Size</b> |
|---|--------------------------|--------------------|
| Roll out staff (Medical Specialists)      | 10                       | 6 (30%)            |
| Implementation staff (Nurses and Support) | 30                       | 14 (70% )          |
| <b>Total</b>                              | <b>40</b>                | <b>20</b>          |

**Source: Author (2019)**

### **3.5 Data Collection**

Primary data was collected using an in-depth interview guide (attached in the appendix III). The interview guide had few close ended questions on interviewee characteristics but was mainly made up of open-ended exploratory items with relevant probes and prompts. The actual items asked for each participant varied depending on their role at the hospital, their knowledge of quality improvement and 5S and the duration of time spent both at the hospital and the Prime Care Centre (KPCC). A total of 20 in-depth interviews were conducted with staff working in KPCC, the KNH Quality Assurance Department and the Patient Safety Unit all of which are involved in efforts towards improving quality in the Hospital.

Questions sought to describe the process through which the 5S strategy was introduced (whether top-down or bottom up), whether and how staffs were involved, staff views, opinions and perceptions of the 5S model and factors that facilitated and impeded effective implementation of the model. Interviews were tape recorded (with consent) transcribed and analyzed for content.

### **3.6 Reliability of the Study**

According to (Amin, 2005), reliability of research instruments concerns the degree to which a measuring procedure gives similar results for a number of repeated trials. A pilot study was

carried out to determine the reliability of the questionnaire, where the responses of the subjects were checked against the research objectives. The respondents used in the pilot study did not participate in the full study. Collection of primary data through administering a questionnaire and an interview guide proved to be reliable. This is because the data collected from the respondents provided firsthand information. Interviewees were able to give their honest opinions in good faith and without bias.

### **3.7 Validity**

Validity of a research instrument is the extent to which it can be able to measure to the intended aspect. Therefore, validity refers to the degree to which an instrument accurately asks the right questions. In Mugenda and Mugenda, (2003) validity is defined as the accuracy and the meaningfulness of the inferences on which are founded on the results obtained. A research instrument will only be considered valid if and only if the content selected and included in the questionnaire is relevant to the variable of investigation. To test the validity, the questionnaire was presented to the supervisors for scrutiny and comments. The constructive criticism and prescribed amendments were used to revise and improve the instruments until they were suitable for collecting data for this study.

### **3.8 Data Analysis**

Data collected from individual through in depth interview was subjected to content analysis. This was effective in categorizing behavioral data with the objective of classifying, summarizing and interrogating the resulting information. Content analysis was done on two levels. The first level was to provide a descriptive account of interview data. This involved a high level presentation of the data from a descriptive point of view. Data under this section included the demographic information of the respondents. This focused more on the responses given by the respondents. On the other hand, the second level of content analysis provided a more interpretive analysis, which was not only focused on the response but also the implied or inferred information. In this case, the response was looked at in a wholesome way in order to come up with insights for inferences. The results were presented in a narrative synthesized from presented topics based on the study objectives, with appropriate interview quotes added to enrich the discussions.

### **3.9 Ethical Consideration**

The researcher sought ethical approval from the ethics committee of Strathmore University IRB and ethical review committee of KNH.

Ethical issues that were undertaken included proper conduct of the researcher and confidentiality of the information obtained from the respondents. Introductory letters requesting to meet the respondents were obtained from KNH and Strathmore Business School. Respondents were encouraged to participate voluntarily and before administering the questionnaire, the researcher ensured informed consent was signed to enhance anonymity and confidentiality of all the information collected.



## CHAPTER FOUR

### PRESENTATION OF RESEARCH FINDINGS

#### 4.0 Introduction

In this chapter, the research findings from the study are presented using descriptive statistics. A total of 20 interviews were conducted in the Prime Care Centre. This study sought to describe the process of adoption and roll out of the 5S continuous quality improvement model, roles and involvement of personnel in its implementation and views, opinions and perceptions of staff and to understand the factors that promoted and impeded successful implementation of the 5S model.

#### 4.1. Social-demographic characteristics

A total of 20 people participated in the interview as below,

**Table 1: Social-demographic characteristics**

| Variable                   | Frequency (n) | Percent (n) |
|----------------------------|---------------|-------------|
| Age (Years)                |               |             |
| 18 – 25                    | 2             | 10          |
| 26 – 30                    | 5             | 30          |
| More than 30               | 13            | 65          |
| Gender                     |               |             |
| Male                       | 8             | 40          |
| Female                     | 12            | 60          |
| Highest Level of education |               |             |
| Certificate                | 1             | 5           |
| Diploma/Higher Diploma     | 6             | 30          |
| Bachelors Degree           | 7             | 35          |
| Masters                    | 4             | 20          |
| PhD                        | 2             | 10          |
| Cadre                      |               |             |

|                           |    |    |
|---------------------------|----|----|
| <b>Medical specialist</b> | 6  | 30 |
| <b>Nurses</b>             | 13 | 65 |
| <b>Support</b>            | 1  | 5  |
| Years worked at KPCC      |    |    |
| <b>Less than 5</b>        | 11 | 55 |
| <b>6 to 10</b>            | 4  | 20 |
| <b>Over 10</b>            | 5  | 25 |

#### 4.2 Adoption and Roll Out of 5S

14 respondents making up 70% of the participants interviewed felt that the 5S model was too time intensive and required that they spend some time putting things in order. 10 respondents making up 50% also felt that it was not possible to rearrange shared workspaces because different people have different needs and such arrangements may cause confusion, however 13 respondents representing 65% of the respondents argued that putting order carries a lot of benefit and can help reduce wastage and time spent looking for supplies at the hospital.

There was a unanimous agreement on the sensitization program by the respondents on KNH having Quality Assurance unit spearhead the implementation of the 5S management model.

*“I feel anything new must face resistance but with departmental heads being in charge of the 5S process, monitoring was easy and implementation faster”* Respondent (6). *“We manage large patient volumes which can be draining to us. So if this model would improve service delivery without burdening us I had to get on board and it had to be controlled by individual departmental heads”* Respondent (8). *“I am very happy that KNH chose the Quality Assurance unit to spearhead this initiative because of accountability and all of us got trained based on departmental head recommendations”* Respondent (1)

On what respondents feel led to the successful implementation of 5S in KNH, Respondent (3) stated; *“The hospital management took lead coordinators and quality assurance officers to various institutions for training”*. The respondent further explained *“The institutions identified for this exercise had successfully applied 5S in their operations. The hospital also had their*

*managers sent abroad for benchmarking activities*". This enabled the hospital to seamlessly cascade the 5S to its operations

From acquired knowledge and experience, 18 respondents making up 90% of the respondents felt 5S created the most efficient workplace possible.

*"I agree that 5S has improved our service delivery and improved our morale in KPCC"*  
Respondent (6)

*"In the beginning it looked like hard work but implementation of 5S can be done on any budget, even though it does require other resources to become an effective tool"* Respondent (2)

To ensure effective rolling out of the 5S model, different opinions and suggestions were taken into account *"A 5S System in change and transformation is often met with resistance. By starting small you avoid the overwhelming effect that some may feel. KNH adoption was slow due to this but steady and supportive approach worked best"* Respondent (7).

*"KPCC has a model example in KNH who successfully adopted 5S. Therefore, this acts as a point of reference when faced with any challenge in taking up 5S for KPCC"* Respondent (7)

Respondent (6) affirmed this position:

*"For a 5S System to be successful you must be successful at changing the culture and the behavior of employees and management. By nature, people are resistant to change therefore this can be the biggest obstacle to overcome. By using the slow, steady and supportive approach you will be able to gradually change the culture. The key is to start small and never stop improving. By using the 5S approach of small incremental changes it allows us to adapt to the changes with little disruption. With this type of implementation, the 5S System will be better received and be more sustainable"*

*"Ultimately we have to standardize and continuously improve the workspace and the processes that we do. But the first attempt at 5S is usually more challenging because we resist. The resistance could be due to the expectation of people to change the way they work and the way they think so sensitization should be the first step in having KPCC staff on board"* Respondent (2).

#### 4.2.1 Modalities

Among many modalities proposed, the scarcity of financial incentives was conspicuously recognized as a demotivation for staff members by 15 respondents accounting for 75%. As noted by a participant: ‘So as to motivate the staff, the management should consider increasing the incentives. Additionally, another participant mentioned this particular issue of incentives and shared a negative opinion regarding insufficient incentives given to the health staff members who participated in the 5S programs: ‘Most people complain because they are asked to do 5S, a handful of participants also suggested better measures to further improve or sustain 5S practice: ‘We need more space to make 5S practice more visible’; and ‘Ensuring the presence of a routine supervision could also have a positive impact in maintaining the good practice of 5S’.

A number of organizations fail in the attempt of adopting 5S — or at very least end up making the 5S rollout very difficult when they fail to choose the right environment and staff with which to begin. Organizations should begin in an area where the benefits and results are not only significant but also clearly visible to the overall organization.

#### 4.3 Opinion and Perception of Personnel on 5S Model

After analysis of the interviewees feedback, it was discovered that Leadership and Governance plays a key role in the roll-out. The following are some of the opinions shared by some of the respondents.

*“I was certain the 5S would effectively be implemented in KNH because our leadership hierarchy is well defined”* Respondent (1).

*“It takes good communication and team involvement to get desired results and in 5S introduction, good leadership and governance, which is well defined in KPCC, would re-enforce the team’s operational objectives”* Respondent (8)

*“Clear leadership ensures that we had set guidelines towards carrying out operational activities, both in our respective departments and the facility. The good leadership and governance gave required support and nurtured the system”* Respondent (4)

For any successful implementation of a new project, resources are required and for effective 5S implementation is no different. *“To have everyone on board, KNH management motivated us. It*

*did not have to be monetary, I remember getting a 2-daybreak for training and overseeing a successful sort stage with my team” Respondent (3)*

*“Taking part in the process requires that no additional work is added to what I am already working with. If I must be part of KPCC introducing the 5S, I need some form of motivation like off days if bonus isn’t applicable” Respondent (5)*

#### **4.4Promotion and Implementation**

It is imperative to conduct hospital wide sensitizations and vigorous involvement of all key stakeholders. *“I am very happy that KNH chose the Quality Assurance unit to spearhead this initiative because of accountability and all of us got trained based on departmental head recommendations” Respondent (1)*

*“I feel anything new must face resistance but with departmental heads being in charge of the 5S process, monitoring was easy and implementation faster” Respondent (6).*

##### **4.4.1 Audits:**

Conducting regular audits in all departments and units within the hospital to ensures conformity and compliance to agreed standards, without allowing other departments to lag behind.

The costs met to deliver health care services to the population are increasing rapidly. Health-care providers, namely clinics and hospitals aim at minimizing costs. This is despite the focus to improve service and patient safety, reduce patient waiting times, and minimize errors and associated litigation. The total time from the beginning to the end of a patient process in the hospital is a key measurement that needs to improve.

Healthcare organizations are increasingly employing lean tools. This in an effort to reduce waste while providing high quality healthcare.5S is the most popular tool in use to achieve Lean healthcare.

*“For a 5S System to be successful you must be successful at changing the culture and the behavior of employees and management. By nature, people are resistant to change therefore this can be the biggest obstacle to overcome. By using the slow, steady and supportive approach you will be able to gradually change the culture. The key is to start small and never stop improving. By using the 5S approach of small incremental changes it allows us to adapt to the changes with*

*little disruption. With this type of implementation, the 5S System will be better received and be more sustainable” Respondent (6).*

#### **4.4.2 Things implemented**

*“It takes good communication and team involvement to get desired results and in 5S introduction, good leadership and governance, which is well defined in KPCC, would re-enforce the team’s operational objectives” Respondent (8)* This resulted in improved turnaround time for patients in Corporate Outpatient Centre, reduced average length of stay for inpatients from 11.5 to 8.5 days and reduction in theatre waiting period.

#### **4.4.3 Implementation**

Safety is always a top priority in healthcare. However, healthcare organizations often struggle in implementing programs that make meaningful, sustainable improvements in safety. Healthcare has turned to 5S which has potentially improved safety through improved housekeeping practices. *“The hospital management took lead coordinators and quality assurance officers to various institutions for training...The institutions identified for this exercise had successfully applied 5S in their operations. The hospital also had their managers sent abroad for benchmarking activities” Respondent (3).*

5S promotes organized inventories, neat workspaces and clear processes to uphold high housekeeping standards. This tool is used in healthcare to reduce inventory piling, creation of space and the reduction of travelling and the search times.

Each of the 5 stages of a 5S project impacts on safety. Beginning with the sort stage where broken or already expired items are separated, to sustain a stage where cleaning, routine maintenance, and quality assessments are routinely conducted. In the set in order step, frequently used items will be easily accessible, thus improving ergonomics.

Walkways must be clear; this reduces the risk of trips and falls which would cause harm to the staff and patients. Being able to easily access and quickly retrieve them can be critical in healthcare for emergency cases Shine on the other hand-the third step, ensures that all items, the areas, and the equipments are clean and properly kept. This prevents contamination of equipments. It also ensures that equipment is not being out of service. The fourth aspect is

standardizing. This ensures the improvement of safety by giving access to the providers in a prioritized way. Standardization also allows providers to find items quickly. Finally, the fifth step is to sustain, this entails the creation of framework for observing and sustaining the previous four S's over time.

*“We manage large patient volumes which can be draining to us. So if this model would improve service delivery without burdening us I had to get on board and it has to be controlled by individual departmental heads” Respondent (8).*

## **SUMMARY**

A total of 20 people actively participated in the interview. Their opinions on the implementation of the 5S model was then collected cumulatively to give the following findings. Through the hierarchy of leadership in KNH, the decision making process is fast since it avoids conflict that may arise. This makes it easier for the implementation of 5S in the hospital. Operational plans have become easier as there is communication between the staff and their leaders. The two agree and through this, the set objectives can be successful.

Promotion and implementation of the 5S was done through sensitization of the hospital staff on 5S, what it stands for and how it can be used to make the working environment better. Through conduction of audits, it was ensured that all departments complied with the agreed standards of operation. This is to ensure quality of services within the hospital that will also mean efficient service delivery. 5S promotes organized inventories, clutter free workspaces and smoothly flowing processes to maintain housekeeping standards. It is applied in healthcare space to reduce inventory, creation of space, and reducing search times. By sorting, setting, shine, standardizing and sustaining, hospital safety is ensured. These 5S practices are therefore vital for improvement of performance in the hospital.

## CHAPTER FIVE

### DISCUSSION, CONCLUSION AND RECOMMENDATIONS 5.1 INTRODUCTION

This section discusses the finding presented in chapter 4. The study aimed at establishing the uptake and implementation of the 5S quality improvement model at KNH Prime Care Centre. The study identified variables documented in other studies as the determinants of uptake and implementation of the 5S quality improvement model. The discussion focuses on effective uptake and implementation of effective leadership and governance, sensitization program and employee participation.

#### 5.1.1 Process of uptake and implementation

Most of the respondents were of the view that “5S is fully a production methodology that aims at eliminating waste and creation value by organization of the facilities. The 5S concept was structured for integration with other lean tools, including the Kanban, the 5S and the Total Productive Maintenance, the aim was to create a workspace that would be a good as possible given the resources constraints. 5S adoption is differs from facility to facility. Irrespective of how it is done, various entities regardless of the size benefit from the variant benefits of adopting this methodology. The adoption and implementation of 5S methodology can be customized to the available budget. It nevertheless demands resources to ensure its effectiveness (Mustapha, 2009)

The views were supported by (Chauhan, 2010), study which showed the problem to sustain 5S quality improvement model in global market for an organization. They study indicated that adoption and roll out of 5S model in many manufacturing firms is a tools for survival and success of any organization. The main goal of 5S model management is to ensure minimum experience of all types of wastages so that the cost of the end product can be reduced by a percentage. (Huldli & Inamdar, 2010), discuss in depth the building of key sections used to measure the adoption and the implementation of 5S. The study also outlines the main areas developed to identify most optimal projects so as to improve their production efficiency. (Lucas

et al., 2010) studied on adoption of 5S on medium manufacturing firms of all 4-wheel drive automotive by the use of basic lean tool, the medium manufacturers sharply increased their output and reduced the quantity of quality defectives by 80%.

Becker(2010), presented real problems linked to industries when implementing 5S model. This study also discussed the selection of desired 5S tools vis-a-vis the company's long term needs. The study describes the various steps taken to implement 5S emphasis is on the gains accrued to an organization on application of 5S. The implementation of 5S has shown immediate and tangible impact on the sequencing of activities in the work stations, thus directly impacting positively on the performance(Khedkar, 2012).

The study recommended all employees should be involved with the implementation and more importantly in the maintenance of 5S quality improvement model. Implementing 5S aims to increase the overall safety in the area, eliminates waste and improve the work flow. This is to be executed by following the 5S program phases. As time is money, the expectation is to follow the set timetable and succeed in the implementation on time (Nolan, 2008).

### **5.1.2 Perception of Personnel on 5S Model**

Most of the study done on 5S model agreed with “When implementing 5S, staff should not focus on getting organized. Rather, they need to consider how they deal with all the things that come to them and what is within their environment; this will help in creating a 5S workplace”

According to(Barsan, 2012), study on health sector stakeholder's view of 5S showed that once 5S is firmly established within each hospital department, there is effective work flow within the whole organization. Staff members understand their work process clearly and they have enhanced sensitivity towards problems, they are sustainable and they observe standardization. In the sustainability and standardization stage, training targets are shifted to improve the capabilities of the staff and mid-tier managers such as the diagnosing and treatment departments managers, the managers for the inspection wings, and chief-nurses, additionally to having the 5S activities continued. This will therefore lead to strengthening of each department and collectively the organization (Bursan, 2012).

The study also indicated that in the TQM stage, the achievements gained during the sort and shine stages would be aggregated in order to have an improved entire management of the hospital as well as to solve different problems (Veenstra & Hofoss, 2013).

Chaisiri (2016), study on opinion and perception of 5S model indicated that all the staff should be included in the hospital management created from the service providers to aim for realizing 'Value Co-creation in the Organization'. The patients are not only expected to receive the medical attention from the facilities, but to also have an understanding of their own symptoms well, and be knowledgeable on the relevant health information.

### **5.1.3 Factors that promote and impede successful implementation**

The view of most respondents which included the opinion on the health care costs has increased sharply in the recent past. Medicare providers, among them clinics and hospitals constantly seeking to minimize their costs, notwithstanding the increased expectation of improved patient safety and patient care, significant reduction in patient waiting duration, and reduction in the errors and all other associated litigations. The overall duration from the start until the completion of a patient process in hospitals, treatment settings and lab and is a key metric that needs improvement. Their view was supported by various studies which included; According to study by (Becker & Wangner, 2014), on implementation of 5S model in health sector in Nigeria indicated that the proper implementation of the 5S entails the apt understanding by the employees at all levels, various supervisors and line managers. 5S at face value might deceptively seem simple, but, it demands a lot of preparation. Despite the fact that it is not considered as project, because all projects must have a beginning node and ending node, 5S is widely considered a program that enables continuous improvement of processes in an organization. The planning bit is critical in considering the milestones of 5S adoption (Campbell, 2008).

Campbell (2008) also agreed that the whole implementation starts with selecting a suitable project leader. This project leader or leaders should have a good comprehension of the 5S and vast experience or capacity managing such a project and people management capabilities. On selecting this project leader, it is important to have a 5S champion. This individual is one, who

will be responsible for the sections, which 5S is implemented. The champion is normally the person who provides a road map and guidance to the projects team. In most situations, there are many 5S champions. This depends on various factors for instance size of the institution. Members of the team should be a juggle of the employees who are staff in the specific area but performing different tasks (Veenstra, 2013).

Research on teamwork on promotion of 5S showed that it was training the team was paramount, for the 5S to work well (Gilson & Schneider, 2010). The study specifies that the training should be done to the staff at all the proposed implementation areas of the organization. It states that the projects lead bear the responsibility of ensuring that the training is done well to the relevant stakeholders. The What, Why, Where, When and How strategy is an easy way to remember the 5S. This answers the question on why the program is being implemented, highlights the benefits it brings along (Becker, 2010).

The study found out that answering the questions of where it was implemented, mentioning the areas chosen to be worked in is crucial in successfully adopting the 5S model. Answering the question on which implementation style was selected, was the facility was closed down for a specific period or was a bit done a couple of times a week say twice or thrice. Training needs a well-built presentation as various 5S strategy model games, to ensure there is suitable time for answers and questions (Gotlieb, 2012).

According to (Kryiakidou, 2014) study on promotional strategies of 5S the size of the area is crucial. The study found out that their various preferences regarding the 5S, others prefer that the implementation of 5S to be done at once into a vast space, for example a big warehouse or a makeshift structure at the parking lot. The study also identified that the area should be partitioned into different sections to have sub-projects, in order to have efficacy across board. The study recommended that the timings of the specific projects to be implemented so that it is possible to execute it in two different ways. First, of all is to have a full close down the entire facility and run the process wholesome. This is not the best option given that the logistics might not be possible to execute as all orders have to be delivered. The other way, is to apply the 5S implementation a couple hours daily or on a weekly or fortnightly basis, this is more realistic and suitable for logistics (Gotlieb, 2012).

Finally, a study by (Mully, 2015), on implementation of 5S model indicated that prior to beginning the 5S implementation, it is paramount to put in place clearly the eventual objective for the exercise. An organization will have to make a decision on whether it needs 5S for a quick clean up and streamlining or a continuous and sustained improvement to manage work process, making the organization safer, and streamline the workflow process.

### **5.1.3.1 Leadership and governance**

A study carried by Veenstra and Hofoss, 2013 on the role of effective leadership and governance in adoption of 5S model clearly indicated that in the absence of effective leaders and sound governance across the various in a private, a public and a civil organization, it is almost not possible to attain and to sustain effectiveness in administration. To attain objectives, to sustain quality in to the long run and to deliver a high quality service. The ever-growing complexities and needs arising from changes in the population, as well as the push for better levels of output requires an effective and ethical governance. Sound governance and ethics are the key metrics of an organization that can be deemed successful by stakeholders in this century (Veenstra & Hofoss, 2013).

The study concluded that leadership plays a pivotal role in communication and implementing strategies that are linked to achieving broad organization objectives. 5S is a tool that requires high priority, firm and managerial decisions to make it work, active leadership and solid governance is also required for its successful implementation.

Daniels (2010) study on strategic governance role in adoption and implementation of 5S quality improvement model showed that governance in the health sector is increasingly being considered a key thematic area this is as far as the development agenda goes. Good governance and leadership in the establishment of health care systems includes the policy frameworks as well as the strategic facets which exist. These are coupled with an efficient oversight, coalition-building, apt regulation, attentiveness to the system designs and enhances accountability. The necessity for a greater accountability in implementation of 5S model emanates from both the additional funding and the growing need to produce results. Accountability is thus an invaluable facet of good governance that entails the guides relationships among the various stakeholders in health care, these includes: households, specific individuals, local communities, various firms, states,

nongovernmental organization/ not for profit organization (NGOs/NFPO), as well as other entities which bear the mandate of financing, monitoring, delivery and the usage of health care services.

According to The Health Systems Assessment Approach: A How-To Effectively adopt 5S quality improvement model indicated that sound governance in the health care sector is displayed by fully channeling health care system resources, output, and participation of stakeholders toward the main goal of life saving and carrying this out in ways which are transparent, just, equitable, and sensitive to the people's needs. In order for health interventions to be fruitful, the countries require effective policies, just rules, free access to information, and lively participation of the various stakeholders in this sector (Daniels, 2010).

### **5.1.3.2 Sensitization program**

The respondent view that KNH developed a sensitization program, took cognizance of all departments and their critical contribution to the organization. The Quality Assurance unit was mandated to spearhead the exercise. The sensitization program developed was rolled out and several trainings conducted in all departments. Concurred with (Gotlieb, 2012), study on 5S sensitization program in Kaur Hospital in Australia indicated that professionals in the health care space have acknowledged that adherence to 5S sensitization arrangements at is essential to providing high quality services.

On the flip side however, professionals in this sector have often played down the importance of the clients' perceptions in the misconception that that the patients have no depth in the knowledge of what actually makes up technical quality. In as much as the opinion of health care experts is widely taken into consideration to be important, other perspectives on the 5S programs have been re-emphasized in recent years. The outstanding important change has been at the growth in recognition that services should be aligned towards the guidelines and values of the 5S sensitization exercises especially the opinion about quality of services-this is an important metric for quality (Gotlieb, 2012).

### **5.1.3.3 Employee participation**

According to (Mustapha, 2009), study on employees' involvement in the overall adoption and implementation of 5S quality improvement model in hospital in Ghana indicated that employee

involvement from the beginning is imperative to allowing a seamless cascade of the 5S model, by having the employees embrace the 5S, which would make their work much easier, safer and less stressful. Involvement of the employee is usually not considered the goal neither is it a tool in itself. It is rather taken as a managerial and leadership approach on how staff is most empowered to have input to continuous improvement and the sustained success of the organization (Mustapha, 2009).

The study also indicated that a strict recommendation be made to the institutions which intend have the staff involved in work decision as well as the planning. Involving the staff not only increases loyalty and their commitment, retention of the best staff talent, and fostering an environment where staff choose to be contributing to the success as well as being motivated.

Another study carried by Nolan (2008) on effect of employees' participation in 5S quality improvement on organization service delivery in manufacturing firms in Norway showed participating staff's expertise and skills of the organizational environment are an important addition to the skills of the managers and the intervention leads during intervention strategizing and roll-out engagements. The study also argued that participation of the staff has increased the possibility of a change in process being applicable and useful.

Participatory exercise improves staff perceived loyalty and ownership of the change, this by extension helps in ensuring the implementation Roskam (2009). Double-loop learning in the organization is usually displayed in the change processes that requires employee skills and is mostly associated with improved among key players in the process of change and a critical change analysis options (Roskam, 2009).

## **5.2 Conclusion**

### **5.2.1 Introduction**

This section presents a summary of the study, conclusion and recommendations.

### **5.2.2 Summary of the study**

The purpose of this study was to establish the uptake and implementation of the 5S quality improvement model at KNH Prime Care Centre. The study was guided by the following objectives: to describe the process of adoption and roll out of the 5S quality improvement model at KNH, KPCC, to explore in depth the views, opinions and perceptions of personnel on the relevance of the 5S model and their roles in its implementation and to understand in depth the factors that promote and impede successful implementation of this model.

### **5.2.3 Conclusion**

5S is effective towards the management of tools and the equipments which could improve various activities like the housekeeping section, the environmental and healthcare and safety levels as well as improve productivity efficiency and quality of the output. In 5S, the sort stage ensures that there is elimination of unused and mostly unwanted materials from the stores rooms, this reduces unwanted situations like clutter. 5S ensures a reduced searching time and by extension improves the eventual production and final quality of the output. In this way the staff and the organization end up being self-disciplined.

From the study, it was concluded that the 3 determinants of uptake and implementation namely: leadership and governance, sensitization program and employee participation were found to be key pillars in the roll out and adoption of the 5S quality improvement model.

### **5.2.4 Recommendations**

The following were the recommendations of the study

#### **Formulation of Action Plan for Rollout**

A definite plan for the rollout should be crafted and the reviews made at least annually. Per level of the organization under the quality assurance (QA) mechanism, a clear plan needs to be set up to set, improve or dispatch 5S undertakings. A standard action plan describes a one-year plan and can be amended if necessary.

### **Integration of Training Schedule**

Training should be done annually to ensure that the QA structure, more so capacity building and strengthening of the trainers and trainers of trainers is key for countrywide launch of the method. These trainers are allocated not only for 5S but other Quality Assurance Policies (QAPs) that may be present. Training facilities as well as materials should be made taking into consideration the realistic guideline or standard operating procedures (SOPs) for each and every program. At the helm, the various contents of training for QAPs should be combined. For instance, the training of IPCs could inculcate basic training of 5S. 5S basic training can be done in trainings of QAPs as a fundamental technique. However, specialized training is inevitable when install 5S approach for organizational change and management.

### **Integrating of the Methods of Monitoring and Evaluation**

When it comes to methods of monitoring or evaluation (M&E) processes of 5S, the specific materials for the M&E as well as supervision should be incorporated step by step. All the integrated items need to be applied from the onset in order to measure their efficacy.

### **Showcase**

A showcasing section also called a 5S corner needs to be set up at each of the departments within KNH department-a practice QAPs. The desirable practices can be replicated within and outside the facility. In as much as the 5S installed is for the improvement of processes within the locality of the firm, the impact can be far reaching if it also appeals to the visitors and the community. Good undertakings in other QAPs should also be showcased as well at the 5S corner. Visualization of materials can be helpful so as to enable a quick grasp the key points of how to combine with QAPs.

### **5.3 Areas of further research**

This study was done in KPCC, there is need to further the study to include the rest of the hospital, other determinants like financing need to be considered in further studies.

### **5.4 Limitations of the study**

This study was limited to the description of the uptake and implementation of the 5S quality model with specific reference to Prime Care Centre. The research study focuses on the rollout, adoption, roles of key personnel, perceptions and to understand the factors associated with the success or failure of the implementation of 5S model. This study will not be able to examine all the factors that influence quality of service in KNH but will only examine specific factors.



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## APPENDICES

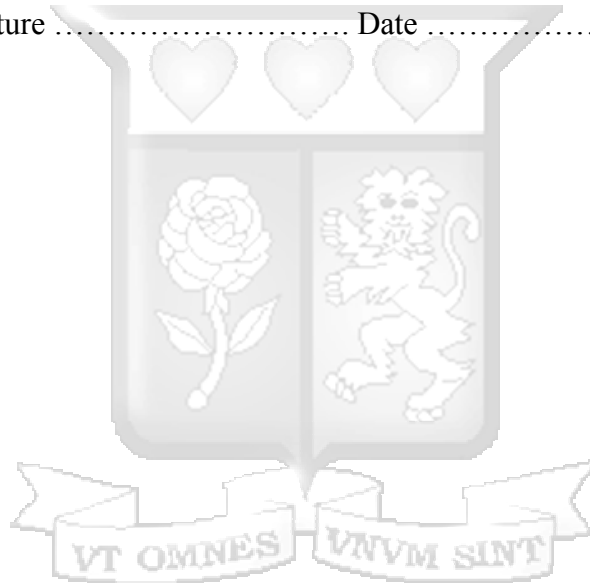
### APPENDIX I: Participant's statement

I understand that my participation is voluntary and that I may refuse to participate or withdraw my consent and stop taking part at any time without any penalty.

I hereby freely consent to take part in the study.

Participants signature..... Date .....

Research assistants signature ..... Date .....



## **APPENDIX II: INFORMED CONSENT FORM FOR PARTICIPANTS**

Dear participant,

My name is RoselineOkello, A Master in Business Administration in healthcare management (MBA-HCM) student at Strathmore University.

This academic research is about uptake and implementation of 5S quality model in Kenyatta National Hospital, Prime Care Centre. The purpose of this research is describe the process of adoption and roll out of the 5S model of quality improvement, to explore views, opinions and perception of personnel on the 5S model and to understand the factors that promote or impede successful implementation of the 5S model in KPCC and explore measures that can be taken to improve the work place and achieve desired clinical outcomes and customer satisfaction.

There is no expected risk or remuneration involved in this study and you may not benefit directly as an individual from the study however the findings will enhance better workplace environment. The data obtained will be for research purposes only. You are free to ask any question concerning this study during your participation in the study. If you need more information, please contact RoselineOkello on 0723338520 of P.O.Box 104720—00202 Nairobi or my research assistant

This is to certify that I was duly consulted and informed about this interview and that I voluntarily accept to participate as a research participant in the study without remuneration for participation. I have been assured anonymity, confidentiality and no risks about my participation.

Signature.....

Date.....

### **APPENDIX III: INTERVIEW GUIDE AND FOCUS GROUP GUIDE**

This study seeks to describe the uptake and implementation of 5S quality model in Kenyatta National Hospital, Prime Care Centre. The objective of this study will be describing the process of adoption and roll-out of the 5S continuous quality improvement model at KNH, Prime Care Centre, roles of different personnel and degree of involvement in implementing the 5S, to explore in-depth the personnel's views, opinions and perceptions of 5S and their understanding of what their roles should be.

#### **Part I: Demographic Information of the Participants**

- 1) Age.....
- 2) Gender.....
- 3) What is your highest level of education ?.....
- 4) Cadre.....
- 5) How long have you worked in KPCC? .....

#### **Part II: Interview Guide**

- 6) Discuss the process of 5S adoption?
  - a) Process of adoption
  - b) Challenges
  - c) Modalities
- 7) What roles do different personnel play in the roll-out and implementation of 5S?
  - a) Departments involved
  - b) Mode of involvement
- 8) What are the views, opinions and perceptions of KPCC staff on 5S?
  - a) In what ways do you think it is a useful approach?
  - b) Can you think of a better approach besides 5S?
  - c) What do you think it is being implemented? What are these?
  - d) Are there any achievements in your opinion? What are these?
  - e) Are there any challenges in your opinion? What are these?
  - f) How can the implementations be improved?

**THANK YOU**