

**“Improving Efficiency in Preventive Health Checkups: Turnaround
time analysis at a multispeciality hospital in Gurugram”**

Dissertation Submitted to



The IIHMR University, Jaipur

for the partial fulfillment forthe award of the degree of

Master of Business Administration (MBA)

in

Hospital and Health Management

By

SHALINI NANDI

Under the Supervision and Guidance of

Dr. P. R SODANI

PhD, MPH (UNC-CH), USA

President, IIHMR University, Jaipur

**IMPROVING EFFICIENCY IN PREVENTIVE HEALTH CHECKUPS:
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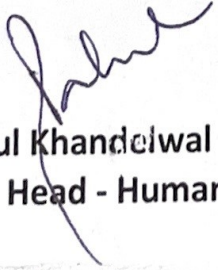
01-July-2024

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Ms. Shalini Nandi D/o Mr. Buddhadev Nandi** has completed her "**Dissertation**" as a part of the course curriculum in the department of **Patient Care Service** at Fortis Hospital, Manesar, Gurugram from **April 01, 2024 to June 30, 2024**.

We wish her all the best in her future endeavors

For Fortis Hospital, Manesar, Gurugram



Rahul Khandelwal
Unit Head - Human Resources

DECLARATION BY STUDENT

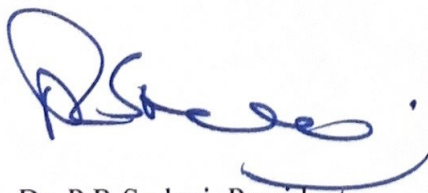
I hereby declare that this dissertation titled **“Improving efficiency in preventive health checkups: Turnaround time analysis at a multi-speciality hospital in gurugram”** is the bonafide record of my original research work. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.

Shalini nandi
Shalini Nandi

Date- 05/07/2024

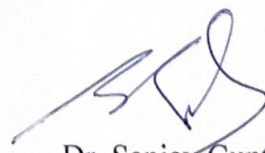
CERTIFICATE

This is to certify that dissertation titled **“IMPROVING EFFICIENCY IN PREVENTIVE HEALTH CHECKUPS: TURNAROUND TIME ANALYSIS AT A MULTI-SPECIALITY HOSPITAL IN GURUGRAM”** is a record of the research work undertaken by **SHALINI NANDI** in partial fulfillment of the requirements for the award of the degree of MBA (Hospital and Health Management) from the IIHMR University, Jaipur under my guidance and supervision and her approach to the research study has been sincere, scientific, and analytical.



Dr. P.R. Sodani, President
IIHMR University, Jaipur

Date 05/07/2024



Dr. Sanjay Gupta
IIHMR University, Jaipur

Date 05/07/2024.

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Shalini Nandi

ABSTRACT

Title of the study:

“Improving Efficiency in Preventive Health Checkups: Turnaround time analysis at a multispeciality hospital in Gurugram”

Introduction

Preventive health checkups highlight the need for regular medical checkups, not only to identify health problems early on, but also to prevent the occurrence or spread of diseases and monitor overall health and wellness. Generally, these tests are to be carried out in partnership with one another in order to provide a detailed health status of a person. Preventive health screenings therefore belong to those services that are offered by the Outpatient Department (OPD). This list includes a collection of medical tests and examinations to be carried out for the purpose of monitoring the general state of health and well-being, preventing the onset or development, and in case of diseases, ensuring early detection.

The Value of Preventive Health Checks in OPD

Early detection of the disease: It is important because it allows doctors to take up the treatment of the patients at a time when recovery could be most possible and when available treatments are best.

Regular check-ups: It prepare a person much better to make informed decisions about lifestyle, medical history, and potential risk factors for various diseases. It helps a person either adopt preventive measures like a healthy diet, regular exercise, and habits to reduce stress, or refrain from risky behaviours.

Personalized Health Plan: Routine examinations may allow physicians to determine the specific health needs of an individual, hence develop a personalized treat plan that would include advisories for testing, injections, and other lifestyle changes.

Cost-Effectiveness: This early detection will result in long-term savings in terms of less need for costly treatments.

Problem Statement

Long waiting hours are one of the prime issues that would be addressed or emphasized with this study considering its importance in determining patient experience and the overall efficacy of these preventive health checkups in a multi-specialty hospital setup. A long waiting is most pronounced during the collections of reports and the consultations with the physicians, which usually extends to the next day. These delays have been worsened by a number of factors including limited time frames within which clinical duties ought to be performed by staff; finances restrain on increasing workload or working hours; understaffing worsens such a situation that doctors have no enough time for reporting pending cases, in addition to which they need regular training sessions in general examination procedures required during their research; inadequate staffing levels due to financial constraints based on insufficient preparedness or readiness caused by poor planning strategies or lack of awareness among nurses of importance in having an adequate workforce or oriented staff before conducting these tests; lack of awareness among patients of the importance of prevention facilities available.

Research Question

- What is the current turnaround time for preventive health checkups?
- What are the key barriers to efficient turnaround time in preventive health checkups?
- How can these barriers be addressed to improve turnaround time?
- What are the implications of delayed turnaround times on patient satisfaction and healthcare outcomes?
- What are the best practices for optimizing turnaround time in preventive health checkups?

Objectives

The study aims at a deeper evaluation of the process of preventive health checkups with a view to improving the same. It needs to assess the delays in practice that lengthen the turn-around time with a view to identifying bottlenecks and inefficiencies in the entire process. Another goal of the study will be to identify areas of improvement in scheduling optimization, resource allocations, and operational workflows, among other factors, that can help in reducing the turnaround time by analysis of the delay. The objectives are to assess the general quality and effectiveness of health checkup services provided, with priority on improving patient satisfaction through better service delivery. Finally, it seeks to make evidence-based recommendations and suggestions using empirical findings, which can be used by healthcare practitioners to implement strategic changes to streamline processes involved in preventive health checkups, leading them to become more efficient and effective. Thus, the study supports these objectives towards improved care provision, which ultimately results in outstanding outcomes and quality healthcare.

Material and Methods

This research material is descriptive aimed at understanding the current status as well challenges involved in preventive health checkups at Fortis Healthcare. The study period covers the timeline between April 1st and June 30th of 2024 to capture both current customers' and former customer data for Fortis Healthcare.

Primary data was collected by observing patients and their attendants during the process of preventive health checkup. This enables researchers to have a firsthand experience of what is happening during the procedure, waiting times and overall patient experiences. Also, secondary data available from operating system of Fortis Healthcare can be helpful as they show long-term trends, historical statistics on operations and other useful information which increases analysis depth.

Hence, this study intends to provide an integrated view of factors that affect turnaround time, client satisfaction and quality of services in respect to prevention activities thereby using both primary and secondary sources. Descriptive research designs make findings based on empirical observations and data driven insights so that they can identify critical

problems hence improve service delivery at Fortis healthcare.

Ethical Considerations

Taking ethical issues into account while conducting the study is as important as choosing a suitable research approach and methodology. Since responses from patients, attendants and staff are used in this study, it was kept into consideration that the approval has been obtained before the start of data collection from the higher authority and nobody was forced to answer the questions. Anonymous responses were also considered to maintain the confidentiality of the participants. To ensure the quality of the data gathered, the self-administered questionnaire was made substantial, understandable, and well-worded. Also, before conducting the study, permission was taken from the higher authorities, and for content validity the analysis was done only after receiving the final approval form the authorized body of this organization.

Conclusion

Regular preventive health examinations are essential for preserving general health and early detection of possible health problems. However, a number of variables, such as implementation hurdles, awareness, and socioeconomic inequities, can influence the turnaround times for these examinations. In order to improve patient satisfaction and healthcare outcomes, healthcare professionals must streamline procedures and eliminate these barriers. This means addressing socioeconomic disparities, educating and raising patient awareness, and ensuring timely and efficient health examinations. By doing this, medical professionals can help patients maintain their health and avoid costly and significant health problems.

Key Words

Preventive health checkup, Waiting time, Diagnostic tests, Report delivery, Screening tests

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1. OPD - Outpatient Department
2. UHID - Unique Hospital Identification
3. FO/ FOA - Front Office/ Front Office Assistant
4. PCC - Patient Care Coordinator
5. MRD - Medical Record Department
6. HIS - Hospital Information System
7. PCS - Patient Care Services
8. FD - Facility Director
9. NIC - Non-Invasive Cardiology
10. EPABX - Electronic Private Automatic Branch Exchange (Console)
11. Appt - Appointment
12. PHC - Preventive Health Check up
13. PFT - Pulmonary Function Test
14. ECG - Electrocardiogram
15. FBS - Fasting Blood Sugar test
16. HOD - Head of Department
17. TAT – Turn Around Time

Figure No.	Description
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Chart - 1	Duration of PHC procedure
Chart - 2	Time comparison between present and future state

Fortis Healthcare Limited is a leading healthcare provider across India which has an extensive network of 28 hospitals, over 4,500 operational beds and more than 400 diagnostic centers operational through joint ventures. Fortis is a subsidiary of IHH Healthcare Berhad, a global leader in healthcare and capitalizes on its strong infrastructure backed by approximately 23,000 committed staff to achieve better clinical outcomes and patient centricity. It is listed on the BSE Ltd. and National Stock Exchange (NSE) of India among other countries such as the United Arab Emirates (UAE), Nepal and Sri Lanka in its bid to maintain excellent medical expertise as well compassionate health care services.

Vision:

Fortis Healthcare envisages creation of a world-class integrated healthcare delivery system in India that combines the highest level of medical competence with compassion for patients. Through its extensive network and strategic partnerships Fortis seeks to set benchmarks for excellence in health care as well as innovation thereby assuring stakeholders unique experiences while seeking treatment.

Mission:

Fortis Healthcare aims at becoming a globally respected healthcare organization renowned for its clinical excellence and distinctive patient care. It intends to enhance health outcomes within societies served by combining state-of-the-art medical technologies with compassionate practices.

Chapter 1: INTRODUCTION

Identification, treatment, and prevention of disease, illness, trauma, and other mental and physical disabilities in people are all included in the term "health care." Experts in the fields of medicine, dentistry, optometry, nursing, pharmacy, allied health, and other related fields provide healthcare.

It encompasses primary, secondary, and tertiary care delivery in addition to work in public health. The consensus is that improving people's general health and well-being on a worldwide scale is greatly aided by health care. Patients at hospitals have to wait longer to receive services. Patients' level of satisfaction with the services they received is directly impacted by the caliber of the waiting period. In order to deliver exceptional care, healthcare facilities must effectively control their clinic wait times.

A wait experience that is not created with consumer-driven features in mind may lead to frustration from both patients and providers. "Waiting time" describes how long a patient has to wait at a hospital before receiving medical attention.

One of the main factors influencing the quality of hospital services is the duration of wait times for patients. The amount of time a patient has to wait for an appointment is one factor that influences the utilization of healthcare services. Patients believe that lengthy wait times prevent them from getting care. When they are kept waiting longer than is necessary, both patients and doctors may become stressed. Patients will use waiting times as a concrete metric to evaluate medical staff, much more than their knowledge and skill.

What is preventive health checkup?

Preventive health check-up departments in hospitals forms the foundation of proactive health care and focuses on early detection, prevention, and management of potential diseases that may have escalated. These departments are components of healthcare organizations that provide a variety of comprehensive health assessments appropriate for every person. Modern diagnostic technologies are applied in these centers where highly trained medical experts work. They conduct comprehensive examinations that can detect early disease symptoms and conditions and then give medically recommended advice for improving health.

Types of Preventive Health Packages

Different types of preventive health packages have been designed to meet various health needs, as well as demographics and classifications, providing different levels of examinations. A series of the most basic tests included in the package are blood pressure measurement, lipid profiles, and basic chemistry panels. Such help is used to ascertain the general well-being status among the individuals besides allowing early diagnosis of most commonly prevalent diseases. Enhanced packages go further than the basic packages by including, for example, detailed investigations like cardiac workups, cancer screening, or metabolic scrutiny.

There are also special packages for specific demographic needs or for certain health issues. This could be included under women's health packages, men's health screening, age-related checks, and workplace medicals, all of which involve the screening for occupational risks as well as regulatory compliance checks.

Importance of Preventive Health Checkups

Human efforts aimed at life preservation could be highly enhanced well-being through better identification and proper active management of potential risks to their bodies. The introduction continues to say that early diagnosis may enable a doctor to identify the dangers even before the symptoms appear, thereby enabling a patient to go for the options of treatments available during those earlier times when diseases are manageable, rather than waiting for a later time when the disease will have advanced to a critical stage, possibly with complications looming large over one's life and hence threatening him or her. The preventive visits enhance treatment outcomes and improve the long-term prognosis for the patients by enabling early detection of conditions like diabetes and hypertension, as well as some cancers.

Preventive health checkups are a matter of prime importance in the community for the fight against the burden of disease. Essentially, this bears relevance in the management of healthcare matters so that the cost of treatment does not increase, often with regard to hospitalization and complications that arise as a result of late-stage disease. They can as well empower the individual to embrace a change of lifestyle that may include a change of diet, engaging in exercise, among others, so that they can take their health into account;

therefore, the chances of catching diseases become minimal. In conclusion, the programs provide a regime by which the people manage their health with a proactive approach leading to longevity and improvement in quality of life to both individuals and the community.

Research Questions

Current Turnaround Time for Preventive Health Checkups:

What is the timeframe for preventive health checkups being undertaken by a particular facility? This is a critical time frame in measuring operational efficiency and patient convenience in any health care system.

Key Barriers to Efficient Turnaround Time in Preventive Health Checkups:

This study seeks to determine and analyze the main obstacles or challenges that lead to delays in turnaround times of preventive health check-ups. For example, these could be things like administrative processes, resource allocations, staff problems or limitations of technology.

Addressing Barriers to Improve Turnaround Time:

This research question focuses on possible solutions because it looks at strategies and interventions which can be used to solve the barriers identified for efficient prevention related checkup services. Possible solutions may include refining procedures, equipping staffs with necessary skills in health matters, advanced technology systems as well as changes in policies.

Implications of Delayed Turnaround Times on Patient Satisfaction and Healthcare Outcomes:

Does extending turnaround times have an impact on patients' satisfaction levels and other outcomes in healthcare? These delays have implications on quality improvement initiatives since they influence patient experience, treatment success rates, and general performance of healthcare systems.

Best Practices for Optimizing Turnaround Time in Preventive Health Checkups:

What are the best practices that can improve turnaround time during preventive health care checks? They may include use of technologies such as data integration through

technology; streamline workflows; patient scheduling systems and so much more.

Objectives

The aims of this study are multifaceted, seeking to comprehensively assess and improve the preventive health checkup process. There is a need to evaluate the delays in practice that cause prolonged turnaround time and identify bottlenecks as well as inefficiencies. The study also aims at suggesting areas of improvement such as scheduling optimization, resource allocation, operational workflows among others for reducing turnaround times by analyzing this delay. Additionally, objectives include evaluating the overall quality and effectiveness of health checkup services provided especially with regard to improving patient satisfaction through better service delivery. Finally, it seeks to make evidence-based recommendations and suggestions using empirical findings which can be used by healthcare practitioners to implement strategic changes in order to streamline processes involved in preventive health checkups leading them to become more efficient and effective. Thus, this way, the study contributes to optimum care delivery, which eventually results in better patient's outcomes and health care quality.

Categories

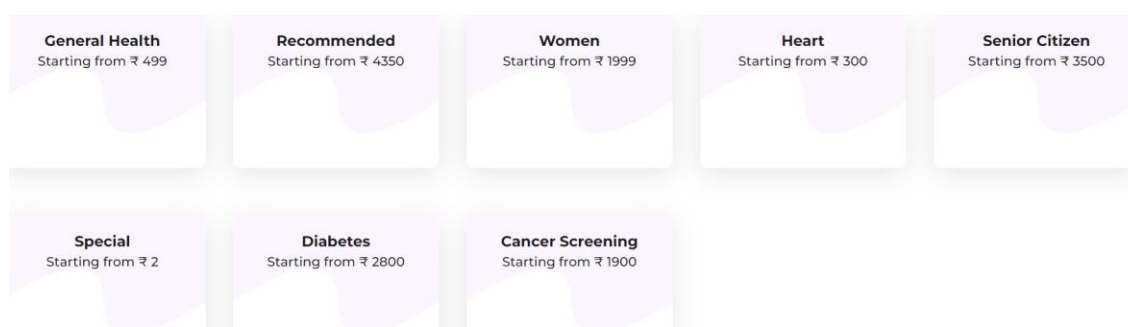


Figure 1.1 Health packages categories

Screening packages cater to various health needs at different age groups and aim to offer comprehensive assessments that will assure well-being and early detection of certain health conditions. The packages available cater to both males and females, and the follow-up-focused screening tests and assessments will be done:

The Basic Package primarily represents health screenings that are just of the basics and usually take about 4 to 5 hours. It includes basic checks such as measurement of blood pressure, assessment of cholesterol, and general blood tests to evaluate the entire body as well as to identify the immediate concerns.

As far as the Essential Package that lasts an estimated 7-8 hours, this one offers considerably broader tests. This is more than a basic screening that includes cardiac tests and others such as full blood counts (FBCs) and full metabolic panels in a bid to determine total health.

For those who wish to measure their lifestyle-driven risks to health, the Lifestyle Package takes 8-9 hours: metabolic health screening with body composition analysis and an individualized nutrition counseling approach in reflection of managing health in a holistic manner.

This two-day comprehensive package is termed as the Lifestyle Premium Package, and it offers the best value that money can avail for. Inclusive of the said state-of-the-art techniques, elaborate metabolic panels, as well as consultations with the specialists, it offers the maximum possible approach to be handled regarding the specific medical problems. Especially recommended for those requiring thorough checkup and a plan tailor-made to look after one's health.

Moreover, alternative a 'sampler' ones like the Golden Age Package that were spread over two days also catered for old people only. The age-related healthcare questions have been highlighted by considering bone density tests (osteoporosis), memory tests in elderly individuals and complete geriatric evaluations ensuring all-round care of older adults.

Besides their time-saving nature or easily fitting into schedules; however, these programs emphasize proactive healthcare management which involve early detection, so they promote wellness altogether while reducing chances of serious illnesses through scheduled interventions on time.

Registration Process

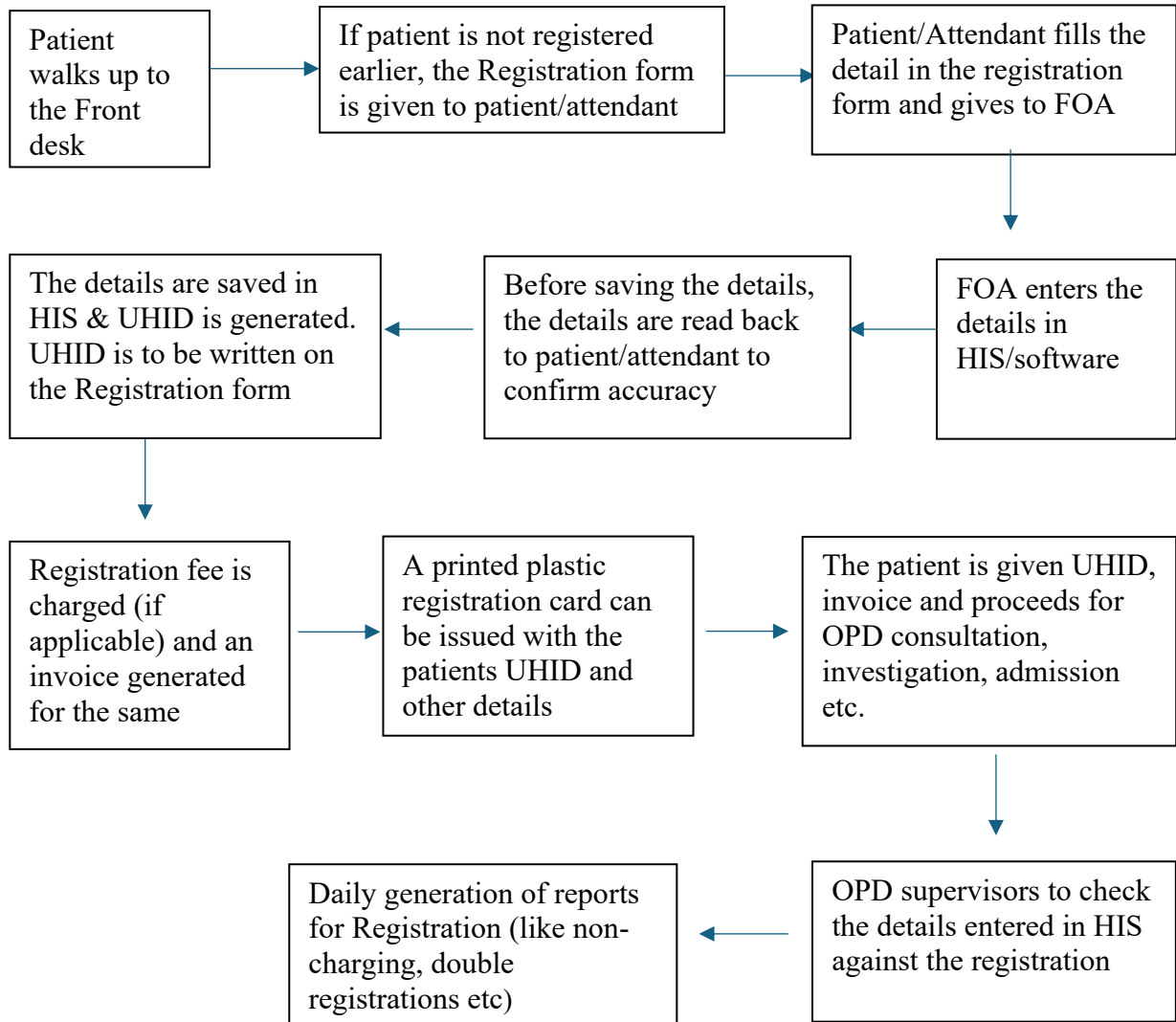


Figure 1.2 Registration process in HIS

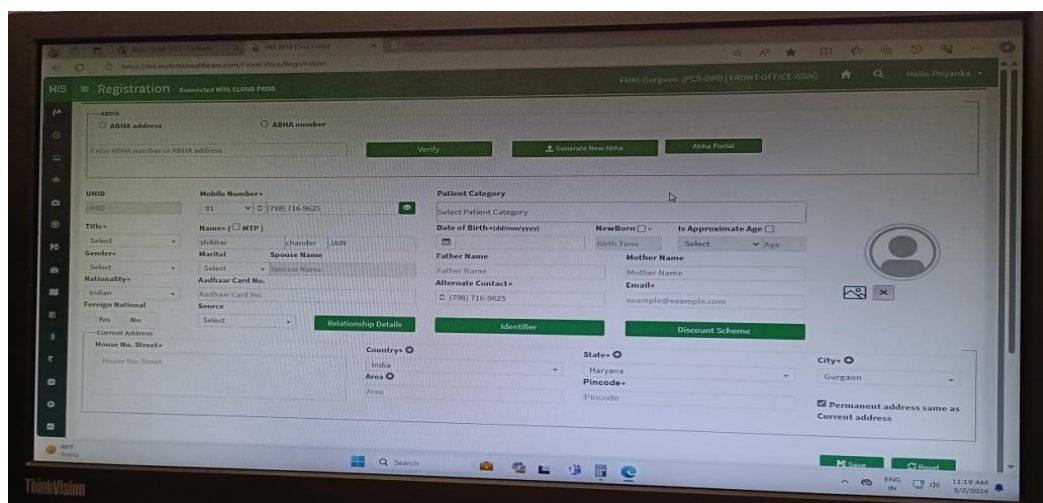


Figure 1.3 HIS portal

Process mapping of PHC

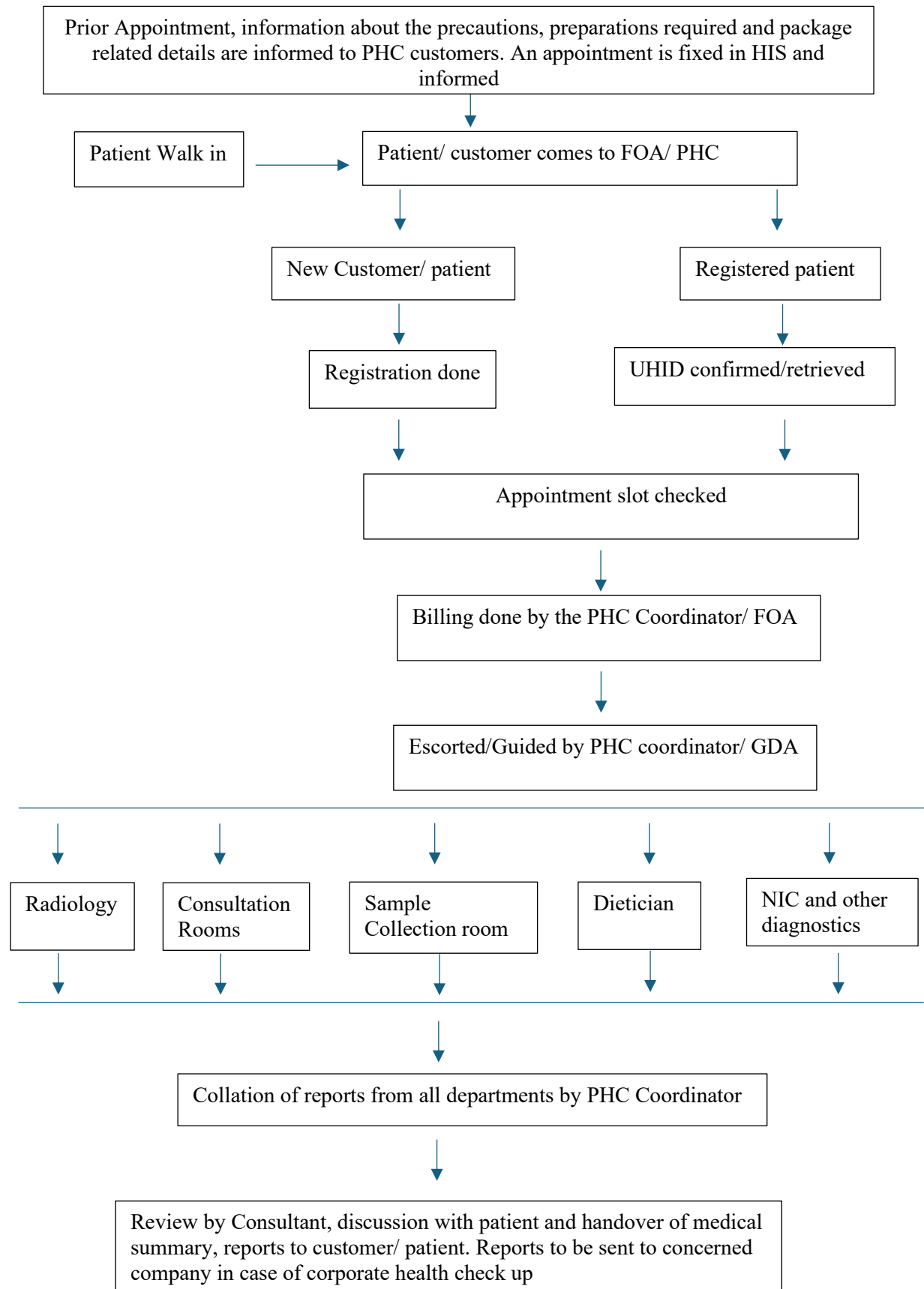


Figure 1.4 Process mapping for preventive health checkup

Organizational Structure

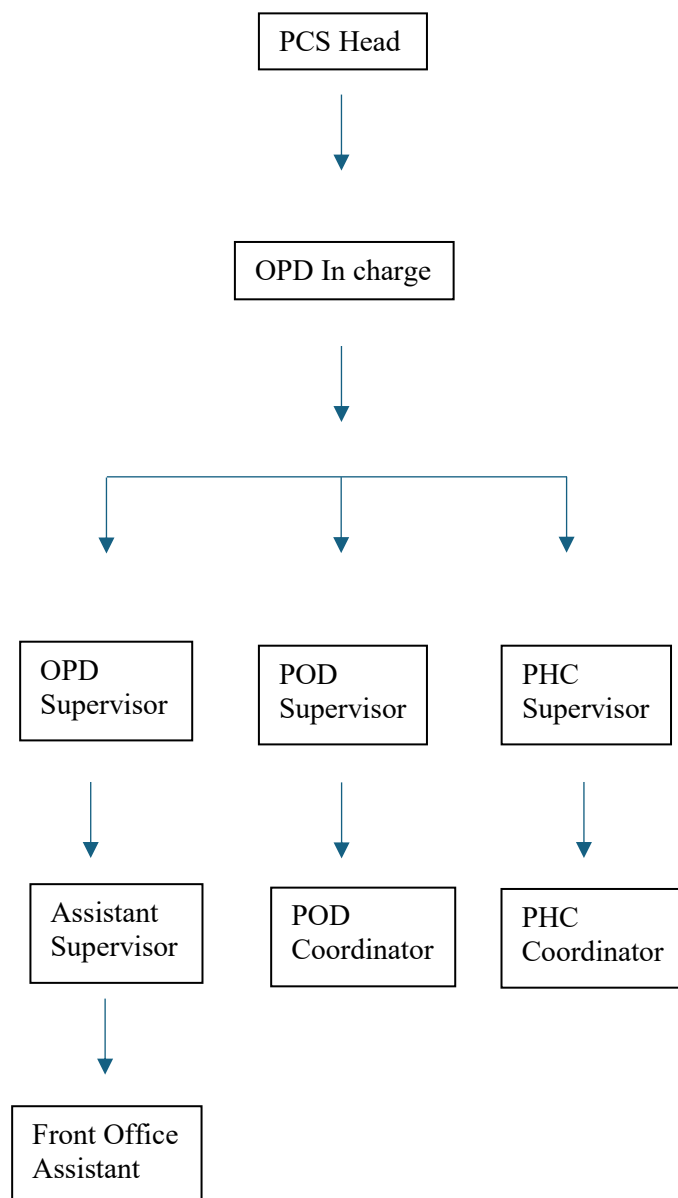


Figure1.5: PCS department organogram

Chapter 2: Literature Review

Waterall et al. (2015) conducted a study in the Journal of Public Health that looks into the impact of Supplementing Local Adult Health Improvement and Well-being Programmes in England with NHS Health Check. The paper has been written to address the gap on evidence especially population level impacts and how it should be implemented within local health system effectively. In fact, according to the authors, the NHS Health Check is designed to identify and treat people at risk of developing chronic diseases such as heart disease, however strong scientific literature supporting this claim is limited. This argument underlines the need for comprehensive evaluation frameworks that consider long-term health outcomes and cost-effectiveness of such programs. Moreover, it points out some implementation barriers like ensuring quality across diverse healthcare settings and engaging target populations effectively. Recommendations include; having stronger leadership and governance structures put in place, incorporating the program with other health initiatives in place and employing digital health technologies for better accessibility and involvement. It contributes a lot to basic knowledge about the ways of optimizing preventive care so as to promote national well-being within the national atmospheres together in the global context.

Kawamoto et al. (2013) developed an innovative approach using Hidden Markov Models (HMMs) for analyzing time-series health checkup data, allowing a complex dynamics of health transition across time. HMMs have also been valued in many disciplines because they can model sequences of observations, underlaid by hidden states, and hence the ability to capture the temporal evolution of health conditions. The research work is focused on how important task it has become to use the HMMs in predicting and checking the health risks, more especially in preventive medicine and the early prediction of disease. Several studies had demonstrated the utility of HMs in modeling the transitions between different health states and identifying the tendencies suggesting transition between the states of disease progression or recovery, an excellent need, in particular, in health care settings, where continuous monitoring with timely intervention is important to improve patient outcomes and reduce health care delivery costs. It also explores a few of the advances noted in the last decade, such as the addition of other variables, such as demographic information or biomarkers, to attain improved predictive accuracy in this field. Other challenges in clinical decision-making include the optimization of model parameters and interpretation of complex outputs obtained from HMMs. In the end, future

work can be carried out in association with new technologies that are soon to develop, such as wearable sensors, which will go hand-in-hand with electronic health records to bring about real-time monitoring and individual care interventions on incorporation of HMM models into these platforms.

The comprehensive research survey was conducted by Nii et al. (2015) with funds from the Japan Society for the Promotion of Science (funding number of Grant-in-Aid for Scientific Research (A) 25240038). It is medical checkup and image data with an eye toward the prevention of lifestyle diseases. The increasing prevalence of non-communicable diseases globally includes the occurrences of heart disease, diabetes, and obesity, which have been escalating in this prevalence. The underlying pre-morbid markers and risk factors for these disease entities can be unveiled by analyzing large data sets resulting from these medical checkups, which include blood tests and imaging techniques. Advanced artificial intelligence and machine learning algorithms that allow for image data analysis should be integrated with the current practices to enhance diagnostic accuracy and predict the development of diseases. Other studies also give evidence that AI can be applied to the analysis of complex medical records to get an understanding of personalized treatment strategies and preventive interventions. The findings from Nii et al.'s work showed that early detection and proactive management of lifestyle illnesses using technological innovations are of great importance. "Predictive models could be further improved, data sources enlarged, and artificial intelligence-based health solutions introduced with a hope to ease the social-economic impacts of those conditions on society".

In a published paper in BMJ, Butler et al. (2008) have presented a thought-provoking discussion on the interventions aimed at retarding aging. The study has been based on the basic thing of extending human lifespan by understanding mechanisms of aging rather than solving diseases one by one. It is argued that, accordingly, health care needs to be refocused on comprehensive research in aging and interventions that promote healthy aging throughout life. Also, he cited the benefits that come from associating the idea of considering aging as a modifiable risk factor with the claim that slowing down aging might bring more general health improvements than treating age-related diseases one by one. This paper considers current scientific concepts on the mechanisms of aging, among which the genetic basis, environmental factors, and lifestyle determinants are principal, and formulates proposals on how health and longevity could be achieved through a

change in lifestyles, pharmaceutical and technological interventions. This paper also addresses a number of bioethical issues and social consequences associated with population aging, as this area is also important and calls for interdisciplinary cooperation and involvement in public discussions. This paper is contributing to the growing argument in gerontology and public health about policy and program operations being a place to put healthy aging on the global health agenda.

Jiang et al (2022) A new approach in the International Journal of Human-Computer Studies helps to design intelligent self-checkup technologies, aimed at promoting everyday healthy living. The study aims to leverage artificial intelligence (AI) and digital health technologies to enable people take proactive control over their health. The research intends to use mobile apps with AI-powered algorithms so as to enable people to have personalized health assessments based on real-time data analysis and user interactions. This does not only make health monitoring tools more accessible but also helps in early identification of health risks and therefore facilitates immediate responses. The authors show the importance of designing intuitive interfaces using user-centered design principles that promote participation and adherence to healthy behavior interventions. Other studies have highlighted that AI can be used for a range of functions such as remote patient monitoring, healthcare optimization through personalization, and individualized wellness tips tailored according one's needs.. Further, Jiang et al emphasize that these devices must be adaptable for us in day-to-day life, thus necessitating continuous adjustments according previous related works, pilot testing & feedback from users regarding their efficiency or usability. As such subsequent lines of inquiry might explore the addition of other physiological sensors and environmental information into AI-driven self-checkup technologies which can improve their anticipation ability and usefulness thereby aiding customizable preventive medicine programs.

This research is focused on descriptive research in hospital setting by looking at the process and timing of preventive medical checkups. The population was comprised of 586 patients who had undergone a preventive health check-up program within the hospital over a period of 30 operational days from April 1st to April 30th, 2024. Additionally, there were a total of 1010 patients seen during this time including those coming for pre-employment and company health screenings.

The sample was chosen using convenience sampling where three patients per day were selected as samples resulting into a total of eighty samples taken over the period under study. Each patient selected was monitored from entry into the department for preventive medical check-ups until he/she left. Consequently, the method allowed detailed observation as well as data collection on how long each step took in relation to health check-up process.

Data collection drew from various sources which included: interviews with patients, direct observation of procedures and use of Fortis operating system. These measures guaranteed adequate coverage of all the stages and activities in preventive medical check-ups. Obtained data that sought to establish timing parameters for the various stages under health check-up procedure undergone analysis based on descriptive statistics.

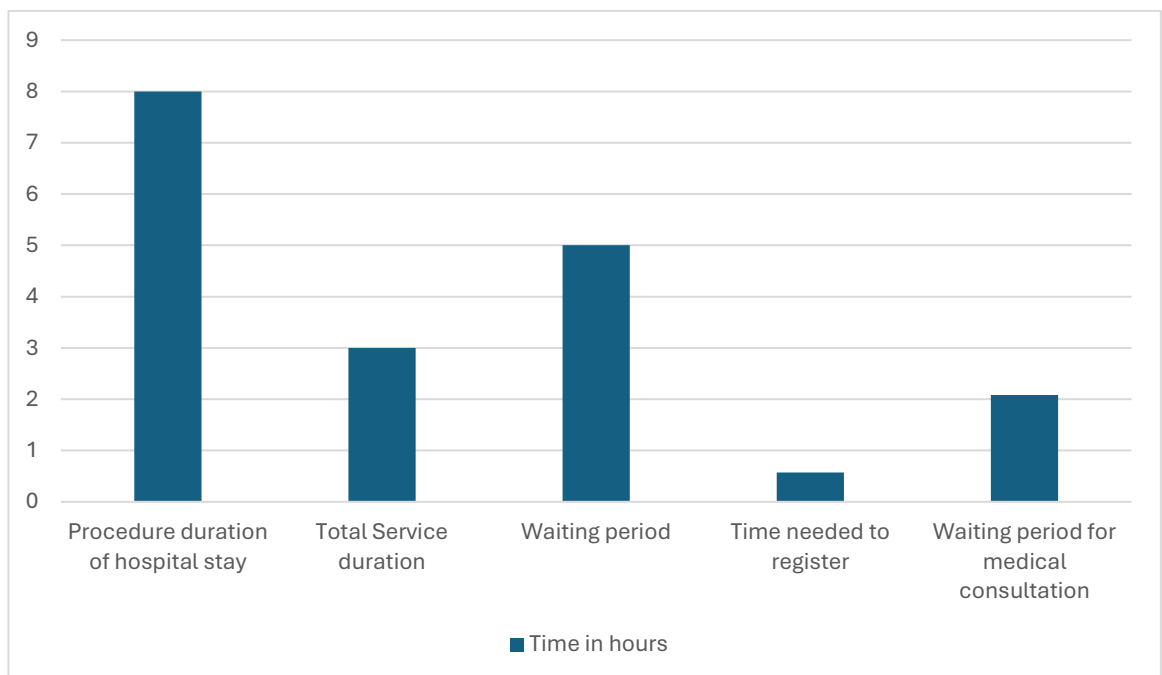
The following are the findings depicted in Table 1 and Chart 1 showing timing for each step under preventive medical checkup process:. Descriptive statistics have been useful in recognizing average times and variability in the amount of time taken for procedures such as initial consultations, diagnostic tests, or follow-up discussions. This analytic approach gives one insight into whether the processes in undertaking health checks are effective or not, and in this way reveals the areas that would need improvement in expressions like increasing throughput while still maintaining quality healthcare.

Generally, this study provides very important empirical findings that help to appreciate operational issues around preventive healthcare services within the hospital setting. The choice of descriptive research is deliberate since it uses richly gathered field data capable of drawing actionable recommendations on how best to improve the efficiency and effectiveness of prevention programs to enhance patient outcomes and care delivery in any healthcare system.

Table 1: The duration of a preventative health check-up procedure

Process	Time in hours
Procedure duration of hospital stay	8
Total Service duration	3
Waiting period	5
Time needed to register	0.57
Waiting period for medical consultation	2.08

Chart 1: The duration of a preventative health check-up procedure



Root-Cause Analysis:

Root cause analysis (RCA) is a systematic research method utilized to study the reasons behind hospital wait times and length of stay. The main goal of RCA is to determine the causes beneath these problems, addressing not just immediate symptoms but the fundamental systemic ones. In this aspect, Figure 1 presents a fishbone diagram which is actually a visual tool used to group and investigate potential sources within different dimensions as processes, persons, facilities, environment and management etc. This allows for a comprehensive analysis that brings out root causes that impact on hospital operations since it arranges these factors in diagrammatic format. This approach enables exhaustive investigation into an array of issues such as staff shortages, inefficiency in work processes, limited resources and communication challenges among others. The aim of this investigation will be identifying the root causes hence making it possible to propose specific interventions and systemic changes aimed at reducing waiting time effectively as well as enhancing patient care provision effectiveness.

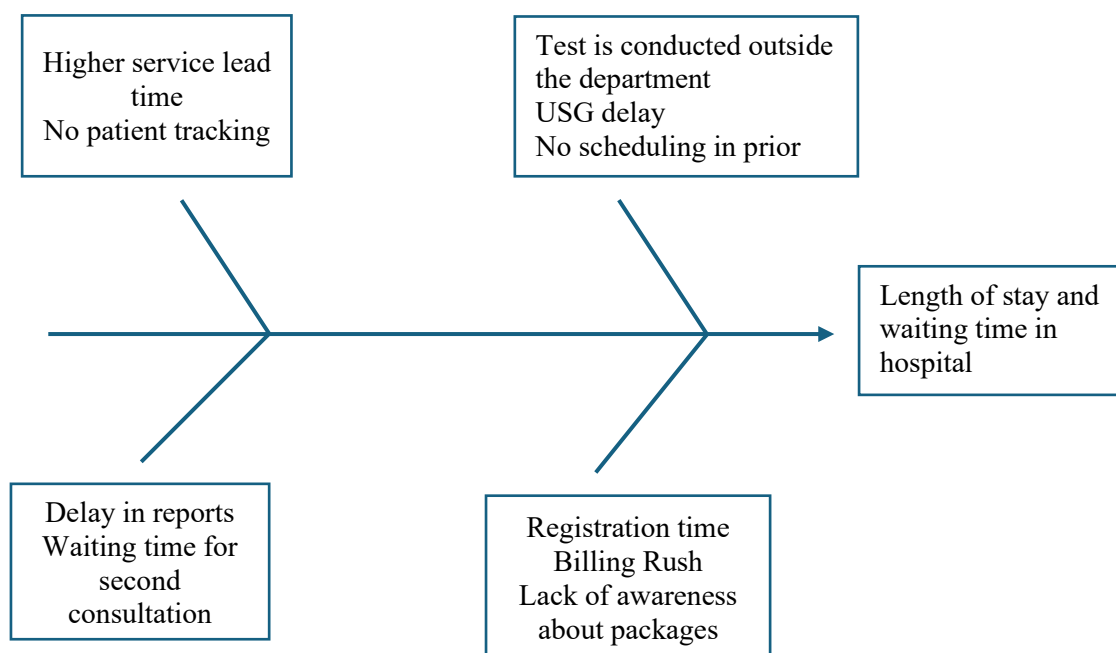


Figure 1.6: Fishbone diagram

Ethical consideration:

Ethical considerations are vital in establishing the credibility and reliability of findings, more so in obtaining responses of patients, caregivers, or staff. This is evident from prior ethical clearance and reflects commitment for maintaining high standards of ethical considerations through the study period. Informed consent was obtained by briefing the participants about their right to withdrawal at any stage and their nonobligation for voluntary consent. Some measures to ensure confidentiality enabled patients to feel comfortable in freely expressing themselves without fear of victimization because they were anonymous in their response collection procedures. It is worth noting that the data collection process employed a self-administered questionnaire that necessitated utmost care in designing to be clear-cut and exhaustive in its culturally sensitivity, therefore allowing the respondents to give meaningful answers only if they willingly did so. Ensuring content validity was done by such procedures as gaining final endorsement by the overseeing authority who authorized the researcher's request for approval on them all which assured strictness on following ethics standards throughout the research procedure. These ethical issues aim at protecting the rights of the participants and also to enhance the trustworthiness of the findings, therefore, contributing to making informed choices of health policy and practice.

Chapter 4: Results

In this context, very crucial are findings regarding what can be done with strategic changes in the preventive health check-up procedure on the part of the hospital.

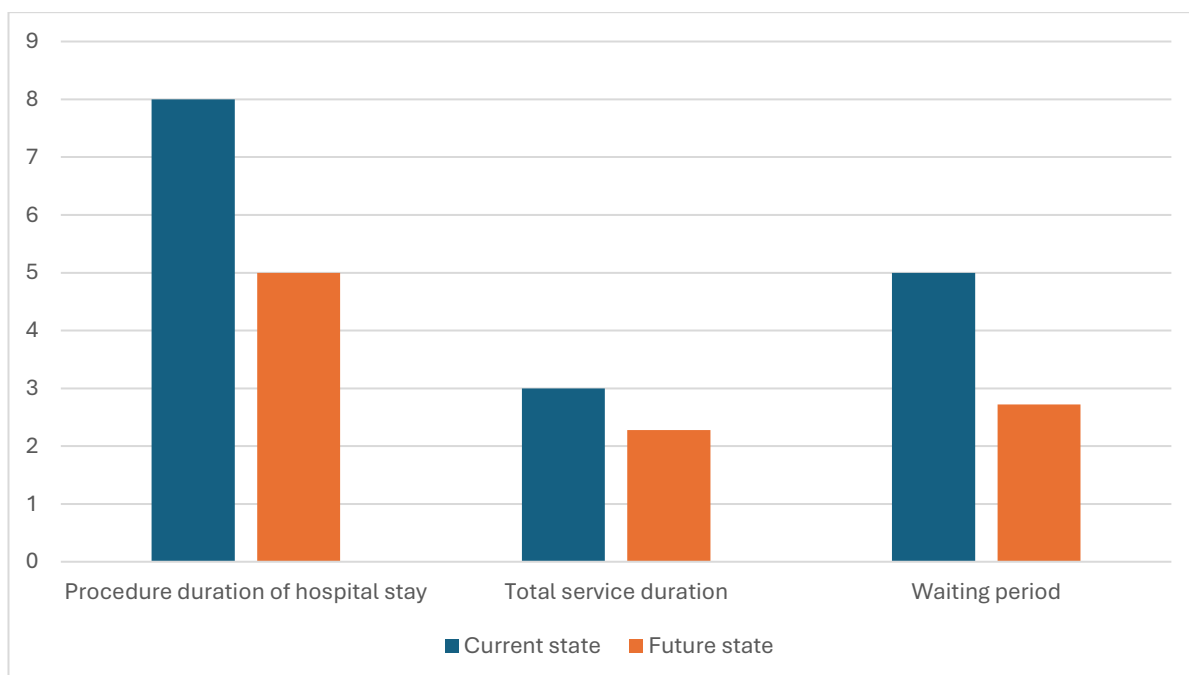
One is that the introduction of prearranged or online appointments saves around forty-one minutes for each patient. This time reduction is important to streamline registration procedures, minimize waiting times among patients and optimize resource allocation within the hospital. The system also offers convenience to patients by allowing them to book appointments via online platforms as well as reducing administrative overhead enabling staff members to focus on patient care rather than office work. The integration of radiology department into preventive health check up procedure would result into fifty minutes saved. As such, diagnostic tests such as X-rays can be done almost immediately hence there would be no need for them to come back later for an appointment. In addition, this approach not only speeds up diagnostics and treatment planning process but also improves consumer satisfaction by ensuring that total care is provided in an efficient way.

Table 2 presents a comparison between current and forthcoming scenarios in relation to preventive health check-ups processes at the hospital. These include the reduction of length of stay from 8 hours up today's record of 5 hours; reduction from 3 hours today's value of 2.28 hours representing total service duration, it has been observed that length of stay reduces from 8 hours today's figure of 5 hours while total service duration comes down from three hours today's value stands at 2.28 hours respectively. Waiting time has also drastically come down from the five hours previously recorded to its lowest level currently standing at two point seven-two-eight hours. The improvements realized imply that structured changes, like process sequencing, advanced scheduling systems, and departmental integration, contribute to a great deal in improving operational efficiency and patient experience in healthcare facilities. Finally, it can be concluded by referring to the findings that those strategic initiatives on workflow optimization and patient management resulted in considerable changes in the operations of the chosen hospital. This would maximize operational efficiencies to ensure not only remarkably better patient outcomes and satisfaction but also to promote quality healthcare delivery through the integration of enhanced diagnostic services with reduced waiting times and efficient service durations.

Table 2: Time comparison between the present and the future

Process	Current	Future
Procedure duration of hospital stay	8 hours	5 hours
Total Service duration	3 hours	2.28 hours
Waiting period	5 hours	2.72 hours

Chart 2: Time comparison between the present and the future



Chapter 5: Discussions

The discussions presented here bring out strategic improvements for better efficiency and patient experience in terms of preventive health check-ups within the hospital environment. The first strategy that can be employed is locating the diagnostic services, including USG, X-Ray, mammography at one place, which will reduce both admissions and waiting periods in a hospital. It is a way to consolidate these patients for their journey through the care path avoiding them to come through other departments for the diagnostics and hence initiating the treatment through the fastest mean. Another recommendation that is being proposed is to keep patients updated for the online registering mechanism by creating a simpler form of the registering system where the integration of such system can be done with the patient monitoring system and Electronic Health Records with the help of the IT-enabled barcode system, the operational accuracy increases to a great extent with the least chance of scheduling conflicts or a delay in the system. On the other hand, technological integration makes sure that the expected and available patients are ready for tests, reducing idle time and maximizing the usage of resources.

Moreover, it is indicated that the sequencing of recommended procedures during consults should optimize ordering and flow of care processes; thus, it should minimize service lead times. This would assist hospitals to decrease their waiting times while enhancing their delivery statistics in general. Lastly, it would be good to shift from the use of names in conventional approaches to the use of patient display systems as the former enhances the supremacy of communication and privacy in clinical environments.

As such, the paper expounds on a holistic approach towards optimizing hospitals' operations, strategic location selection, technology integration, process enhancement, and patient-focused service improvements. When implemented, a health institution will realize significant improvements in its operating efficiency, in addition to higher levels of patient satisfaction, hence accruing better health care outcomes.

Chapter 6: Conclusion

During the study, some key findings and recommendations for future research in the preventive health checkup procedure at a Multispecialty Hospital for improving operational efficiency were found. To use value stream mapping as systematic tool for identifying inefficiencies within the medical practice was the most important goal; Using this method enabled us to identify specific areas where breakdowns were likely to happen, thus slowing the flow of patients and medical services. The entire process from booking an appointment to post health check up follow-ups was mapped out in order to find areas that can be improved. These challenges were addressed through the development of practical solutions. Some of the proposed recommendations included integrating diagnostic centers into the department so as to reduce patient movements and waiting times as well as use a more advanced scheduling system for appointments. They were aimed at addressing root causes identified by this research in order to streamline operations and enhance service efficiency generally.

Moreover, practical experience in the service industry helped to have a good understanding of real-life problems encountered by any healthcare provider. The practical knowledge informed the research findings in a way that assured the remedies and suggestions to be provided were not only theoretically plausible but also practically viable. Therefore, the study has tried to combine theory with practice with the aim of providing actionable insight into preventive health-check-up processes in healthcare facilities.

One concrete recommendation that came out of the conclusion was to develop a prototype for a mobile app that would help in booking appointments online. This research establishes the benefits by reduction of time wasted with these technologies at their disposal, being instrumental in scheduling appointments effectively, and reducing the burden of administration on staff. This new idea is in accordance with modern tendencies toward digital health solutions and reconfirms the importance of patient-centered care and convenience in the contemporary health care system. This eventually went on to say that this obviously pointed towards the importance of systematic scrutiny, practical advice, and innovative recommendations toward improvements of health care processes. Hospitals must also look at process bottlenecks and harness technological advances made by oggi to better service delivery. All this will result in improved patient outcomes and hence a better quality of care given to the patients they serve.

Chapter 7: References

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