

**ENSIGN GLOBAL UNIVERSITY, KPONG
EASTERN REGION, GHANA**

**FACULTY OF PUBLIC HEALTH
DEPARTMENT OF COMMUNITY HEALTH**

**SANITATION IN SELECTED HOSPITALS IN THE ACCRA METROPOLIS: A PUBLIC
HEALTH ASSESSMENT FROM THE PERSPECTIVES OF USERS
(PATIENTS/CAREGIVERS AND STAFF)**

BY

**SALLY PEARL DAVORDZIE
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MAY, 2026

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A THESIS SUBMITTED TO THE DEPARTMENT OF COMMUNITY HEALTH, FACULTY
OF PUBLIC HEALTH, ENSIGN GLOBAL UNIVERSITY IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE
MASTER OF PUBLIC HEALTH DEGREE

MAY, 2026

DECLARATION

I, Sally Pearl Davordzie, hereby certify that, except for references to other people's work, which I have duly cited, this project submitted to the Department of Community Health, Ensign Global University, Kpong is the result of my own investigation, and has not been presented for any other degree elsewhere.

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Date

DEDICATION

This work is dedicated to my beloved parents, Mr. Xose Davordzie and Mrs. Innocentia Davordzie, for their unwavering support throughout my journey. I also dedicate it to a great supporter of my education, Mr. Johnson Nutsukpo; my siblings, Daniel and Mirabel Davordzie; and my cousin, Theophiline Emefa Dzakpasu, and my dear friends Evelyn Akpene Agbenyo, Edmond Enam Amoabeng for their encouragement and support.

ACKNOWLEDGEMENT

I give my sincere gratitude to God Almighty for His grace, strength, and guidance throughout the course of this study.

I am deeply grateful to my supervisor, Dr. Alberta Agudey, for the guidance and continuous support provided at every stage of this work. Your expertise and patience greatly contributed to the successful completion of this study.

Also, to all faculty and staff at Ensign Global University for being a family away from home and for their significant contributions to the global public health space.

I am equally thankful to all respondents, particularly the patients, caregivers, and healthcare staff who willingly participated in this study. Your time and valuable insights made this research possible.

Finally, I acknowledge all healthcare workers, patients, and caregivers who strive daily to promote safe and hygienic healthcare environments. Your commitment continues to inspire efforts toward improving sanitation and the quality of care in health facilities.

ABSTRACT

Background: Sanitation and hand hygiene are fundamental to safe healthcare delivery and infection prevention, yet urban hospitals frequently struggle with infrastructure, supply, and maintenance gaps. This study assessed the functionality, management, and user experiences of sanitation facilities across four hospitals in the Accra Metropolis.

Methods: Using a descriptive cross-sectional design, stratified systematic sampling surveyed 311 patients and caregivers, while 13 key sanitation and infection prevention staff were conveniently sampled. Data were analyzed using descriptive statistics and univariate summaries of user perceptions, facility conditions, and staff practices.

Result: The study revealed that while 70.7% of users found toilets easily locatable, 56.3% reported them as non-functional. Cleanliness perceptions were evenly distributed across good, fair, and poor categories, with 63.3% noting unpleasant odors and 44.1% experiencing inconsistent water supply. Notably, 64.0% rated their ability to wash hands effectively as poor. Although staff confirmed structured cleaning schedules and regular supervision, 87.5% cited severe shortages of cleaning materials. Key institutional challenges included inadequate cleaning staff (76.9%), funding constraints, weak supervision, and high patient loads. Despite management's stated commitment to sanitation, systemic logistical gaps severely compromise service delivery.

Conclusion: This study highlights an urgent need for targeted investments in hygiene supplies, staffing, maintenance responsiveness, and standardized monitoring tools. Addressing these operational constraints is essential to enhancing user satisfaction, reducing healthcare-associated infection risks, and ensuring dignified, safe clinical environments in high-density urban settings.

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LIST OF ABBREVIATIONS

Abbreviation	Full Meaning
GHS	Ghana Health Service
GSS	Ghana Statistical Service
HAIs	Healthcare-Associated Infections
IPC	Infection Prevention and Control
IPOM	Input–Process–Output–Outcome Model
JMP	Joint Monitoring Programme
LMICs	Low- and Middle-Income Countries
MSWR	Ministry of Sanitation and Water Resources
SDG	Sustainable Development Goal
SSA	Sub-Saharan Africa
UN	United Nations
UNICEF	United Nations Children’s Fund
WASH	Water, Sanitation and Hygiene
WASH FIT	Water and Sanitation for Health Facility Improvement Tool
WHO	World Health Organization

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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the Study

Sanitation and hand hygiene are universally recognized as fundamental components of quality healthcare delivery and essential measures for preventing the spread of infectious diseases (WHO, 2019; WHO & UNICEF, 2020). Within healthcare facilities, the availability of clean toilets and functional hand hygiene facilities constitutes a minimum standard for patient safety and infection prevention (WHO, 2019). Effective sanitation and hand hygiene services are core elements of Water, Sanitation and Hygiene (WASH) in healthcare facilities. The absence of these services undermines efforts to deliver safe, respectful, and dignified care (WHO & UNICEF, 2020).

Globally, inadequate sanitation in healthcare facilities remains a major public health challenge. The WHO and UNICEF Joint Monitoring Programme reports that a significant proportion of healthcare facilities worldwide lack basic sanitation services, while many others operate without reliable handwashing facilities at points of care (WHO & UNICEF, 2020). Poor sanitation and limited access to hand hygiene infrastructure contribute substantially to the transmission of healthcare-associated infections (HAIs), which lead to increased morbidity, prolonged hospital stays, and higher healthcare costs (WHO, 2019). Evidence further indicates that improvements in sanitation and hand hygiene within healthcare settings are among the most effective strategies for reducing infection risks and improving patient safety (WHO & UNICEF, 2023).

The challenges of inadequate sanitation are particularly severe in low- and middle-income countries (LMICs). Health facilities in these settings frequently experience persistent problems

such as unreliable water supply, insufficient toilet facilities, lack of soap and cleaning materials, overcrowding, and weak maintenance systems (Cronk & Bartram, 2018). These deficiencies compromise patient safety, diminish the quality of care, and erode public confidence in health services (WHO, 2019). In sub-Saharan Africa, regional assessments consistently show that many hospitals and clinics operate without adequate WASH services, leaving both patients and healthcare workers exposed to preventable health risks (WHO & UNICEF, 2020).

In Ghana, sanitation and hygiene remain critical public health priorities (WHO, 2019; MSWR, 2020). The Government of Ghana has developed several policies and guidelines aimed at strengthening sanitation and infection prevention in health facilities (GHS, 2017; MSWR, 2020). Such policies include the national Infection Prevention and Control (IPC) guidelines issued by the Ghana Health Service (GHS, 2017) and broader environmental sanitation policies coordinated by the Ministry of Sanitation and Water Resources (MSWR, 2020). Despite these policy frameworks, implementation at the facility level continues to face challenges (Ashinyo et al., 2021; Cronk & Bartram, 2018). Recent facility-based assessments using the WHO WASH FIT approach have documented gaps in sanitation infrastructure, maintenance practices, and hygiene supplies within Ghanaian healthcare facilities (Ashinyo et al., 2021).

Toilets and hand hygiene facilities represent critical control points for preventing disease transmission in hospitals. When these facilities are poorly maintained or inadequately supplied, they become potential sources of contamination and vectors for the spread of pathogens (WHO, 2019). The presence of clean, accessible, and well-supplied toilets and handwashing stations is therefore considered an important indicator of overall hospital hygiene standards and institutional commitment to patient safety (WHO & UNICEF, 2020).

Comprehensive assessment of hospital sanitation requires the inclusion of multiple perspectives (WHO, 2019; WHO & UNICEF, 2020). Patients and caregivers are the primary users of hospital toilets and handwashing areas and are directly affected by the conditions of such facilities. Their experiences and perceptions provide valuable insights into the true functionality and adequacy of these facilities (WHO, 2019). Healthcare workers, on the other hand, rely on proper sanitation systems to maintain hand hygiene compliance and to protect themselves and their patients from infection (WHO, 2019; Storr et al., 2017). Evaluating both user and staff perspectives offers a more realistic and holistic understanding of sanitation performance in healthcare settings (WHO & UNICEF, 2020).

Although several WASH studies have been conducted in Ghanaian healthcare settings (Ashinyo et al., 2021; Nsiah et al., 2022), few have specifically focused on the condition and management of hospital toilets and hand hygiene facilities from the combined perspectives of patients, caregivers, and hospital staff. Much of the existing research in Ghana has tended to assess overall WASH readiness or infection prevention structures rather than detailed, user-centered evaluations of sanitation infrastructure such as toilets and handwashing stations (Ashinyo et al., 2021). Additionally, comparative assessments across multiple hospitals within the Accra Metropolis remain limited, despite the unique pressures faced by urban health facilities (WHO, 2019; WaterAid, 2019).

The Accra Metropolis is Ghana's most densely populated urban area and hosts a wide range of public and private health facilities that serve large and diverse populations (GSS, 2021; GHS, 2022). Hospitals in Accra operate under intense demand and are often required to provide services far beyond their designed capacity, creating significant pressure on sanitation and hygiene

infrastructure (WHO, 2019). Maintaining adequate sanitation and hand hygiene facilities in such high-pressure environments is therefore both essential and challenging (WHO, 2019). This study therefore seeks to assess sanitation and hand hygiene facilities in selected hospitals in the Accra Metropolis, drawing on the perspectives of patients, caregivers, and staff. The findings will generate context-specific evidence to guide policymakers, hospital administrators, and infection prevention teams in improving sanitation services, enhancing user satisfaction, and promoting safer healthcare environments.

1.2 Problem Statement

Adequate sanitation and hand hygiene services are fundamental to safe and high-quality healthcare delivery and are central to effective infection prevention and control (IPC) in hospital settings (WHO, 2019; WHO & UNICEF, 2020). Despite their importance, substantial gaps in sanitation and hand hygiene services persist globally. Monitoring data from the WHO/UNICEF Joint Monitoring Programme indicate that approximately 21% of healthcare facilities worldwide lack basic sanitation services, while about one quarter do not have basic hand hygiene facilities available at points of care (WHO & UNICEF, 2020). These deficiencies expose millions of people to care environments where hygienic practices cannot be consistently maintained. Inadequate sanitation and hand hygiene in healthcare facilities are recognized contributors to healthcare-associated infections, which increase morbidity, prolong hospital stays, and place additional strain on health systems (WHO, 2019).

The burden of inadequate sanitation and hand hygiene is disproportionately concentrated in low- and middle-income countries, particularly in sub-Saharan Africa (WHO & UNICEF, 2020; Cronk & Bartram, 2018). Evidence from multi-country analyses of Service Availability and Readiness Assessment (SARA) data demonstrates that many health facilities in the region lack essential

infection prevention resources (Leslie et al., 2017). A cross-country study of health facility readiness across low- and middle-income countries identified substantial gaps in the availability of key IPC inputs, including soap, water, disinfectants, and sanitation-related services, indicating weak preparedness for effective hygiene and infection control under routine service conditions (Leslie et al., 2017). These infrastructural and resource deficiencies limit consistent IPC implementation and create conditions that facilitate the transmission of infectious pathogens within healthcare facilities (WHO, 2019; Cronk & Bartram, 2018).

Sanitation challenges in African healthcare facilities are further intensified by operational and maintenance constraints (Cronk & Bartram, 2018; WHO, 2019). High patient volumes, limited cleaning staff, and weak maintenance systems often result in rapid deterioration of toilets and hand hygiene facilities, particularly in public hospitals serving large catchment populations (Cronk & Bartram, 2018; WHO, 2019; Ashinyo et al., 2021).

In Ghana, sanitation and hand hygiene in healthcare facilities remain persistent challenges despite the existence of national IPC guidelines and WASH-related policies. A WASH FIT-based evaluation of COVID-19 treatment centres in Ghana found that sanitation and hygiene domains consistently scored lower than water supply and management domains, reflecting ongoing challenges related to toilet functionality, availability of hygiene supplies, waste management, and environmental cleaning services (Ashinyo et al., 2021). Additionally, studies conducted in major hospitals have documented deficiencies in basic hygiene resources, such as soap dispensers and alcohol-based hand rub, alongside suboptimal hand hygiene practices among healthcare workers (Yawson & Hesse, 2013). More recent assessments of hand hygiene systems in Ghanaian hospitals have reported moderate overall implementation levels, with system change and infrastructure

components lagging behind other domains, indicating persistent weaknesses in the enabling environment required for effective hygiene practices (Dubik et al., 2024).

Facilities in metropolitan areas such as the Accra Metropolis serve dense and highly mobile populations and experience high daily patient and visitor throughput (GSS, 2021; WHO, 2019). In such high-demand settings, even short disruptions in water supply or cleaning services can rapidly result in unhygienic conditions that elevate the risk of infection transmission among patients, caregivers, and healthcare staff (WHO, 2019). However, there remains limited empirical evidence that systematically examines sanitation and hand hygiene facilities from the perspectives of patients, caregivers, and healthcare staff under routine, high-pressure conditions in urban Ghanaian hospitals. This study therefore seeks to systematically assess the condition, functionality, and management of sanitation and hand hygiene facilities in selected hospitals within the Accra Metropolis, integrating experiential evidence from patients, caregivers, and staff.

1.3 Rationale

Sanitation and hand hygiene facilities are among the most frequently used components of hospital infrastructure, yet they often receive less attention than clinical equipment and medical supplies. Toilets and handwashing areas serve as critical interfaces between patients, caregivers, and healthcare workers, making their condition a key determinant of infection prevention and overall quality of care. Assessing these facilities is therefore essential for identifying gaps that may compromise patient safety and user satisfaction.

This study is justified on several grounds. First, improving sanitation and hand hygiene facilities directly supports national and global efforts to reduce healthcare-associated infections and to achieve Sustainable Development Goal 3. Second, the study provides context-specific evidence

for hospital administrators and policy makers in the Accra Metropolis, enabling them to prioritize investments in areas that have the greatest impact on patient safety and dignity.

Third, by incorporating the perspectives of patients, caregivers, and staff, the study adopts a comprehensive approach that goes beyond routine infrastructure assessments. User experiences and perceptions offer practical insights into the functionality, accessibility, and adequacy of sanitation services that may not be captured through physical inspections alone. Finally, the findings will contribute to the limited body of empirical literature on hospital sanitation in Ghana, particularly within high-pressure urban health facilities. The findings are expected to generate actionable data to inform practical interventions aimed at strengthening sanitation standards, enhancing infection prevention and control, and promoting safer and more dignified healthcare environments

1.4 Research Questions

1. What is the WASH functional status of sanitation facilities in selected hospitals in the Accra Metropolis?
2. How are WASH facilities monitored, cleaned, and managed in the selected hospitals?
3. What are the experiences of regular users (patients and caregivers regarding sanitation and hand hygiene facilities?
4. What institutional and logistical challenges affect the effective maintenance and provision of sanitation and hand hygiene facilities?

1.5 Objectives

General Objective

To assess sanitation and hand hygiene facilities in selected hospitals in the Accra Metropolis from the perspectives of patients, caregivers, and staff.

Specific Objectives

1. To evaluate the condition and functionality of sanitation and hand hygiene facilities in the selected hospitals.
2. To examine the monitoring, cleaning routines, and management practices related to WASH in the selected hospitals.
3. To examine the experiences of patients and caregivers regarding sanitation and hand hygiene facilities.
4. To identify institutional and logistical challenges affecting the maintenance and effective provision of WASH facilities.

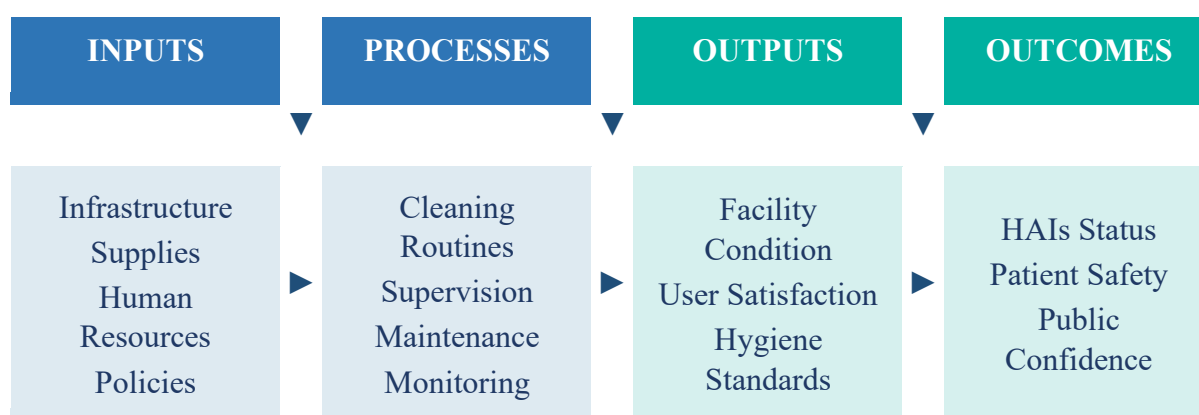
1.6 Conceptual Framework

This study is guided by the Input–Process–Output–Outcome Model (IPOM), a systems-oriented framework widely applied in health services research to evaluate the performance of programs and service delivery systems. The IPOM model is grounded in quality-of-care theory and provides a structured approach for examining how institutional resources and structures (inputs) are transformed through operational activities (processes) into observable service results (outputs) and broader public health impacts (outcomes) (Donabedian, 2003; Peters et al., 2013). The framework has been extensively used in the assessment of Water, Sanitation and Hygiene (WASH) services in healthcare facilities, particularly in low- and middle-income countries, where sanitation performance is strongly influenced by system-level factors (Cronk & Bartram, 2018; WHO & UNICEF, 2020).

The IPOM model is particularly appropriate for this study because sanitation and hand hygiene services in hospitals function as complex systems that depend on the interaction of infrastructure, supplies, human resources, management practices, and user behavior. Evidence from Ghana and

other LMIC contexts shows that weaknesses in any of these system components can undermine the overall effectiveness of sanitation services in healthcare facilities (WHO, 2019; Ashinyo et al., 2021). By adopting the IPOM framework, this study is able to assess sanitation and hand hygiene facilities in a holistic manner, linking structural conditions to operational practices and user experiences.

Figure 1.1: IPOM Conceptual Framework



Source: Adapted from Donabedian (2003) and Peters et al. (2013)

Inputs

Within the IPOM framework, inputs refer to the foundational resources and structural conditions required to deliver effective sanitation and hand hygiene services. In the context of healthcare facilities, these inputs include physical infrastructure, essential supplies, human resources, and institutional policies. Global assessments by WHO and UNICEF emphasize that the availability of functional toilets, running water, soap, cleaning agents, and waste bins constitutes the basic requirement for meeting minimum WASH standards in health facilities (WHO & UNICEF, 2020). The absence or inadequacy of these inputs has been identified as one of the primary reasons why many health facilities fail to provide safe and hygienic environments (WHO, 2019).

Human resources also represent a critical input for sanitation performance. Adequate numbers of trained cleaners, supervisors, and infection prevention and control (IPC) officers are necessary to ensure that sanitation facilities are properly maintained and routinely serviced (WHO, 2019). Facility-based assessments conducted in Ghana have highlighted that gaps in supplies, maintenance tools, and dedicated sanitation staff frequently undermine the functionality of toilets and hand hygiene points in public hospitals (Ashinyo et al., 2021). Evaluating these inputs therefore provides important insight into the capacity of hospitals in the Accra Metropolis to deliver effective sanitation services.

Processes

Processes represent the routine activities and management practices through which available inputs are utilized to maintain sanitation and hand hygiene facilities. Even when adequate infrastructure and supplies exist, weak processes can result in poor sanitation outcomes. The WHO emphasizes that regular cleaning routines, effective supervision, prompt maintenance of broken facilities, and structured monitoring systems are essential process requirements for sustaining adequate WASH services in healthcare facilities (WHO, 2019).

Key process indicators relevant to hospital sanitation include the frequency and quality of cleaning activities, availability of cleaning schedules, supervision mechanisms, responsiveness to maintenance needs, and reporting channels for sanitation-related problems (WHO & UNICEF, 2020). In this study, these process dimensions are examined primarily through staff questionnaires and key informant inputs, which capture how sanitation services are organized, implemented, and monitored within the selected hospitals.

Outputs

Outputs are the immediate and observable results that arise from the interaction of inputs and processes. In the context of hospital sanitation, outputs reflect the actual condition and usability of toilets and hand hygiene facilities as experienced by end users. International monitoring frameworks identify cleanliness of toilets, availability of running water, presence of soap, functional handwashing stations, and absence of offensive odors as key indicators of effective sanitation service delivery (WHO & UNICEF, 2020).

User satisfaction is also recognized as an important output of sanitation performance. The WHO notes that the true functionality of WASH services is best understood through the experiences of patients, caregivers, and healthcare workers who use these facilities on a daily basis (WHO, 2019). This study therefore measures outputs through patient and caregiver questionnaires that assess the condition, accessibility, and usability of sanitation and hand hygiene facilities. Staff perceptions of facility cleanliness and functionality are also captured to provide a comprehensive evaluation of service performance.

Outcomes

Outcomes refer to the broader public health and service quality effects that result from effective sanitation and hand hygiene services. Strong global evidence indicates that improved sanitation and hand hygiene in healthcare facilities contribute to reduced transmission of infectious diseases, improved infection prevention and control, and enhanced patient safety (WHO, 2019; WHO & UNICEF, 2023).

Although this study does not directly measure clinical infection rates, it assesses outcome-level indicators such as user satisfaction, perceived infection risk, and confidence in sanitation systems.

These proxy outcomes are widely accepted in WASH research as meaningful measures of the effectiveness and public health relevance of sanitation interventions (WHO & UNICEF, 2020). Accordingly, the "HAIs Status" and "Patient Safety" domains shown in the outcomes box of Figure 1.1 were not clinically measured in this study; they were operationalized through user-reported satisfaction and perceived infection risk rather than laboratory-confirmed infection data or objective clinical safety metrics.

Moderating Factors

The IPOM framework also acknowledges the role of moderating factors that influence how effectively inputs and processes translate into desired outputs and outcomes. Evidence from LMIC health systems shows that leadership commitment, staff attitudes, training, and availability of financial resources significantly shape sanitation performance in healthcare facilities (WHO, 2019).

Hospitals with strong managerial support for hygiene, regular staff training, and reliable budgets for cleaning supplies are more likely to achieve better sanitation outcomes than those where sanitation is poorly prioritized (WHO & UNICEF, 2020). In this study, moderating factors such as staff training, supervision structures, and institutional support mechanisms are examined to help explain variations in sanitation performance across the selected hospitals in the Accra Metropolis.

1.7 Profile of the Study Area

The study was conducted within the Accra Metropolis, located in the Greater Accra Region of Ghana. The Greater Accra Region is the smallest region in Ghana in terms of land area, occupying approximately 3,245 square kilometres, yet it is the most urbanized and densely populated region

in the country (Ghana Statistical Service [GSS], 2021). According to the 2021 Population and Housing Census, the Greater Accra Region recorded a total population of 5,455,692, representing 17.7% of Ghana's total population, making it the most populous region in the country (GSS, 2021).

The Accra Metropolis forms part of the broader Greater Accra Metropolitan Area and serves as the administrative, political, and economic capital of Ghana. The metropolis is characterized by rapid urbanization, high population density, and continuous in-migration from other parts of the country. The 2021 census indicates that approximately 87.4% of the population of the Greater Accra Region lives in urban areas, highlighting the highly urban character of the region (GSS, 2021). This intense urban concentration places significant pressure on public infrastructure and social services, including healthcare, water supply, waste management, and sanitation systems.

The Accra Metropolis is also the centre of healthcare delivery in the Greater Accra Region and hosts a wide range of health facilities, including tertiary, secondary, and primary healthcare institutions. Major hospitals located within the metropolis serve not only residents of Accra but also referrals from other parts of the country. As a result, hospitals in Accra experience high patient attendance and heavy service utilization, often beyond their originally designed capacities (Ghana Health Service [GHS], 2022). This heavy patient load places substantial demand on hospital infrastructure, particularly sanitation and hand hygiene facilities. The high population density, intense healthcare utilization, and urban sanitation challenges of Accra provide a critical backdrop for examining the adequacy, management, and user experiences of sanitation services in hospital environments.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

Sanitation and hand hygiene services constitute essential components of safe and effective healthcare delivery. In hospital environments, clean and functional toilets and accessible handwashing facilities are critical for preventing the transmission of infectious diseases and for promoting the dignity and comfort of patients, caregivers, and staff (WHO, 2022). Globally, inadequate sanitation within healthcare facilities has been recognized as a major contributor to healthcare-associated infections, poor patient experiences, and reduced confidence in health systems (WHO & UNICEF, 2020). For this reason, the assessment of sanitation and hand hygiene facilities has become a key priority in public health research and health systems strengthening.

This literature review examines existing empirical and conceptual evidence on sanitation and hand hygiene services in hospitals, with specific focus on the four objectives guiding the present study. The review adopts a funnel approach, beginning with global perspectives, narrowing to sub-Saharan Africa, and finally focusing on Ghana. Emphasis is placed on peer-reviewed studies and authoritative institutional reports published from 2016 onwards, in line with contemporary developments in Water, Sanitation and Hygiene (WASH) in healthcare facilities. The chapter integrates conceptual explanations with empirical findings, highlighting similarities and differences across contexts, and concludes each section by identifying knowledge gaps that justify the current study.

2.2 Condition and Functionality of Sanitation and Hand Hygiene Facilities

The condition and functionality of sanitation and hand hygiene facilities are fundamental determinants of hygiene standards within healthcare institutions. The World Health Organization identifies the availability of functional toilets, reliable water supply, and accessible handwashing stations as minimum requirements for safe healthcare environments (WHO, 2019). Globally, however, many hospitals operate with inadequate sanitation infrastructure. The WHO and UNICEF Joint Monitoring Programme reports that a significant proportion of health facilities worldwide lack basic sanitation services, with numerous facilities unable to provide running water or soap at points of care (WHO & UNICEF, 2020). These deficiencies directly compromise infection prevention efforts and expose patients and health workers to avoidable risks.

In sub-Saharan Africa, evidence shows that many health facilities face important gaps in the availability and reliability of sanitation and hand hygiene services. A multi-country analysis across 18 sub-Saharan African countries found that although a high proportion of facilities reported having improved toilet facilities, availability of hand hygiene resources was less consistent, and the availability of standard infection prevention “precautions” was particularly limited, reflecting system-level constraints that can compromise safe care delivery (Kanyangarara et al., 2021). These gaps align with global monitoring evidence which indicates that large numbers of people continue to use healthcare facilities where basic WASH services are inadequate, undermining both patient dignity and infection prevention expectations (WHO/UNICEF, 2019). In practice, such deficits are more likely to become visible as functional problems especially in high-pressure hospitals when water services are intermittent, supplies are inconsistent, and maintenance systems are weak, creating conditions under which sanitation facilities may be present but not reliably usable (WHO, 2015).

Ghana reflects many of these regional challenges. Evidence from a Ghana-focused assessment of WASH in healthcare facilities indicates that important service gaps remain, including limitations in the availability and adequacy of toilet facilities for staff and users, and shortfalls in WASH provisions required to meet expected standards of safe and dignified care (WaterAid, 2019). This reinforces the concern that the existence of sanitation infrastructure alone is not sufficient; what matters for infection prevention and user experience is whether toilets and hand hygiene facilities are consistently accessible, usable, and supported with routine supplies and maintenance. In large urban settings such as Accra where facilities face intense daily patient and visitor numbers, these constraints become more pronounced as high utilization accelerates wear and increases the frequency with which systems fail in the absence of strong operations and maintenance support (WHO/UNICEF, 2019).

Accessibility is another critical dimension of facility functionality. The location, convenience, and adequacy of toilets and handwashing points strongly influence their effective use. Global guidelines emphasize that sanitation facilities in hospitals must be easily reachable, gender-sensitive, and usable by persons with disabilities (WHO, 2019). However, studies from LMIC contexts frequently report that hospital sanitation facilities are insufficient in number relative to patient load, poorly located, or inaccessible to vulnerable users (Cronk & Bartram, 2018). These limitations reduce usability even when physical infrastructure is present.

Cleanliness is a critical indicator of the functionality of sanitation and hand hygiene facilities in healthcare settings. Facilities may be structurally present, yet fail to serve their intended purpose if regular cleaning, supervision, and maintenance are inadequate. Evidence from healthcare facilities in low- and middle-income African countries indicates that poor environmental hygiene, weak maintenance systems, and inconsistent availability of cleaning materials frequently

undermine the usability of toilets and handwashing areas, thereby increasing the risk of cross-contamination and healthcare-associated infections (Cronk & Bartram, 2018; World Health Organization, 2019). Global monitoring frameworks further emphasize that sanitation facilities that are not routinely cleaned and supplied cannot be considered functionally adequate, even when infrastructure exists (WHO & UNICEF, 2020).

In Ghana, similar challenges have been documented. Facility-based assessments using the WHO Water and Sanitation for Health Facility Improvement Tool (WASH FIT) have shown that sanitation and hygiene domains, particularly environmental cleaning and maintenance perform poorly relative to other service areas, indicating inconsistent cleaning routines and limited institutional support for sustained sanitation services (Ashinyo et al., 2021). Hospital-based studies have also highlighted deficiencies in hygiene resources and environmental conditions that compromise effective sanitation and hand hygiene practices in Ghanaian healthcare facilities (Yawson & Hesse, 2013; Dubik et al., 2024).

Despite the growing body of research on WASH in healthcare facilities, significant gaps remain. Most studies in Ghana have focused on general WASH conditions rather than detailed assessments of the specific condition and functionality of toilets and hand hygiene facilities from a user-centered perspective. Additionally, comparative evidence across multiple hospitals within the Accra Metropolis is limited. These gaps underscore the need for context-specific assessments that evaluate how functional sanitation and hand hygiene facilities are in high-pressure urban hospital environments.

2.3 Monitoring, Cleaning Routines, and Management Practices

The effectiveness of sanitation and hand hygiene services in hospitals depends not only on the availability of infrastructure and supplies but also on the quality of management and operational

processes that sustain these services. Evidence from global health systems research indicates that even well-equipped facilities can perform poorly if cleaning routines, supervision mechanisms, and maintenance systems are weak or inconsistent (WHO, 2019). Effective monitoring and management are therefore recognized as essential determinants of sanitation performance in healthcare settings.

Globally, best practice guidelines emphasize that sanitation services in hospitals require structured cleaning schedules, clearly assigned responsibilities, regular supervision, and prompt maintenance of broken facilities (WHO, 2019). The WHO recommends that health facilities establish routine inspection systems to monitor the cleanliness and functionality of toilets and handwashing stations, ensuring that problems such as blockages, lack of water, or absence of soap are addressed promptly (WHO & UNICEF, 2021). Studies have shown that hospitals with strong managerial oversight and clearly defined cleaning protocols tend to maintain higher standards of hygiene than those where sanitation activities are poorly coordinated (Cronk & Bartram, 2018).

In sub-Saharan Africa, however, the management of sanitation services in many hospitals remains inadequate. Evidence from healthcare facilities across low- and middle-income African countries indicates that irregular cleaning routines, limited supervision of environmental service staff, and weak or absent monitoring systems are common challenges undermining the effectiveness of sanitation services in hospitals (Cronk & Bartram, 2018; WHO & UNICEF, 2020). In many facilities, cleaning staff operate without structured schedules or performance checklists, leading to inconsistent hygiene standards. Weak accountability mechanisms and lack of clearly defined roles further contribute to the deterioration of sanitation facilities over time (WHO, 2019).

Supply chain management also plays a critical role in sanitation service delivery. Regular availability of water, soap, disinfectants, and cleaning equipment is necessary for maintaining

functional and hygienic facilities. Evidence from LMIC settings shows that frequent stock-outs of essential supplies are a major barrier to effective sanitation management (Cronk & Bartram, 2018). Where procurement and logistics systems are weak, even motivated staff are unable to maintain adequate hygiene standards.

In Ghana, similar challenges have been documented in relation to the management of hospital sanitation services. Facility-based assessments using the WHO Water and Sanitation for Health Facility Improvement Tool (WASH FIT) have shown that sanitation management domains (existence of structured cleaning routines, supervision of cleaning staff, and monitoring mechanisms) often perform poorly in healthcare facilities, indicating reliance on informal or inconsistent sanitation practices (Ashinyo et al., 2021). These weaknesses have been associated with the rapid deterioration of toilets and handwashing facilities, even in settings where basic infrastructure is initially available.

Evidence from hospital hand hygiene system assessments in Ghana further highlights the importance of institutional management practices. Studies indicate that limited institutional support, inadequate training for cleaning and support staff, and weak monitoring and accountability systems undermine sustained hygiene performance in hospitals (Dubik et al., 2024). Facilities with stronger infection prevention and control structures, clearer lines of responsibility, and active supervision mechanisms demonstrate better sanitation and hand hygiene outcomes than those lacking such systems (World Health Organization, 2019).

Urban hospitals face additional management pressures due to high patient volumes and intensive daily use of sanitation facilities. Global monitoring evidence indicates that in high-traffic urban healthcare settings, sanitation facilities deteriorate rapidly when cleaning frequency, supervision, and maintenance are not adjusted to match user load, resulting in unhygienic and unusable facilities

(WHO & UNICEF, 2020). These findings underscore the need for context-specific sanitation management strategies that respond to the realities of metropolitan hospital environments.

Training and attitudes of staff are also crucial components of sanitation management. Evidence suggests that when cleaners and other staff are adequately trained, motivated, and supervised, sanitation outcomes improve significantly (WHO, 2019). Conversely, lack of training and low staff morale often result in poor adherence to cleaning standards and neglect of sanitation responsibilities. Effective management therefore requires not only material resources but also investment in human capacity and organizational culture.

The literature demonstrates that strong management practices are critical for ensuring functional and hygienic sanitation facilities in hospitals. However, significant gaps remain in documenting these processes within Ghanaian urban health facilities, providing justification for the present study.

2.4 Perceptions and Satisfaction of Patients and Caregivers

User perceptions and satisfaction constitute critical dimensions in evaluating sanitation and hand hygiene services within healthcare facilities. While infrastructure availability and cleanliness are essential technical indicators, the true effectiveness of sanitation services is ultimately reflected in how they are experienced by patients and caregivers. Studies have shown that user-centered assessments provide valuable insights into the usability, accessibility, and adequacy of sanitation facilities that may not be captured through physical inspections alone (WHO, 2019).

Globally, patient satisfaction with hospital sanitation has been recognized as a key component of overall healthcare quality. Clean and accessible toilets, reliable water supply, and functional handwashing stations strongly influence how patients perceive the safety and quality of the care

they receive (WHO & UNICEF, 2020). Research conducted in diverse healthcare settings has demonstrated that unhygienic toilets, lack of privacy, and absence of basic hygiene materials such as soap and water are among the most frequently cited sources of dissatisfaction with hospital environments. Studies examining patient and caregiver experiences of care show that poor sanitation conditions negatively affect perceptions of facility quality, reduce trust in health services, and may discourage future utilization of healthcare facilities (Benova et al., 2018; Bouzid et al., 2018).

In sub-Saharan Africa, evidence indicates that patient and caregiver experiences of hospital sanitation are often unfavorable. Multi-country studies assessing experiences of care in African health facilities report frequent complaints related to dirty or overcrowded toilets, unpleasant odours, lack of privacy, and inconsistent availability of essential supplies such as soap and tissue paper (Afulani et al., 2019). These conditions undermine patient dignity and contribute to anxiety about hygiene-related infection risks within hospital environments.

Caregivers, who often spend prolonged periods within healthcare facilities to support patients, appear particularly affected by poor sanitation conditions. Evidence suggests that negative sanitation experiences among caregivers contribute to broader dissatisfaction with healthcare services and shape adverse perceptions of facility quality and safety (Bouzid et al., 2018; WaterAid, 2019). Together, these findings underscore the importance of incorporating user experiences into assessments of hospital sanitation and hand hygiene services, especially in high-use healthcare settings.

User perceptions are shaped by multiple factors, including cleanliness, privacy, safety, and convenience. Evidence suggests that even when basic sanitation infrastructure exists, user satisfaction remains low if facilities are poorly maintained or inconveniently located (WHO &

UNICEF, 2020). The absence of gender-sensitive and disability-friendly sanitation facilities has also been highlighted as a major source of dissatisfaction, particularly among vulnerable groups such as women, children, the elderly, and persons with disabilities (WHO, 2019).

In Ghana, patient and caregiver experiences of hospital sanitation reflect many of the broader regional challenges observed across sub-Saharan Africa. Evidence from hospital-based studies and experience-of-care research indicates that users of Ghanaian health facilities frequently express dissatisfaction with the cleanliness, privacy, and adequacy of toilets and handwashing areas. Studies conducted in large public hospitals have documented inconsistent availability of basic hygiene resources such as soap and water, alongside concerns about environmental cleanliness, which negatively shape user perceptions of facility hygiene and safety (Yawson & Hesse, 2013; World Health Organization, 2019).

Research examining patient experience and respectful care in Ghana and comparable African settings further demonstrates that poor sanitation conditions, particularly unclean toilets and lack of privacy, undermine user confidence in healthcare facilities and influence satisfaction with services received (Afulani et al., 2019; Benova et al., 2018). These concerns are especially salient in urban settings. Institutional and observational evidence indicates that metropolitan hospitals experience intense user pressure, and without sanitation management systems that adjust cleaning frequency and maintenance to high patient volumes, washrooms rapidly become congested and unhygienic, contributing to negative user experiences (WHO, 2019; WaterAid, 2019).

Collectively, these findings suggest that improving user satisfaction with hospital sanitation in Ghana requires not only the provision of physical infrastructure, but also effective management systems, regular cleaning, adequate supervision, and timely maintenance to ensure facilities remain usable under high-traffic conditions.

Existing literature underscores that patient and caregiver satisfaction is a crucial indicator of sanitation service quality. Cleanliness, availability of supplies, privacy, and convenience consistently emerge as key determinants of positive user experiences. However, empirical evidence capturing these dimensions in Ghanaian hospitals remains limited, highlighting the need for focused research that centers the voices of users in assessing sanitation and hand hygiene facilities.

2.5 Institutional and Logistical Challenges Affecting Sanitation Services

The effective provision of sanitation and hand hygiene services in hospitals depends on a wide range of institutional and logistical factors that extend beyond physical infrastructure and routine cleaning activities. Health systems research has shown that organizational capacity, resource allocation, and broader system constraints strongly influence the sustainability of sanitation services in healthcare facilities, particularly in low- and middle-income countries where non-clinical services are often underprioritized (Kruk et al., 2018).

One of the most widely documented institutional challenges is inadequate and unstable financing for sanitation and environmental hygiene services. Hospital budgets in many LMICs prioritize clinical care and pharmaceuticals, with limited dedicated funding for cleaning services, hygiene consumables, and routine maintenance. Global assessments of WASH in healthcare facilities indicate that constrained financing contributes to frequent shortages of essential materials such as soap, detergents, disinfectants, tissue paper, and cleaning equipment, undermining the consistent delivery of sanitation services (WHO & UNICEF, 2019; Cronk & Bartram, 2018).

Human resource limitations further constrain effective sanitation management. Post-2016 evidence highlights that insufficient numbers of sanitation staff, limited training opportunities, and weak supervisory structures reduce adherence to cleaning protocols and compromise

environmental hygiene standards in hospitals (Storr et al., 2017; Ashinyo et al., 2021). Where sanitation personnel are poorly integrated into infection prevention and control systems, cleaning routines tend to be irregular and reactive rather than systematic.

Infrastructure constraints represent an additional challenge. Many hospitals operate within aging physical structures equipped with outdated sanitation systems that require frequent repairs. Studies have shown that delayed maintenance, procurement bottlenecks, and lack of spare parts often prevent timely restoration of broken toilets, taps, and plumbing systems, particularly in public-sector facilities (Bouzid et al., 2020; Cronk & Bartram, 2018). These challenges are especially pronounced in high-traffic urban hospitals, where continuous facility use accelerates wear and intensifies pressure on already limited maintenance systems (WHO, 2019).

In sub-Saharan Africa, weak institutional coordination remains a significant factor undermining sanitation performance in healthcare facilities. Evidence from regional and global assessments indicates that responsibilities for sanitation and environmental hygiene are frequently fragmented across departments, with unclear accountability structures and limited integration into broader facility management systems (WHO & UNICEF, 2019). In such contexts, sanitation problems—such as non-functional toilets, water supply interruptions, or lack of hygiene consumables—often persist because reporting pathways and responsibility for corrective action are poorly defined. The absence of structured monitoring systems and maintenance tracking further exacerbates these challenges, reducing the responsiveness of facilities to sanitation failures (WHO, 2019).

The Ghanaian healthcare context reflects many of these broader regional difficulties. Facility-based assessments using the WHO Water and Sanitation for Health Facility Improvement Tool (WASH FIT) have identified inadequate financing and weak management systems as central barriers to effective sanitation services in Ghanaian hospitals. These assessments show that

sanitation and hygiene activities are often underfunded, resulting in recurrent shortages of soap, cleaning agents, and functional sanitation equipment, as well as delays in routine maintenance and repairs (Ashinyo et al., 2021). Broader health systems research further demonstrates that limited and unstable funding for non-clinical services, including sanitation and facility maintenance, constrains hospitals' ability to sustain hygienic environments despite the presence of national policies and guidelines (Kruk et al., 2018).

Human resource challenges also play an important role. Evidence indicates that sanitation and cleaning staff in many hospitals are insufficient in number relative to workload, particularly in high-volume urban facilities. Limited access to training, weak supervision, and poor integration of sanitation personnel into infection prevention and control systems undermine adherence to cleaning protocols and compromise environmental hygiene standards (Storr et al., 2017; Ashinyo et al., 2021). Where institutional support for sanitation staff is weak, cleaning routines tend to be irregular and reactive rather than systematic.

Urban hospitals in metropolitan areas such as Accra face additional logistical pressures due to high patient throughput and continuous facility use. Global and regional evidence shows that in densely populated urban settings, sanitation infrastructure deteriorates rapidly when cleaning frequency, maintenance schedules, and resource allocation are not adjusted to match user load. Water supply interruptions, which are common in many urban areas in low- and middle-income countries, further complicate efforts to maintain hygienic toilets and handwashing facilities (WHO & UNICEF, 2020; Bouzid et al., 2020).

Leadership commitment and institutional culture are critical determinants of sanitation performance. Facilities where hospital management actively prioritizes hygiene, enforces cleaning standards, and provides regular supervision consistently demonstrate better sanitation outcomes

than those where sanitation is treated as a peripheral responsibility (WHO, 2019). Conversely, weak leadership attention to sanitation contributes to persistent problems such as dirty toilets, inadequate supplies, and delayed repairs, reinforcing poor hygiene conditions within hospital environments.

Despite the clear importance of these institutional and logistical factors, research in Ghana has paid limited attention to systematically documenting the specific challenges faced by hospitals in maintaining sanitation and hand hygiene facilities. Most existing studies have focused on infrastructure conditions rather than the organizational and logistical constraints that underlie poor performance. In particular, there is limited evidence from the Accra Metropolis that captures the perspectives of hospital staff regarding budgetary, human resource, and management barriers to effective sanitation services.

The literature therefore indicates that while the technical requirements for adequate hospital sanitation are well understood, the institutional and logistical realities of implementing these requirements remain insufficiently explored, especially within Ghanaian urban hospitals. Addressing these challenges is essential for translating sanitation policies and guidelines into practical improvements in healthcare environments.

2.6 Summary of Literature and Identified Gaps

The reviewed literature demonstrates broad consensus that sanitation and hand hygiene in healthcare facilities are foundational to safe, quality care, and that deficiencies in these services remain widespread globally. International monitoring and guidance consistently emphasize that basic WASH services in health facilities are not yet universal, and that gaps persist not only in infrastructure coverage but also in the functionality and reliability of services such as water availability, soap provision, and sanitation usability (WHO, 2019; WHO & UNICEF, 2020).

Evidence from multi-country LMIC analyses further confirms that substantial proportions of health facilities lack piped water on premises, improved sanitation, and handwashing soap, underscoring that environmental health services remain a persistent systems weakness rather than a marginal facility problem (Cronk & Bartram, 2018).

Across sub-Saharan Africa, the literature suggests that inadequate sanitation outcomes in hospitals commonly reflect clustered constraints: weak supply chains for consumables, limited staffing for cleaning, inconsistent supervision, delayed maintenance, and fragmented accountability arrangements. WHO guidance highlights that sustainable improvements require structured operational routines because facilities can remain “under-equipped in practice” even when infrastructure exists (WHO, 2019). In Ghana, the verified empirical literature indicates that WASH in healthcare facilities is an active area of assessment and intervention, with studies applying standardized tools such as WASH FIT to evaluate service conditions and management performance.

Despite increasing attention to WASH and infection prevention in healthcare facilities, important evidence gaps remain. In Ghana, recent facility-based assessments and systems evaluations have largely emphasized overall WASH readiness and service domains (e.g., sanitation, hygiene, management, waste) rather than providing a focused, user-oriented examination of the specific condition and functionality of toilets and hand hygiene points as heavily used spaces within routine hospital flow (Ashinyo et al., 2021). In addition, global monitoring and guidance stress that functionality and service quality are central to dignity and safety, yet available evidence and routine monitoring often prioritize service presence and technical domains, with limited integration of end-user experience measures (WHO, 2019; WHO & UNICEF, 2020; WHO & UNICEF, 2023). Ghana-specific work on hand hygiene systems also shows that understanding

day-to-day user experience alongside facility processes remains important (Dubik et al., 2024). Finally, while Ghana has emerging studies assessing WASH status in specific districts/regions, the accessible peer-reviewed evidence indicates that multi-facility metropolitan studies in Accra that jointly integrate facility condition/functionality, patient/caregiver experience, and staff-reported management constraints are limited, creating a justification for the present multi-facility assessment in a high-pressure urban setting (Nsiah et al., 2022; WHO, 2019).

CHAPTER THREE

3.0 METHODOLOGY

3.1 Introduction

This chapter describes the methodological procedures that will be employed to assess sanitation and hand hygiene facilities in selected hospitals within the Accra Metropolis. The chapter outlines the research design, study area, target population, sampling procedures, data collection instruments, data collection processes, methods of data analysis, ethical considerations, and anticipated limitations of the study. Each methodological component is carefully selected to ensure that the study generates valid, reliable, and relevant evidence on the condition, management, and user experiences of hospital sanitation services.

3.2 Research Design

A descriptive cross-sectional survey design is adopted for this study. This design is considered appropriate because it allows the collection of data from different categories of respondents at a single point in time in order to describe existing conditions and practices. The cross-sectional approach enables the study to assess the current state of toilets and handwashing facilities, user satisfaction levels, and management practices across multiple hospitals simultaneously. Since the objectives of the study focus on assessing conditions, perceptions, and operational processes rather than determining causal relationships, the descriptive cross-sectional design is the most suitable methodological option. The survey approach also makes it possible to collect standardized quantitative data from a relatively large number of respondents within a limited period.

3.3 Study Area

Four hospitals representing different levels of care will be included in the study. These are Nima Government Clinic, which operates at the primary or sub-district level; Pentecost Hospital, Madina, which functions as a district-level facility; Greater Accra Regional Hospital (Ridge Hospital), a major secondary-level hospital that also handles some tertiary-level cases; and the 37 Military Hospital, a tertiary-level and United Nations Level IV referral facility. The inclusion of facilities from primary, secondary, and tertiary levels is intended to provide a comprehensive and comparative assessment of sanitation practices across different categories of hospitals within the same metropolitan environment.

These hospitals experience high daily patient attendance and caregiver presence, which place considerable pressure on available toilets, handwashing stations, and related sanitation infrastructure. The continuous and intensive use of these facilities increases the likelihood of rapid deterioration, frequent maintenance needs, and challenges in maintaining acceptable hygiene standards. The urban context of Accra, with its dense population and heavy demand for healthcare services, therefore provides an appropriate setting for examining the adequacy, functionality, and management of sanitation and hand hygiene facilities in hospitals.



Figure 1.2 Map of Accra Metropolitan Assembly

3.4 Study Population

The target population for the study comprises three main groups: patients, caregivers, and hospital staff in the selected hospitals. Patients include individuals receiving outpatient or inpatient care at the time of data collection. Caregivers refer to family members or relatives who accompany patients and make use of hospital sanitation facilities. Hospital staff include both clinical staff such as nurses, doctors, and allied health professionals, and non-clinical staff such as cleaners, orderlies, maintenance personnel, and administrative workers. Including these three groups ensures that sanitation services are assessed from multiple perspectives.

3.5 Inclusion and Exclusion Criteria

Inclusion Criteria

Patients and Caregivers

- Must be 18 years and above

- Must have used or had exposure to hospital toilet and/or handwashing facilities

Hospital Staff

- Must be clinical or non-clinical staff working in the selected hospitals
- Must have worked in the facility for at least six (6) months

Exclusion Criteria

Patients and Caregivers

- Persons below 18 years of age
- No contact with toilet or handwash facility

Hospital Staff

- Temporary, locum, or visiting staff with less than six months of service in the hospital
- Staff who are on leave or unavailable during the data collection period

3.6 Sampling Strategy

Participants were stratified into two groups. For patients or their caregivers, a quantitative sampling approach was used within each of the selected hospitals (Nima Government Clinic, Greater Accra Regional Hospital (Ridge Hospital), 37 Military Hospital). Systematic random sampling was applied to select respondents proportionally from outpatient departments, wards, and waiting areas. Sampling intervals were calculated based on estimated daily attendance, and eligible participants were selected until the required sample size for each hospital was reached.

This approach ensured that the views of users of sanitation facilities were captured in a structured and representative manner.

For hospital staff, a convenience sampling approach was adopted instead of large-scale random sampling. Since the objective was to obtain in-depth information on sanitation management practices rather than to generate statistical estimates, only a small number of key informants were selected from each hospital. These include staff who are directly responsible for or knowledgeable about sanitation and hygiene services, such as infection prevention and control officers, nursing administrators, facility managers, and cleaning supervisors. Typically, two to three key staff members per hospital were selected to participate in interviews.

3.7 Sample Size Determination

The sample size was determined using the Yamane (1967) formula at a 95% confidence level and a 5% margin of error:

$$n = N/[1 + N(e^2)]$$

Where:

- **n** = required sample size
- **N** = estimated population of daily users of sanitation facilities in the four hospitals
- **e** = margin of error (0.05)

Based on available hospital utilization patterns and estimated average daily attendance across the four selected hospitals, the combined daily number of patients and caregivers using sanitation facilities was estimated at approximately 1,400 users.

Applying the formula:

$$n = \frac{1400}{1+1400(0.05^2)}=311$$

To cater for potential non-response, incomplete questionnaires, or withdrawal of participants, 10% was added to the calculated sample size. The final sample size for the study is therefore 342 respondents (patients and caregivers combined). Of the 342 targeted respondents, 311 questionnaires were fully completed and included in the final analysis; the remaining 31 (9.1%) were excluded due to non-response or incomplete data, consistent with the anticipated 10% non-response allowance built into the sample size calculation.

3.8 Data Collection Instruments

Data were collected using two structured questionnaires developed specifically for the study. The first questionnaire targeted patients and caregivers and focused on their experiences and satisfaction with hospital sanitation facilities. It included sections on demographic characteristics, perceived cleanliness of toilets, availability of water and soap, accessibility of facilities, privacy, and overall satisfaction with sanitation services.

The second questionnaire targeted hospital staff and was designed in line with the IPOM conceptual framework. It captured information on inputs such as availability of sanitation infrastructure and supplies, processes such as cleaning routines and supervision, outputs such as observed cleanliness and functionality of facilities, and management-related issues including institutional support and operational challenges. Both instruments were developed after a careful review of relevant literature and existing WASH assessment tools to ensure content validity.

Prior to the main study, the questionnaires were pre-tested in a hospital with similar characteristics to the study sites. The pre-test helped to assess the clarity, relevance, and reliability of the

questions. Feedback from the pre-test was used to revise ambiguous items and improve the overall structure of the instruments.

3.9 Data Collection Procedure

Data collection took place over a four-week period in the selected hospitals. Ethical approval and administrative permissions were obtained before any data collection activities commenced. Trained research assistants administered the questionnaires to respondents. Potential participants were approached individually, informed about the purpose of the study, and assured of confidentiality. Only those who voluntarily agreed and provided informed consent were enrolled.

Questionnaires for patients and caregivers were administered in waiting areas and wards at convenient times so as not to interfere with care processes. Staff questionnaires were administered at times agreed upon with departmental heads to minimize disruption of routine duties. Completed questionnaires were checked daily for completeness and securely stored to ensure data integrity.

3.10 Data Analysis

All completed questionnaires were entered into STATA 19.5 for analysis. Data cleaning was performed to check for errors, inconsistencies, and missing values before analysis began. Descriptive statistics such as frequencies, percentages, means, and standard deviations were used to summarize respondent characteristics and key study variables. The study also presented univariate summaries of user perceptions, facility conditions, and staff practices. Results of the analysis were presented using tables, charts, and graphs to enhance clarity and interpretation.

3.11 Ethical Considerations

Ethical principles were strictly adhered to throughout the study. Ethical approval was obtained from the Ensign Global University Ethics Review Committee before the commencement of data collection. Administrative permission was also obtained from the management of each participating hospital. All respondents were adequately informed about the purpose of the study, the voluntary nature of participation, and their right to withdraw at any time without consequences.

Informed consent was obtained from every participant before administering the questionnaire. No personal identifiers such as names or staff numbers were collected, thereby ensuring anonymity. All data collected were treated as confidential and stored securely on password-protected computers accessible only to the research team.

3.12 Limitations of the Study

Despite efforts to ensure methodological rigor, the study had some limitations. First, the use of self-reported data from patients, caregivers, and staff may have introduced response bias, including social desirability bias, as participants might have provided answers they perceived as more acceptable rather than fully accurate accounts of their experiences. Recall bias may also have affected responses relating to the frequency of facility use or past encounters with sanitation staff, since participants relied on memory rather than observed records. Second, the cross-sectional design of the study limited the ability to establish causal relationships between variables. Third, systematic random sampling of patients and caregivers within outpatient departments, wards, and waiting areas may have introduced an element of selection bias, as individuals who were more readily accessible or willing to participate at the time of data collection may not fully represent the broader population of hospital users. Fourth, hospital staff were recruited through convenience sampling of a small number of key informants ($n = 13$, with as few as 7 respondents completing

certain items), which limits the statistical generalizability of staff-related findings and means these results should be interpreted as indicative rather than representative of all sanitation and infection prevention staff at the selected hospitals. Finally, because the study was restricted to four hospitals within the Accra Metropolis, the findings may not be generalizable to hospitals in other regions of Ghana or to facilities with different resource levels and operational contexts.

CHAPTER FOUR

4.0 RESULTS

4.1 Socio-Demographic Characteristics

The study included 311 respondents. The highest proportion of respondents fell within the 19–24 age category (n = 50), followed by those aged 25–29 years (n = 43). This indicates that a substantial share of participants were young adults, suggesting that this group forms a major segment of hospital users in the study setting.

Respondents aged 30–34 years and 35–39 years each accounted for 39 participants, reflecting a relatively even distribution across the early to mid-adult age groups. Participation gradually declined with increasing age, with 40–44 years (n = 30) and 45–49 years (n = 29) showing moderate representation.

The older age categories recorded comparatively lower frequencies, with 50–54 years and 55–59 years each accounting for 19 respondents. However, individuals aged 60 years and above constituted a notable proportion (n = 35), indicating that elderly persons still form an important segment of healthcare facility users.

Table 4.1 Socio-Demographic Characteristics

Variable	Category	Frequency (n)	Percentage (%)
Age (years)	Below 19	8	2.57
	19–24	50	16.08
	25–29	43	13.83
	30–34	39	12.54
	35–39	39	12.54
	40–44	30	9.65
	45–49	29	9.32
	50–54	19	6.11
	55–59	19	6.11
	60+	35	11.25

Sex	Female	161	51.77
	Male	150	48.23
Respondent Status	Patient	200	64.31
	Caregiver	111	35.69

4.2 WASH Functional Status of Sanitation Facilities in The Selected Hospitals

4.2.1 Accessibility and Ease of Locating Sanitation Facilities

The majority of respondents (70.74%) reported that toilet facilities were easy to locate, while close to 30% indicated difficulty in locating them.

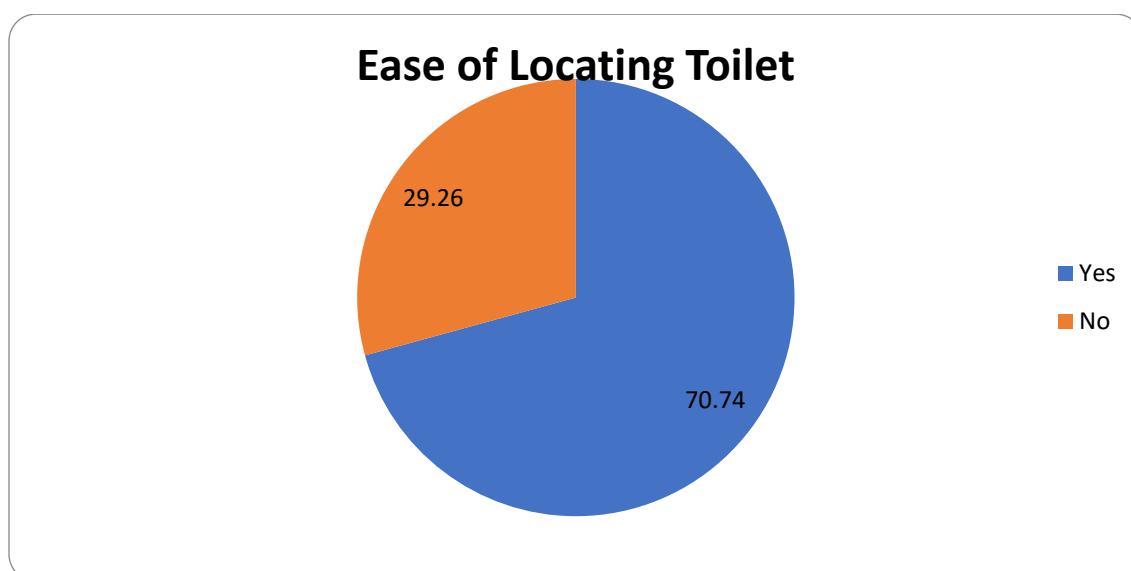


Figure 4.1 Accessibility of Sanitation Facilities

4.2.2 Cleanliness, Privacy, and Environmental Conditions of Facilities

Perceptions of cleanliness were mixed across respondents. For toilet facilities, 35.05% of respondents rated cleanliness as good, 33.44% as fair, and 31.51% as poor. These findings indicate a relatively even distribution of perceptions, with a substantial proportion expressing dissatisfaction.

Similarly, handwashing facility cleanliness was rated as good by 36.01% of respondents, while 32.15% rated it as fair and 31.83% as poor. These findings suggest inconsistent maintenance of hygiene standards across facilities.

Regarding privacy, 34.08% of respondents rated privacy as good, while 35.05% and 30.87% rated it as fair and poor respectively, indicating moderate satisfaction but highlighting concerns about adequate privacy provision.

Environmental sanitation, as assessed through waste bin condition, showed that 36.66% rated it as good, 35.05% as fair, and 28.30% as poor. This reflects variability in waste management practices across facilities.

Notably, a majority (63.34%) of respondents reported the presence of unpleasant odours in toilet facilities, suggesting deficiencies in cleaning frequency and maintenance practices. Overall, these findings indicate that while some facilities meet acceptable standards, sanitation conditions are inconsistent and require improvement.

Table 4.2 Cleanliness, Privacy, and Environmental Conditions

Variable	Category	Frequency (n)	Percentage (%)
Toilet Cleanliness	Good	109	35.05
	Fair	104	33.44
	Poor	98	31.51
Handwashing Cleanliness	Good	112	36.01
	Fair	100	32.15
	Poor	99	31.83
Privacy of Facilities	Good	106	34.08
	Fair	109	35.05
	Poor	96	30.87
Waste Bin Condition	Good	114	36.66
	Fair	109	35.05
	Poor	88	28.3
Presence of Bad Odour	Yes	197	63.34
	No	114	36.66

4.2.3 Availability of Hygiene Resources and Facility Functionality

The availability of essential hygiene resources was found to be suboptimal. Slightly more than half of respondents (55.95%) reported consistent availability of water, while 44.05% indicated that water was not reliably available.

Similarly, only 41.48% of respondents reported consistent availability of tissue, with a majority (58.52%) indicating its absence. Availability of soap was also limited, with only 41.16% reporting its presence and 58.84% reporting its absence.

In terms of overall functionality, 56.27% of respondents indicated that sanitation facilities were functional, while 43.73% reported that they were not functional.

Table 4.3 Availability of Hygiene Resources and Functionality

Variable	Category	Frequency (n)	Percentage (%)
Availability of Water	Yes	174	55.95
	No	137	44.05
Availability of Tissue	Yes	129	41.48
	No	182	58.52
Availability of Soap	Yes	128	41.16
	No	183	58.84
Functionality of Facilities	Functional (Yes)	175	56.27
	Not Functional (No)	136	43.73

4.3 Experience and Satisfaction of Patients and Caregivers Regarding Sanitation and Hand Hygiene Facilities

4.3.1 User Experience of Comfort in Using Sanitation Facilities

The findings indicate mixed levels of comfort among respondents when using sanitation facilities. While 35.37% of respondents rated their comfort as good, nearly equal proportions reported neutral (32.48%) and poor (32.15%) comfort levels.

Regarding waiting time, 34.41% of respondents reported waiting less than 5 minutes, while 34.08% reported no waiting time. However, 19.29% waited between 5–10 minutes, and 12.22% reported waiting more than 10 minutes.

Table 4.4 User Experience and Comfort

Variable	Category	Frequency (n)	Percentage (%)
Comfort Using Facilities	Good	110	35.37
	Neutral	101	32.48
	Poor	100	32.15
Waiting Time to Use Facilities	No waiting	106	34.08
	<5 minutes	107	34.41
	5–10 minutes	60	19.29
	>10 minutes	38	12.22

4.3.2 Experience of Hygiene and Cleanliness Practices

Experience of hygiene conditions varied among respondents. While 37.62% rated overall hygiene as good, 31.51% rated it as neutral, and 30.87% rated it as poor.

More concerning is the ability to wash hands effectively. A majority of respondents (63.99%) rated their ability to wash hands as poor, while 36.01% rated it as neutral, with none reporting good ability.

Table 4.5 Perceptions of Hygiene and Handwashing Ability

Variable	Category	Frequency (n)	Percentage (%)
Overall Hygiene Condition	Good	117	37.62
	Neutral	98	31.51
	Poor	96	30.87
Ability to Wash Hands	Neutral	112	36.01
	Poor	199	63.99

4.3.3 Experienced Support, Encouragement, and Overall Satisfaction

Experience of staff encouragement toward hygiene practices were generally low. A plurality of respondents (44.37%) rated staff encouragement as poor, while 31.83% rated it as good and 23.79% as neutral. This suggests that institutional support for promoting hygiene practices may be inadequate, potentially affecting compliance with recommended hygiene behaviors.

Overall satisfaction with sanitation and hygiene facilities was also mixed. While 33.12% of respondents reported being satisfied and 16.08% very satisfied, a substantial proportion reported dissatisfaction (18.33%) and very dissatisfied (16.72%). Additionally, 15.76% remained neutral. These findings indicate that although some users are satisfied, a considerable proportion are dissatisfied, reflecting gaps in service quality and user experience.

Table 4.6 Staff Support and Overall Satisfaction

Variable	Category	Frequency (n)	Percentage (%)
Staff Encouragement on Hygiene	Good	99	31.83
	Neutral	74	23.79
	Poor	138	44.37
Overall Satisfaction	Very satisfied	50	16.08
	Satisfied	103	33.12
	Neutral	49	15.76
	Dissatisfied	57	18.33
	Very dissatisfied	52	16.72

4.4 Monitoring, Cleaning Routines and Management Practices

The findings show that all respondents (100%) agreed that toilets are cleaned according to a fixed schedule. Similarly, all respondents (100%) reported that cleaning staff respond promptly when sanitation facilities become dirty.

However, the availability of cleaning materials appears to be a major challenge, as a significant majority of respondents (87.50%) disagreed that cleaning staff have adequate materials, while only 12.50% agreed. While cleaning routines and responsiveness appear strong, the inadequacy of cleaning materials may undermine the effectiveness and sustainability of these practices.

Table 4.7 Cleaning Routines

Variable	Category	Frequency (n)	Percentage (%)
Cleaning schedule	Agree	13	100
Prompt response	Agree	13	100
Adequate materials	Disagree	10	87.5
	Agree	3	12.5

4.4.1 Monitoring and Supervision Practices

All respondents (100%) indicated that sanitation activities are supervised regularly, suggesting the presence of monitoring structures within the hospitals. In addition, all respondents (100%) reported that there is a system for reporting sanitation problems, and all respondents (100%) indicated that they know who to contact when such issues arise.

Despite these strengths, the use of monitoring tools appears limited, as 71.43% of respondents disagreed that cleaning checklists or logs are used, while only 28.57% agreed.

These findings suggest that although monitoring systems exist and staff awareness is high, the practical tools required for effective supervision, such as checklists, are not consistently utilized.

Table 4.8 Monitoring and Supervision Practices

Variable	Category	Frequency (n)	Percentage (%)
Regular supervision	Agree	7	100
Use of checklists	Disagree	5	71.43
	Agree	2	28.57
Reporting system exists	Agree	7	100
Know who to contact	Agree	13	100

4.4.2 Management Practices and Responsiveness

All respondents (100%) agreed that hospital management prioritizes sanitation services and that staff are encouraged to report sanitation-related issues.

However, perceptions of effectiveness varied across specific management functions. Slightly more than half of respondents (53.85%) agreed that supervision is effective, while 46.15% disagreed, indicating some inconsistency in supervisory effectiveness.

Furthermore, a large majority of respondents (84.62%) disagreed that sanitation issues are addressed in a timely manner, with only 15.38% agreeing. Similarly, 76.92% of respondents disagreed that communication between management and staff on sanitation matters is effective, while only 23.08% agreed.

These findings suggest that although management demonstrates commitment to sanitation in principle, there are significant gaps in implementation, particularly in timely response and communication.

Table 4.9 Management Practices and Responsiveness

Variable	Category	Frequency (n)	Percentage (%)
Management prioritizes sanitation	Agree	13	100
Effective supervision	Agree	7	53.85
	Disagree	6	46.15
Issues addressed timely	Disagree	11	84.62
	Agree	2	15.38
Staff encouraged to report	Agree	13	100
Communication effective	Disagree	10	76.92
	Agree	3	23.08

4.5 Institutional and Logistical Factors Affecting Sanitation Services

The majority of respondents (66.67%) agreed that cleaning materials were adequately available, although a notable proportion (33.33%) reported otherwise.

Perceptions of water reliability were evenly split, with 50.0% of respondents indicating that water supply was reliable and the remaining 50.0% disagreeing, suggesting inconsistency in water access.

However, maintenance responsiveness emerged as a key concern, with 63.64% of respondents indicating that maintenance services do not respond promptly to faults, compared to only 36.36% who reported timely responses.

Table 4.10 Institutional and Logistical Factors

Variable	Category	Frequency	Percent
Availability of materials	Disagree	3	33.33
	Agree	6	66.67
Water reliability	Disagree	6	50
	Agree	6	50
Maintenance responsiveness	Disagree	7	63.64
	Agree	4	36.36

4.5.1 Reported Institutional and Logistical Challenges

Inadequate cleaning staff was the most frequently reported challenge, with 76.92% of respondents identifying it as a major issue.

Other prominent challenges included weak supervision, inadequate toilet facilities, and lack of funding, each reported by 53.85% of respondents.

Moderate challenges included water shortages, lack of cleaning materials, and high patient load (46.15% each).

Less frequently reported challenges were lack of soap (30.77%) and delays in maintenance (30.77%), while poor staff attitude was the least reported challenge (23.08%).

Table 4.11 Reported Challenges Affecting Sanitation Services

Challenge	No (%)	Yes (%)
Inadequate toilets	46.15	53.85
Water shortages	53.85	46.15
Lack of cleaning materials	53.85	46.15
Lack of soap	69.23	30.77
Inadequate cleaning staff	23.08	76.92
Poor staff attitude	76.92	23.08
Weak supervision	46.15	53.85
Delays in maintenance	69.23	30.77
High patient load	53.85	46.15
Lack of funding	46.15	53.85

4.5.2 Training and System Strengthening

Almost half of respondents (46.15%) had received IPC training within the past year, although 30.77% had not received any training.

In terms of system strengthening, increased funding was the most commonly suggested intervention (46.15%), followed by improvements in materials, training, and water supply (15.38% each). Few respondents (7.69%) identified increasing staff as a priority.

Table 4.12 IPC Training and Suggested Improvements

Variable	Category	Frequency	Percent
IPC Training	No	4	30.77
	Yes (old)	3	23.08
	Yes (recent)	6	46.15
Improvement	Funding	6	46.15
	Materials	2	15.38
	Training	2	15.38
	Water	2	15.38
	More staff	1	7.69

CHAPTER FIVE

5.0 DISCUSSION

5.1 Introduction

This chapter presents a discussion of the key findings of the study in relation to existing literature and the conceptual framework guiding the study. The discussion is structured around the main objectives, namely the functional status of sanitation and hand hygiene facilities, user experiences and satisfaction, monitoring and management practices, and institutional and logistical factors affecting sanitation services. The findings are interpreted within the context of healthcare delivery in high-demand urban settings and linked to the Input–Process–Output–Outcome (IPOM) framework to provide a comprehensive understanding of how structural conditions and operational processes influence sanitation outcomes in the selected hospitals.

5.2 WASH Functional Status of Sanitation Facilities in Selected Hospitals

The findings on the functional status of sanitation facilities suggest a system that is present but not consistently performing at an optimal level. While a majority of respondents reported that toilet facilities were easy to locate, indicating that infrastructure placement within the hospitals is generally appropriate, the fact that nearly one-third still experienced difficulty highlights subtle but important gaps in accessibility. In high-traffic urban hospitals such as those in Accra, where patient flow is intense and environments can be complex, ease of access is not only about physical availability but also about visibility, signage, and user navigation. This partially aligns with the expectations of the World Health Organization (2019), which emphasizes that sanitation facilities must be not only available but also easily accessible to all users. Within the Input–Process–Output–Outcome (IPOM) framework, this suggests that although inputs in the form of infrastructure exist,

process elements such as effective guidance and facility organization may not be fully optimized, thereby limiting universal accessibility.

Beyond accessibility, the findings on cleanliness and environmental conditions reveal a more critical issue of inconsistency. The near-even distribution of responses across good, fair, and poor ratings for both toilet and handwashing facility cleanliness indicates that sanitation standards are not uniformly maintained. This pattern reflects a situation where facilities may meet acceptable standards at certain times or in certain locations but fail at others, pointing to variability in cleaning practices and maintenance. Such inconsistency is characteristic of many healthcare settings in low- and middle-income countries, where, as observed by Cronk, R. and Bartram, J. (2018), sanitation infrastructure is often undermined by weak maintenance systems and fluctuating service delivery. Similarly, Kanyangarara, M. et al. (2021) note that while facilities may report the presence of sanitation infrastructure, the reliability and quality of hygiene services frequently remain uneven, particularly under conditions of high demand. In this study context, the high patient load typical of metropolitan hospitals likely places continuous pressure on facilities, making it difficult for cleaning routines to keep pace with usage, thereby resulting in the observed variability.

The widespread report of unpleasant odours further reinforces the likelihood of inadequate or irregular cleaning practices. Odour in sanitation facilities often signals deeper issues such as insufficient cleaning frequency, poor waste management, or malfunctioning infrastructure. From a practical standpoint, this suggests that although cleaning systems may exist, they may not be sufficiently responsive to real-time usage demands. Within the IPOM framework, this reflects a breakdown at the process level, where available inputs such as toilets and waste bins are not effectively translated into clean and hygienic outputs. Privacy concerns follow a similar pattern of moderate adequacy with notable gaps, indicating that structural provisions alone may not

guarantee a satisfactory user experience. Factors such as overcrowding, faulty locks, or poor facility design could undermine privacy, which is an essential component of dignity in healthcare settings. This is consistent with findings by Afulani, P.A. et al. (2019), who emphasize that environmental conditions, including privacy, significantly shape patient perceptions of care quality.

More pronounced challenges are observed in the availability of hygiene resources, where substantial proportions of respondents reported inconsistent access to water, soap, and tissue. These elements represent the most basic requirements for effective sanitation and hand hygiene, and their absence significantly limits the functionality of facilities. This finding aligns strongly with global evidence from WHO and UNICEF (2020), which highlights that many healthcare facilities, particularly in low- and middle-income countries, struggle not only with infrastructure provision but with maintaining a continuous supply of essential hygiene materials. In a similar vein, Bouzid, M. et al. (2020) argue that unreliable access to water and hygiene supplies directly undermines both infection prevention efforts and user satisfaction. In the context of this study, these gaps likely reflect broader systemic issues such as supply chain inefficiencies, resource constraints, or weak logistical management, rather than the complete absence of infrastructure. Within the IPOM model, this points to deficiencies at the input level, which in turn constrain processes such as handwashing and cleaning, ultimately affecting outputs in terms of cleanliness and usability.

The perception that only slightly more than half of the facilities were functional further consolidates the overall picture of partial system effectiveness. Functionality in this context encompasses not just the physical presence of facilities, but their usability, cleanliness, and availability of supporting resources. The relatively high proportion of respondents who perceived

facilities as non-functional suggests that existing systems are not consistently delivering expected standards. This observation is supported by Leslie, H.H. et al. (2017), who found that infrastructure alone does not guarantee quality of care when supporting systems such as maintenance and supply provision are inadequate. It also resonates with the broader argument by Kruk, M.E. et al. (2018) that quality healthcare is fundamentally dependent on the effective functioning of all system components, including basic environmental services like sanitation.

These findings suggest that sanitation services in the selected hospitals are characterized by a form of “incomplete functionality,” where infrastructure is largely available but system performance is inconsistent. Accessibility appears to be a relative strength; however, this is undermined by weaknesses in cleanliness, resource availability, and maintenance. Interpreted through the IPOM framework, the results indicate that while key inputs are partially in place, inefficiencies in processes such as cleaning, supervision, and supply management limit the achievement of desired outputs, namely clean, functional, and user-friendly facilities. This, in turn, has implications for broader outcomes, including user satisfaction, perceived safety, and overall confidence in the healthcare environment.

5.3 Experience and Satisfaction of Patients and Caregivers Regarding Sanitation and Hand Hygiene Facilities

The findings on user experience and satisfaction reveal a pattern of moderate adequacy but notable dissatisfaction, suggesting that while sanitation services are functional to some extent, they do not consistently meet user expectations for comfort, hygiene, and support. The mixed levels of comfort reported by respondents, with nearly equal proportions rating their experience as good, neutral, and poor, indicate variability in the usability of sanitation facilities across time and space within the hospitals. In practical terms, this may reflect differences in facility conditions at different times

of the day, levels of congestion, or the availability of resources such as water and cleanliness at the point of use. In high-demand urban hospitals, where patient and caregiver traffic is continuous, such fluctuations are expected, as facilities are subjected to repeated use, making it difficult to maintain consistent standards. This aligns with broader health systems evidence by Kruk, M.E. et al. (2018), which emphasizes that the experience of care is a central component of healthcare quality and is highly sensitive to environmental conditions within facilities.

The findings on waiting time further reinforce this interpretation. While a significant proportion of respondents reported little or no waiting time, a notable minority experienced delays of up to ten minutes or more. This suggests that although the number of sanitation facilities may be adequate for some users, it is insufficient to meet peak demand. In densely populated healthcare settings such as those in Accra, high patient volumes often result in congestion around shared facilities, particularly during peak service hours. This situation reflects a mismatch between infrastructure capacity and user load, a challenge commonly observed in low- and middle-income healthcare systems. According to the World Health Organization (2019), sanitation facilities in healthcare settings must be sufficient in number relative to patient volume to ensure accessibility without delays. Within the IPOM framework, this indicates that while inputs (availability of toilets) are present, they may not be adequately scaled to demand, thereby affecting outputs such as user comfort and convenience.

User perceptions of hygiene conditions also followed a similar pattern of variability, with a substantial proportion of respondents reporting neutral or poor experiences. This finding suggests that sanitation services are not consistently maintained at levels that inspire confidence among users. The inconsistency in perceived hygiene conditions likely reflects fluctuations in cleaning frequency, availability of supplies, and supervision of sanitation practices. This is consistent with

findings by Cronk, R. and Bartram, J. (2018), who note that environmental hygiene in healthcare facilities in low- and middle-income countries is often compromised by weak maintenance systems and inconsistent operational practices. Similarly, Kanyangarara, M. et al. (2021) highlight that even where sanitation infrastructure exists, the quality of hygiene services frequently varies, leading to uneven user experiences.

A particularly critical finding is the reported inability of the majority of respondents to wash their hands effectively. This is a significant concern, as hand hygiene is one of the most fundamental components of infection prevention and control. The absence of respondents reporting good handwashing ability suggests systemic deficiencies in the availability of essential inputs such as water and soap, or in the functionality of handwashing stations. This finding strongly aligns with global evidence from WHO and UNICEF (2020), which identifies limited access to hand hygiene resources as a persistent challenge in healthcare facilities in low- and middle-income countries. Furthermore, Storr, J. et al. (2017) emphasize that effective infection prevention requires not only infrastructure but also reliable access to supplies and functional systems that enable consistent hygiene practices. Within the IPOM framework, this represents a clear breakdown at the input level, which constrains processes such as handwashing and ultimately affects outcomes related to infection risk and patient safety.

The findings on staff encouragement toward hygiene practices further highlight gaps in the process dimension of sanitation service delivery. With a plurality of respondents rating staff encouragement as poor, it appears that behavioral reinforcement and institutional support for hygiene practices are insufficient. In practice, healthcare workers play a critical role not only in maintaining sanitation standards but also in promoting hygiene behaviors among patients and caregivers. Weak encouragement may therefore contribute to poor compliance with recommended

practices, even where facilities are available. This observation is supported by Storr, J. et al. (2017), who emphasize that training, supervision, and staff engagement are essential components of effective infection prevention systems. It also reflects broader implementation challenges highlighted by Peters, D.H. et al. (2013), who argue that the success of health interventions depends not only on resources but also on how effectively they are operationalized within institutional settings.

Overall satisfaction levels among respondents mirror the patterns observed across individual components of sanitation services. While a proportion of users reported satisfaction, a comparable proportion expressed dissatisfaction, with a notable share remaining neutral. This distribution suggests that user experiences are not uniformly positive and that significant gaps remain in meeting user expectations. From a user-centered perspective, satisfaction is shaped by multiple factors, including cleanliness, accessibility, privacy, and availability of resources. The mixed satisfaction levels observed in this study are therefore likely a cumulative reflection of the inconsistencies identified across these domains. This finding is consistent with Bouzid, M. et al. (2020), who found that poor sanitation conditions in healthcare facilities negatively influence patient satisfaction and perceptions of care quality. Similarly, Afulani, P.A. et al. (2019) highlight that patient experience, including environmental conditions, is a critical determinant of perceived quality and dignity in healthcare settings.

The study findings reveals that while sanitation and hand hygiene services in the selected hospitals provide a basic level of functionality, they fall short of delivering a consistently positive user experience. Within the IPOM framework, this reflects a system in which inputs (infrastructure and resources) are partially available, but processes (cleaning, supervision, behavioral support) are insufficiently optimized, leading to variable outputs in terms of hygiene conditions and user

comfort. These outputs, in turn, shape outcomes such as satisfaction, perceived safety, and trust in the healthcare environment. The findings therefore underscore the need for not only improving infrastructure but also strengthening operational processes and institutional support systems to ensure that sanitation services are both functional and user-centered.

5.4 Monitoring, Cleaning Routines and Management Practices

The findings on monitoring, cleaning routines, and management practices present a paradox of strong structural systems but weak operational effectiveness, suggesting that while formal arrangements for sanitation management are in place, their practical implementation remains inconsistent. The universal agreement among respondents that toilets are cleaned according to a fixed schedule and that cleaning staff respond promptly to sanitation issues indicates that, at a procedural level, hospitals have established routine cleaning systems. This reflects the presence of defined operational processes, which is consistent with recommendations by Storr, J. et al. (2017), who emphasize that structured cleaning routines and clear role assignments are essential components of effective infection prevention and control systems. Similarly, the World Health Organization (2019) underscores the importance of regular cleaning schedules as a fundamental requirement for maintaining hygiene standards in healthcare facilities.

However, the effectiveness of these seemingly strong processes is significantly undermined by the reported inadequacy of cleaning materials. The overwhelming majority of respondents indicating a lack of adequate materials suggests that cleaning staff may be operating under constrained conditions, limiting their ability to maintain consistent hygiene standards. In practical terms, this means that even when staff are willing and systems are in place, the absence of essential inputs such as detergents, disinfectants, and equipment compromises the quality of cleaning. This finding aligns with evidence from Cronk, R. and Bartram, J. (2018), who identify shortages of cleaning

resources as a key factor contributing to poor environmental hygiene in healthcare facilities in low- and middle-income countries. It also reflects broader systemic constraints highlighted by Kanyangarara, M. et al. (2021), where the presence of sanitation systems does not necessarily translate into effective service delivery due to limitations in supporting resources. Within the IPOM framework, this represents a critical disconnect between inputs and processes, where inadequate supplies constrain the ability of existing systems to produce desired outputs such as clean and hygienic facilities.

The findings on monitoring and supervision further reinforce this pattern of partial system functionality. The reported presence of regular supervision, established reporting systems, and clear lines of communication for reporting sanitation issues indicates that institutional monitoring structures are well defined. This suggests a level of organizational awareness and commitment to sanitation management, which is essential for maintaining accountability within healthcare settings. According to the World Health Organization (2019), effective monitoring systems, including supervision and reporting mechanisms, are critical for sustaining sanitation standards and ensuring timely identification of problems. However, the limited use of practical monitoring tools such as cleaning checklists and logs introduces a significant gap between policy and practice. Checklists are essential for standardizing cleaning procedures, tracking performance, and ensuring consistency across staff and shifts. Their absence suggests that supervision may be more informal than systematic, reducing its effectiveness.

This observation is consistent with implementation challenges described by Peters, D.H. et al. (2013), who argue that the existence of policies or systems does not guarantee effective implementation unless supported by practical tools and mechanisms that guide routine practice. Similarly, Storr, J. et al. (2017) highlight that monitoring tools are essential for translating

guidelines into consistent action, and their absence can result in variability in service delivery. Within the IPOM framework, this reflects a weakness at the process level, where monitoring exists in principle but lacks the structured tools required to ensure consistent outputs.

The findings on management practices and responsiveness further illustrate the gap between institutional commitment and operational effectiveness. While all respondents agreed that management prioritizes sanitation and encourages reporting of sanitation issues, perceptions of effectiveness were notably mixed when it came to supervision, communication, and responsiveness. The fact that nearly half of respondents questioned the effectiveness of supervision suggests variability in how supervisory roles are executed in practice. More critically, the large majority reporting delays in addressing sanitation issues indicates that response systems are not functioning efficiently. In high-demand healthcare environments, delays in resolving sanitation problems can quickly lead to deterioration of facility conditions, increased user dissatisfaction, and heightened risk of infection transmission.

These findings align with broader health systems evidence by Kruk, M.E. et al. (2018), who emphasize that the quality of healthcare services depends not only on policy commitment but on the effectiveness of implementation processes. Poor communication between management and staff, as reported in this study, further compounds these challenges by limiting coordination and timely decision-making. Effective communication is essential for ensuring that identified sanitation issues are promptly addressed and that staff are adequately supported in their roles. The observed communication gaps therefore suggest weaknesses in organizational processes that hinder the translation of management intent into action.

Within the IPOM framework, inputs such as human resources and management commitment are present, and processes such as cleaning routines and supervision are established in principle.

However, deficiencies in critical inputs (cleaning materials) and process enablers (monitoring tools, effective communication, timely responsiveness) limit the system's ability to produce consistent outputs in terms of cleanliness and functionality. These inefficiencies ultimately affect outcomes such as user satisfaction and perceived quality of care. The findings therefore highlight the need to move beyond the establishment of systems toward strengthening the practical mechanisms that ensure their effective implementation in everyday hospital operations.

5.5 Institutional and Logistical Factors Affecting Sanitation Services

The findings on institutional and logistical factors reveal that sanitation challenges within the selected hospitals are largely system-driven, reflecting constraints in resources, workforce capacity, and operational responsiveness rather than mere absence of infrastructure. Although a majority of respondents perceived cleaning materials to be adequately available, the presence of a substantial proportion reporting inadequacy suggests inconsistency in supply. In practical terms, this may indicate irregular procurement, uneven distribution across departments, or stock depletion during peak usage periods. Such variability is consistent with broader evidence from Cronk, R. and Bartram, J. (2018), who highlight that sanitation performance in healthcare facilities is often constrained by unstable supply systems, where materials may be available at certain times but not consistently sustained. This reinforces the argument that sanitation effectiveness depends not only on the presence of resources but on their continuous availability, a point also emphasized by the World Health Organization and UNICEF (2020) in their assessment of WASH services in healthcare facilities.

The findings on water reliability further underscore this inconsistency, with respondents evenly divided on whether water supply is dependable. This suggests that water access is not uniformly guaranteed, which poses a significant challenge for sanitation and hygiene practices. In healthcare

settings, reliable water supply is foundational to virtually all sanitation processes, including toilet functionality, cleaning, and hand hygiene. Intermittent water access therefore disrupts multiple components of the sanitation system simultaneously. This aligns with evidence from Kanyangarara, M. et al. (2021), who found that water availability remains one of the most inconsistent elements of WASH services in sub-Saharan African health facilities, even where infrastructure exists. Within the IPOM framework, unreliable water supply represents a critical weakness at the input level, which directly constrains processes such as cleaning and handwashing, ultimately affecting outputs in terms of facility hygiene and usability.

Maintenance responsiveness emerged as a particularly significant concern, with a clear majority of respondents indicating delays in addressing sanitation-related faults. In practical terms, delayed maintenance means that broken toilets, leaking pipes, or malfunctioning handwashing stations may remain unusable for extended periods, thereby reducing overall facility functionality. In high-traffic hospital environments, such delays can rapidly escalate into broader sanitation problems, as users are forced to rely on fewer functional facilities, increasing congestion and accelerating deterioration. This finding reflects broader systemic challenges identified by Leslie, H.H. et al. (2017), who note that infrastructure effectiveness is heavily dependent on timely maintenance and operational support systems. It also aligns with the perspective of Kruk, M.E. et al. (2018), who argue that health system quality is undermined when service delivery systems fail to respond promptly to operational challenges.

The reported institutional challenges provide further insight into the underlying drivers of these issues. The prominence of inadequate cleaning staff as the most frequently cited challenge suggests that human resource capacity is a major constraint. In environments characterized by high patient volumes, insufficient staffing means that cleaning routines may not be performed as frequently or

as thoroughly as required. This contributes directly to the inconsistencies in cleanliness observed in earlier findings. This observation is consistent with Storr, J. et al. (2017), who emphasize that adequate staffing is essential for maintaining environmental hygiene and ensuring effective infection prevention practices. Similarly, the identification of weak supervision and inadequate toilet facilities highlights the interconnected nature of institutional constraints, where limitations in both human resources and infrastructure combine to affect overall service quality.

Financial constraints, as reflected in the reported lack of funding, further compound these challenges. In many healthcare settings, sanitation services are often under-prioritized in budget allocation compared to clinical services, resulting in insufficient investment in cleaning materials, infrastructure maintenance, and workforce expansion. This aligns with broader health systems evidence presented by Kruk, M.E. et al. (2018), which underscores the importance of adequate resource allocation for achieving quality healthcare outcomes. Moderate challenges such as water shortages, lack of cleaning materials, and high patient load further illustrate how multiple system pressures interact to affect sanitation performance. In particular, high patient load—typical of urban hospitals in Accra—intensifies the demand on existing facilities, accelerating wear and increasing the frequency of required cleaning and maintenance.

Interestingly, factors such as poor staff attitude were reported less frequently, suggesting that the challenges are less about individual behavior and more about systemic constraints. This distinction is important, as it shifts the focus of intervention from behavioral change alone to broader institutional strengthening. This perspective is supported by Peters, D.H. et al. (2013), who argue that health system performance is largely determined by structural and organizational factors rather than individual-level behaviors alone.

The findings on training and system strengthening further reinforce the importance of institutional capacity. While a proportion of respondents reported recent training in infection prevention and control, a notable share had not received any training, indicating gaps in capacity building. Training is essential for ensuring that staff are equipped with the knowledge and skills required to maintain sanitation standards and adhere to hygiene protocols. According to Storr, J. et al. (2017), continuous training and education are critical components of effective infection prevention systems, enabling staff to implement best practices consistently. The identification of increased funding as the most commonly suggested intervention further highlights the central role of financial resources in addressing sanitation challenges. Investments in materials, infrastructure, water systems, and training are all dependent on adequate funding, making it a foundational requirement for system improvement.

Based on the study's findings, challenges in the selected hospitals are driven by interrelated institutional and logistical constraints, including resource limitations, workforce shortages, infrastructure gaps, and weak operational responsiveness. Within the IPOM framework, these challenges primarily reflect weaknesses at the input level (funding, staffing, materials, water supply), which in turn constrain processes such as cleaning, supervision, and maintenance. These process inefficiencies lead to suboptimal outputs in terms of facility functionality and cleanliness, ultimately affecting outcomes such as user satisfaction and perceived quality of care. Addressing these challenges therefore requires a systems-oriented approach that strengthens not only infrastructure but also the institutional mechanisms that support effective sanitation service delivery.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This chapter presents the overall conclusions drawn from the study based on the key findings and provides recommendations aimed at improving sanitation and hand hygiene services in healthcare facilities. The conclusions synthesize the major issues identified across all objectives, while the recommendations propose practical and context-specific interventions to address the gaps identified in the study.

6.2 Conclusion

The study found that sanitation and hand hygiene services in the selected hospitals are characterized by partial functionality and inconsistent performance. Although basic infrastructure such as toilets and handwashing facilities is largely available and accessible, significant gaps exist in cleanliness, resource availability, and maintenance, limiting their effective use. The findings indicate that sanitation facilities are not consistently maintained at acceptable standards, with variability in hygiene conditions, presence of unpleasant odours, and inadequate availability of essential supplies such as water, soap, and tissue.

User experiences further highlight these gaps, with mixed levels of comfort and satisfaction reported among patients and caregivers. A considerable proportion of respondents expressed dissatisfaction with sanitation conditions, particularly in relation to hygiene, waiting times, and the ability to wash hands effectively. These findings suggest that sanitation services, while present, do not consistently meet user expectations for quality, safety, and dignity.

In terms of management and operational processes, the study found that structured systems such as cleaning schedules, supervision, and reporting mechanisms are in place. However, these systems are undermined by practical challenges, including inadequate cleaning materials, limited use of monitoring tools, ineffective communication, and delays in addressing sanitation issues. This reflects a gap between policy and implementation, where institutional commitment does not always translate into effective service delivery.

Institutional and logistical factors, including inadequate staffing, inconsistent water supply, limited funding, and weak maintenance responsiveness, were identified as key constraints affecting sanitation performance. These challenges indicate that sanitation issues are largely systemic and require comprehensive interventions that address both resource availability and operational efficiency.

Generally, the findings suggest that improving sanitation and hand hygiene services in healthcare facilities requires a **systems-oriented approach** that strengthens inputs, optimizes processes, and enhances service delivery outcomes to ensure safe, hygienic, and user-centered healthcare environments.

6.3 Recommendations

1. Hospital management, in collaboration with the Ghana Health Service and the Ministry of Health Ghana, should establish a dedicated supply chain system to ensure the continuous availability of water, soap, tissue, and cleaning materials in all sanitation facilities. This should include routine stock monitoring, buffer stock policies, and accountability systems at departmental levels. This intervention should target facility managers, procurement units, and sanitation staff to ensure that essential inputs required for hygiene are consistently available across all hospital units.

2. Healthcare facilities should improve the design and positioning of sanitation facilities to enhance user comfort, privacy, and accessibility. This includes clear signage, gender-sensitive facilities, functional locks, and adequate spacing to reduce congestion and waiting times. This intervention should target hospital planners, facility managers, and administrators, ensuring that sanitation services are responsive to the needs of patients and caregivers, particularly vulnerable groups such as the elderly and persons with disabilities.
3. Hospital management should establish clear communication channels and rapid response systems for addressing sanitation-related issues. This may include designated reporting lines, feedback mechanisms, and defined response timelines for maintenance and cleaning interventions. This should target hospital administrators, maintenance teams, and frontline staff to ensure timely resolution of sanitation challenges and improve coordination between management and operational staff.
4. Hospitals should recruit additional sanitation staff and provide regular training and refresher programs on infection prevention and sanitation management. Training should focus on proper cleaning techniques, use of materials, and adherence to hygiene standards. This intervention should be coordinated by hospital management in collaboration with the Ghana Health Service, targeting cleaning staff, supervisors, and healthcare workers to enhance capacity and improve overall sanitation performance.

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