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Food service managers' views on food safety systems in Gauteng public hospitals

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Background: The food safety management system (FSMS) emphasizes rigorous supplier vetting, temperature monitoring and first-in-first-out inventory systems; however, structural inefficiencies and resource limitations often compromise food safety outcomes in public hospitals' food services.

Aim: The study aimed to explore the food service managers' views regarding FSMS utilised in procurement systems in Gauteng public hospitals.

Setting: Gauteng's public hospitals are a mix of district, regional and specialised hospitals, with a growing focus on expanding healthcare infrastructure and addressing challenges like personnel shortages and infrastructure issues.

Methods: A qualitative approach was utilised to explore the views of hospital food service regarding the food procurement in FSMS used in Gauteng public hospitals.

Results: The findings indicate that food service managers view the receiving stage as pivotal for ensuring food safety. The emphasis on temperature checks, labelling, traceability and transportation conditions reflects a commitment to mitigating risks before raw materials enter the hospital's inventory.

Conclusion: The study highlights the need for targeted interventions, including supplier training, standardised protocols, infrastructure investment and policy reforms, to align procurement practices with food safety standards. By addressing these gaps, Gauteng public hospitals can strengthen FSMS implementation, mitigate foodborne risks and safeguard vulnerable patient populations.

Contribution: This research contributes to the broader discourse on food safety in healthcare by underscoring the interplay between policy, practice and resource allocation in low-resource settings.

Keywords: food procurement; hospitals; food safety management systems, food quality; foodborne illnesses; HACCP.

Introduction

A food safety management system (FSMS) is a critical framework designed to ensure the safety and quality of food throughout the sourcing, procurement, preparation and distribution. This system is vital in healthcare settings, such as public hospitals, where patients may have weakened immune systems or specific dietary needs. Food safety management system is essential for preventing foodborne illnesses and safeguarding patients' health (Food and Agriculture Organisation [FAO] & World Health Organisation [WHO] 2003). Implementing this system follows the internationally recognised standards, such as Hazard Analysis and Critical Control Points (HACCP), Good Manufacturing Practices (GMP) and ISO 22000. These international standards are intended to minimise food contamination risks (Festivalia et al. 2023). However, the effectiveness of this system depends heavily on the knowledge, attitudes and practices of food service managers (FSMs) who oversee food procurement and preparation.

In 2010, the WHO estimated that 600 million foodborne illnesses occurred globally, resulting in 420 000 deaths. Alarmingly, fewer than 10% of foodborne illness cases are reported, with less than 1% of cases reported in developing countries (Dufailu et al. 2021). In Africa, statistics show approximately 91 million cases of foodborne illnesses, leading to 137 000 deaths (Lee & Yoon 2021). In response to these concerns, Lee and Yoon (2021) emphasise that growing public awareness of food safety has been a key driver in the development and strengthening of global food safety

regulations, focusing on controlling contamination at its source and ensuring accountability throughout the food handling process.

In South Africa, *the Foodstuffs, Cosmetics and Disinfectants Act 54 of 1972* regulates the sale, manufacture and importation of foodstuffs, cosmetics and disinfectants. The Act includes 50 sets of regulations, including Regulation 638, which specifically addresses the general hygiene requirements for food premises and the transportation of food (National Department of Health 2018). This regulation outlines requirements for food handling, health approvals and certification to prevent foodborne illness, emphasising compliance through its requirements for public and private food service industries. It includes detailed guidelines on various aspects of food safety during food procurement, such as sourcing, acquiring and paying for food, as well as receiving, storing and issuing food raw materials for production processes.

Food safety is not just a global public health concern; it's a pressing emergency. The WHO (2025) reports that a staggering 600 million people fall victim to foodborne illnesses annually, leading to approximately 420 000 deaths. What is even more alarming is that food service establishments are implicated in up to 70% of these cases (WHO 2015), underscoring their pivotal role in the spread of foodborne diseases.

South Africa is not immune to these global trends, with numerous outbreaks originating from institutional food service settings, particularly hospitals (Sibanyoni & Tabit 2017). These outbreaks are often a result of substandard procurement practices, improper storage, inadequate handling, cross-contamination and insufficient refrigeration (Kaskela, Sund & Lundén 2021; ed. Motarjemi 2013). Despite existing regulations, persistent noncompliance with food safety standards remains a significant challenge, particularly in public sector institutions, with severe consequences.

The enforcement of food safety regulations plays a vital role in mitigating these risks. Dundes and Swann (2008) argue that food safety policies are not just administrative procedures but essential public health safeguards. However, studies indicate that food service operations continue to pose significant threats to food safety (Henson et al. 2006). This issue is further compounded in South Africa by underreporting, which hampers efforts to accurately monitor and respond to outbreaks (Sibanyoni & Tabit 2017). Common contributors such as poor refrigeration, inadequate storage and cross-contamination persist, especially in high-risk environments like hospitals (Deflorio et al. 2021).

Food service managers play a central role in upholding food safety within hospital settings. In Gauteng, FSMs oversee large-scale food operations catering to thousands of patients daily. Safe and efficient procurement is critical to meeting nutritional needs without compromising patient health. However, research highlights multiple systemic challenges; FSMs often operate under constrained budgets, lack sufficient training and receive limited regulatory oversight (eds. Lelieveld & Motarjemi 2013). The shortage of qualified personnel, including dietitians and trained FSMs, further exacerbates food safety risks (Osaili, Al-Nabulsi & Krasneh 2017; Satcher 2000).

Cultural and organisational dynamics also influence FSMs' attitudes and practices. Nyarugwe et al. (2020) suggest that traditional food practices, cultural beliefs and risk perceptions significantly impact food safety behaviours. These dimensions should be integrated into training programmes to foster compliance across diverse food service environments.

Despite their pivotal role, FSMs' perspectives on FSMS, especially concerning procurement, are underrepresented in the literature. Understanding how FSMs navigate these systems is not only important but also crucial for developing effective interventions and evidence-based policies tailored to hospital settings. There is an urgent need for focused research to explore the practical realities FSMs face and to identify pathways to strengthen food safety protocols within healthcare institutions.

Public hospitals in Gauteng face unique challenges in implementing robust FSMS. Limited financial and human resources, high patient volumes and diverse dietary requirements complicate food service operations (Sibanyoni & Tabit 2017). Administrative inefficiencies, outdated infrastructure and limited access to digital systems further hinder consistent and safe procurement practices. Food service managers must ensure compliance with national food safety legislation, such as the *National Health Act* and the *Foodstuffs, Cosmetics and Disinfectants Act* (National Department of Health 2014), while juggling the complexities of daily operations.

Significant implementation gaps persist, particularly in resource-limited settings. Inadequate controls, lack of data and misconceptions about food safety contribute to recurring outbreaks, resource wastage and financial losses (Dlamini & Adetunji 2023). Procurement, the first line of defence against contaminated food, is particularly vulnerable. Unsafe ingredients can compromise entire supply chains, especially in environments with immunocompromised patients (Kamboj et al. 2020).

Effective procurement depends on supplier compliance, rigorous monitoring and clear quality control measures. However, FSMs in Gauteng often face barriers in enforcing supplier standards because of resource limitations, ambiguous guidelines and weak enforcement mechanisms (Dlamini & Adetunji 2023). Without strong institutional support, FSMs rely heavily on their understanding of food safety, raising concerns when formal training is lacking.

Many FSMs lack specialised qualifications, and their promotions are often based on experience rather than academic credentials. This lack of formal education means critical food safety principles, such as HACCP, microbiology,

allergen control and regulatory knowledge, may not be systematically understood or applied. Consequently, this undermines the effective implementation of FSMS and increases the risk of noncompliance (Sibanyoni & Tabit 2017).

Infrastructure-related constraints further complicate adherence to best practices. Old or malfunctioning equipment, staff shortages and the absence of updated training protocols make it difficult for FSMs to meet required standards (Dlamini & Adetunji 2023). Additionally, cultural attitudes and workplace dynamics influence how FSMs perceive and prioritise food safety, directly impacting their decisions (Gbenda & Idris 2024).

Research on barriers to FSMS implementation reveals a range of challenges. Escanciano and Santos-Vijande (2014) studied 189 ISO 22000-certified Spanish firms and found low uptake because of misconceptions about its necessity, lack of familiarity and concerns over cost. Although not specific to healthcare, these findings are relevant to understanding how knowledge and resource constraints affect the adoption of FSMS, especially in underresourced settings such as South Africa (WHO 2022).

Hospital-based research supports these findings. In an Australian study, Carino et al. (2021) identified substandard food safety practices, poor communication, low prioritisation of food safety and inadequate funding as critical obstacles. They recommended supply chain overhauls, leadership commitment and enhanced knowledge sharing to address these issues. Listening to those directly involved in food service operations provides practical and actionable insights. Dąbrowska et al. (2021) found that FSMs in European hospitals often struggle to balance cost-effectiveness with safety, sometimes resulting in quality compromises. Their research underscores the importance of effective communication among FSMs, suppliers and regulators to ensure consistent food safety compliance.

This study aims to address a critical gap by examining the experiences and perspectives of FSMs regarding FSMS in public hospitals across Gauteng. It focuses on how FSMs perceive and carry out their responsibilities, the challenges they face and their practices, particularly in relation to food procurement, hygiene and overall food safety. Understanding these insights is essential, as previous research has shown that FSMs' perceptions of risk and efficacy significantly influence their adherence to safety protocols (Evans et al. 2021). By centring FSMs' voices, this research explores their views on FSMS implementation and procurement practices. It aims to generate practical recommendations that could potentially revolutionise food safety policies and support systems within hospital settings, offering hope for a safer future.

Research methods and design

Study design

This study used a qualitative approach to explore the FSMs' views regarding FSMS utilised in food procurement in Gauteng public hospitals.

Study population and sampling strategy

Thirty-seven hospitals (4 academic hospitals, 13 district hospitals, 2 provincial hospital institutions, 8 regional institutions, 2 tertiary institutions and 6 specialised institutions) and 35 FSMs were targeted for this study.

A stratified simple random sampling was used to select hospitals for this study. Hospitals were grouped into six homogeneous subpopulations (strata) based on their specific characteristics and randomly selected from each stratum using a list obtained from the Provincial Department of Health. Using a stratified random sampling method ensured that key subgroups of the study population are represented in the sample, increasing the relevance and depth of insights from each subgroup. This technique helped avoid bias, enhanced comparability between different groups and allowed researchers to gain a more nuanced understanding of phenomena by capturing variations that might be missed with other methods, especially when studying diverse populations. Two tertiary hospitals, three specialist hospitals, one provincial hospital, four regional hospitals, nine district hospitals and two academic hospitals were selected for this study. A purposive (nonprobability) sampling strategy was used to select FSMs managing food service units in different Gauteng public hospitals who met this study's selection criteria. Food service managers were selected based on their qualifications and responsibilities in managing the food service unit to ensure they could provide information relevant to the study's objectives. Twenty-two FSMs participated in this study (Table 1).

Data collection

A semi-structured interview schedule with 12 open-ended questions was used to conduct private interviews with each FSM. The interview schedule focused on issues such as food

TABLE 1: Study participants.

Hospital name	Hospital	Municipality metropolitan	Sampled FSM	FSMs participated
Helen Joseph	Tertiary	Johannesburg	1	1
Odi	District	Moretele Local	1	1
Charlotte Maxeke	Academic	Johannesburg	2	1
Cullinan Care and Rehab	Specialist	Tshwane	1	1
Dr George Mukhari	Academic	Tshwane	3	1
Dr Yusuf Dadoo	District	West Rand	1	1
Kalafong	Tertiary	Tshwane	3	2
Steve Biko	Academic	Tshwane	4	3
Pretoria West	District	Tshwane	1	1
Sebokeng	Regional	Emfuleni Local	1	1
Rahima Moosa	Regional	Johannesburg	1	1
Masakhane Cook Freeze	Provincial	Tshwane	3	2
Mamelodi	Regional	Tshwane	1	1
Chris Hani Baragwanath	Academic	Johannesburg	2	1
Tembisa	Tertiary	Ekurhuleni	1	1
Weskoppies	Psychiatric	Tshwane	1	1
Kopanong	District	Emfuleni Local	1	1
Bertha Gxowa	District	Ekurhuleni	1	1
Total	**18**	-	**37**	**22**

FSM(s), food service manager(s).

procurement practices, menu planning, budgeting, staff training and challenges in food service delivery. Prior to visiting the hospitals, the researcher secured appointments with the relevant FSMs and requested a private room for conducting the interviews, ensuring the privacy and confidentiality of the information provided by the participants. Data were collected from FSMs in sampled public hospitals from 15 January 2024 to 28 February 2024 using face-to-face interviews. The interviews were audio-recorded for later transcribing. A pilot study was conducted as a preparatory phase to minimise researcher bias. This allowed the researcher to refine interview protocols, test the clarity and consistency of questions and practice interviewing in a controlled setting. Feedback from pilot participants helped to identify unclear phrasing, procedural flaws and elements that may inadvertently influence responses. Also, structured interviews with predefined, open-ended questions were used to limit interviewer bias by standardising the format across participants. Before data collection, comprehensive researcher training was conducted, focusing on recognising and avoiding assumptions, stereotypes and the influence of nonverbal cues such as appearance or body language. The researcher was also trained to maintain a neutral, nonjudgemental demeanour, pose nonleading questions and foster an open and inviting environment that encourages honest and detailed responses. Additionally, the researcher was trained to emphasise behavioural questions and to maintain consistent, objective note-taking, which helped to prevent subjective interpretation.

Trustworthiness

Four primary criteria were applied to ensure the trustworthiness of this study, as detailed below:

Transferability

The researcher used an audio recorder to record the FSMs' responses to the semi-structured interview questions, focusing on providing rich descriptions of the research context, methods and findings, allowing verifiers to assess the applicability of the researcher's findings to their situations.

Dependability

To achieve dependability, the study's findings were evaluated, a detailed track record of the data collection process was developed, detailed drafts of the study protocol were developed throughout the study and weekly meetings were maintained to review data collection processes, compare interpretations among the researchers and resolve discrepancies, thereby ensuring that the findings remained consistent and stable throughout the study period.

Confirmability

To ensure confirmability in this study, the researcher met weekly with the study's academic supervisors to discuss data analysis. After data collection, reflections from the researcher and supervisors were acquired in written and verbal formats.

Data analysis

Data were transcribed verbatim. Thematic analysis – a method commonly used to denote a collection of texts, such as an interview or transcripts – was used to analyse the qualitative data for this study. The researcher meticulously examined the data to identify recurring themes, subjects, ideas and patterns of meaning. The researcher followed the approach recommended by Ahmed et al. (2025), which includes the following steps:

Step 1: Familiarisation with the data

The researcher listened to interview recordings multiple times, transcribed the audio verbatim and reviewed it for clarity. They documented insights, reflective thoughts and potential codes or themes to guide the analysis.

Step 2: Data coding

The transcribed data were coded to summarise and classify the information, highlighting recurring patterns using methods like abbreviating key phrases, numbering and colour shading.

Step 3: Data exploration

The coded data were explored to identify themes based on FSMs' responses. The frequency of similar responses helped organise the data, create diagrams and map connections between themes. Coded data were grouped into preliminary themes based on the frequency and consistency of comparable responses. Connections between themes were mapped to identify relationships and hierarchies.

Detailed notes were maintained to track these themes' development and alignment with the study's objectives.

Step 4: Examining the themes

The relevance and significance of each theme were evaluated with the study's objectives. Alternative interpretations were explored to ensure a comprehensive understanding of FSMs' perceptions.

The researcher assessed the relevance of themes to the study's objectives, exploring alternative interpretations and developing an overall picture of FSMs' perceptions of food safety implementation in Gauteng public hospitals.

Step 5: Naming and defining the themes

The final themes were named and defined to provide clarity and coherence while aligning with the study's objectives. The following themes emerged:

- Supplier Qualification and Compliance: Exploring the rigorous processes used to vet suppliers, including adherence to HACCP, GMP and ISO standards, as well as challenges posed by Broad-Based Black Economic Empowerment (BBBEE) suppliers.
- Receiving and Inspection: Highlighting the importance of protocols such as temperature checks, labelling and traceability, as well as the risks associated with noncompliant transportation and goods.

- Storage and Infrastructure Challenges: Addressing the gap between best practices (e.g. first-in-first-out [FIFO] systems, temperature control) and the realities of outdated or inadequate storage facilities.
- Procurement Processes and Challenges: Examining the role of procurement departments, site inspections and the impact of systemic issues, such as lack of training and contractor noncompliance.

Each theme was clearly defined to reflect its contribution to understanding FSMs' views on FSMS in Gauteng public hospitals.

Step 6: Reporting the themes

Themes were systematically organised and presented following the thematic assessment. Data saturation was achieved through iterative analysis of each interview, with new codes and themes added until no further patterns emerged, consistent with the approach recommended by Naeem et al. (2023).

The researcher compiled field notes on observations made during each interview in addition to recording the interview. This structured approach ensured a rigorous and comprehensive analysis of the qualitative data, providing deep insights into the experiences and perceptions of FSMs regarding food safety and hygiene practices in public hospitals.

Ethical considerations

All participants gave their informed consent before participating in the study. The study was conducted per the Declaration of Helsinki, and the protocol was approved by Tshwane University of Technology's Faculty of Management Sciences with an ethical clearance certificate (FCRE2022/09/008-MS [2]).

Results

Participants' demographic information

Four (20%) males and 18 (81%) females participated in this study (Table 2).

This study explored the views of FSMs on FSMS in food procurement within Gauteng public hospitals. Through thematic analysis, four key themes emerged: Sourcing and Supplier Qualification, Supplier Compliance and Relationships, Receiving and Inspection and Storage and Infrastructure Challenges. These themes highlight the processes, challenges and opportunities in ensuring food safety during procurement.

TABLE 2: Participants' demographic information.

Characteristics	*n*	%
Male	4	18
Females	18	82
41–50 years	11	52
51–60 years	9	43
61+ years	1	5
National diploma	18	82
B-tech	3	13
Postgraduate diploma	1	5
7–9 years of experience	10	45
> 10 years of experience	12	55

Theme 1: Sourcing and supplier qualification

Sourcing high-quality raw materials emerged as a foundational yet challenging aspect of procurement. Food service managers identified several practices they believed were important to ensure that the raw materials procured were free from contaminants. For example, participants identified the importance of supplier compliance with food safety standards, such as HACCP, GMP and International Organization for Standardization (ISO) certifications (P3, P4, P15 and P21). Supplier selection criteria included evaluations of certifications, regulatory compliance and food safety records (P3). One participant said:

> 'Suppliers are assessed based on several factors, including their compliance with food safety regulations and their track record of delivering safe products.' (Participant 11, Female, 41–50 years)

Participants also identified several challenges in this process. It emerged that the bulk of the work associated with identifying suppliers was conducted by the Department of Health personnel, with one participant stating the following:

> 'Site inspections are conducted by the Department of Health before contracts are awarded to ensure that all facilities meet stringent health and safety standards. These inspections are thorough and cover various aspects of the food handling and preparation processes to ensure compliance with local, state, and federal regulations. Inspectors evaluate the cleanliness and sanitation of the premises, the condition and maintenance of equipment, and the hygiene practices of the staff. They also check for proper food storage, preparation, and serving procedures, ensuring that food is kept at safe temperatures and protected from contamination.' (Participant 1, Female, 41–50 years)

However, though the participant felt the assessments were thorough, one participant felt otherwise:

> 'Currently, the procurement department is solely responsible for handling this process. However, there is a lack of education and training regarding the procedures that need to be followed. This situation creates a gap in understanding and compliance, as team members may not be fully aware of the specific protocols and standards that should be adhered to throughout the procurement process.' (Participant 10, Female, 41–50 years)

The participant felt that the quality of raw materials procured is not always of the best standards, safety-wise, as the members of the procurement team do not have a firm grasp of some of the issues that must be addressed to reduce the risk of food contamination.

Another challenge that emerged from the interviews is that procurement teams are forced to engage certain suppliers, even though they were unsure of the quality of their services. The engagement of BBBEE suppliers sometimes resulted in inconsistent quality. As one of the male FSM stated:

> 'It is very difficult as the BBE buys unknown brands, and mostly the quality is not satisfactory.' (Participant 2, Male 41–50 years)

This is consistent with a female FSM P13 comments, who stated:

> 'We make efforts to source high-quality ingredients for our meals. However, there are times when we experience variability in ingredient quality due to supplier issues or procurement challenges.' (Participant 13, Female, 41–50 years)

These comments depict the challenges faced in raw material procurement because of the BBBEE policy, ensuring consistent food quality. These comments also suggest that current supplier qualification processes may not adequately address the capabilities of BBBEE suppliers, leading to gaps in food safety.

Another challenge identified from the data collected was that financial constraints also led to compromises in raw material quality. A participant stated that:

> 'Budget constraints are taken into account when planning menus and purchasing ingredients, but there are occasional compromises on ingredient quality or menu variety due to financial limitations.' (Participant 12, Female, 41–50 years)

Theme 2: Supplier compliance and relationships

Food service managers emphasised supplier compliance with rigorous food safety standards, particularly HACCP protocols. One participant noted:

> 'Suppliers are typically required to adhere to HACCP standards, ensuring comprehensive food safety measures are in place throughout their production processes.' (Participant 16, Male, 41–50 years)

Contracts with suppliers often include specific clauses mandating compliance with GMP, HACCP principles and other regulatory requirements. As one FSM explained:

> 'Contracts with food suppliers include clauses outlining specific quality and safety requirements that suppliers must adhere to. These requirements include compliance with GMP, HACCP principles, and regulatory standards. Suppliers are contractually obligated to meet these requirements to maintain their partnership with the hospital.' (Participant 4, Female, 51–60 years)

Despite these formal mechanisms, FSMs reported significant challenges with noncompliant suppliers, particularly within the BBBEE framework. For example:

> 'With the system of BBE, it is difficult to ensure compliance, and it is also the role of SCM [*Supply Chain Management*] to ensure compliance, but as the end user, we are experiencing challenges.' (Participant 2, Male, 41–50 years)

This highlights a disconnect between policy mandates and practical implementation, as FSMs often dealt with suppliers who failed to meet the required standards, despite contractual obligations. Insufficient oversight and enforcement mechanisms further compounded the issue.

Improving communication and training of suppliers were identified as key priorities to bridge compliance gaps. One participant stated:

> 'Establishing clear communication channels with suppliers regarding expectations for quality and safety standards. Providing training to suppliers on specific requirements or procedures can also enhance compliance.' (Participation 17, Female, 41–50 years)

Participants also highlighted the importance of regular audits and assessments to verify supplier compliance. Participant 19 stated:

> 'Conduct regular audits of suppliers to verify their adherence to agreed-upon standards. These audits can be scheduled or surprise checks to ensure compliance.' (Participant 19, Female, 41–50 years)

Additionally, FSMs emphasise the need for thorough documentation and traceability to hold suppliers accountable. As one participant noted:

> 'Suppliers must maintain thorough documentation and traceability records for all products. This includes tracking the origin of raw materials, production processes, and distribution channels. Proper documentation ensures transparency and accountability.' (Participant 22, Female, 51–60 years)

Theme 3: Receiving and inspection

The receiving stage emerged as a critical juncture for mitigating food safety risks, with FSMs emphasising the importance of temperature checks, proper labelling, traceability and transportation conditions. These practices were considered essential safeguards to ensure that raw materials met safety standards upon arrival.

One participant highlighted the need for structured protocols during receiving, stating:

> 'Temperature checklist should be implemented, FIFO method, food labelling.' (Participant 9, Male, 41–50 years)

This comment underscores the importance of systematic processes in maintaining food safety. Temperature monitoring ensures that perishable items remain within safe limits, while the FIFO method minimises the risk of spoilage by prioritising older stock. Proper labelling further supports traceability and accountability, ensuring that all items can be tracked from source to storage (Gazeau et al. 2024).

Suppliers were also expected to maintain thorough documentation to track the origin and handling of raw materials. As one FSM noted:

> 'Suppliers must maintain thorough documentation and traceability records for all products. This includes tracking the origin of raw materials, production processes, and distribution channels.' (Participant 22, Female, 51–60 years)

This emphasis on traceability highlights the need for transparency in the supply chain, allowing FSMs to verify

compliance with safety standards and quickly address any issues.

Transportation conditions were another key focus, with FSMs scrutinising how goods were delivered. Participant 8 said:

> 'The supplier must have a closed vehicle, not an open bakkie. Vegetables and meat should be transported with a vehicle with fridge and the temperature should be recorded.' (Participant 8, Female,-51–60 years)

This comment reflects concerns about contamination and spoilage during transit. Refrigerated vehicles and temperature logs are crucial for maintaining the quality of perishable goods, especially in a hospital setting where patient health is at risk (AlMesbah et al. 2025).

Also, FSMs emphasised the importance of inspecting received goods to identify defects or noncompliance. Participant 11 alluded:

> 'Measures in place to ensure that food raw materials are received free from defects that can result in food contamination.' (Participant 11, Female, 51–60 years)

This highlights the proactive steps FSMs take to reject substandard items and prevent potential hazards from entering the food preparation process.

A participant reinforced the significance of internal audits during the receiving:

> 'Regular inspections and audits. Internal audits by hospital management to ensure compliance with standards. These inspections cover food storage areas, cooking equipment, cleanliness, and staff compliance with hygiene protocols.' (Participant 9, Male, 41–50 years)

These audits ensure consistency and adherence to safety standards, fostering a culture of accountability within the hospital's food service operations (Young & Smith 2025).

Theme 4: Storage and infrastructure challenges

The procurement process does not end with receiving goods from suppliers; proper storage is equally critical to maintaining food safety and quality. Failure to store items appropriately can negate the positive impacts of earlier procurement processes, such as supplier qualification and receiving inspections. While some participants demonstrated awareness of best practices for food storage, significant challenges related to infrastructure limitations were repeatedly highlighted.

Participant 7 emphasised the importance of adhering to best practices in food storage, stating:

> 'Raw materials and ingredients are packaged in suitable containers or packaging materials designed for freezing. Monitoring systems are in place to track freezer temperatures and ensure they stay within the recommended range. All containers of frozen raw materials and ingredients are labelled with clear and accurate information, including the name of the item, date of preparation, and any relevant instructions for use.' (Participant 7, Female, 41–50 years)

This comment demonstrates a thorough understanding of proper storage protocols, including the use of appropriate packaging, temperature monitoring and clear labelling. However, despite this awareness, participants reported that outdated or inadequate infrastructure often hindered their ability to implement these practices effectively.

For example, Participant 11 denoted:

> 'FSMs are expected to perform miracles with old, dilapidated structures and comply with standards.' (Participant 11, Female, 51–60 years)

This statement highlights the disparity between theoretical best practices and the practical realities that FSMs encounter in public hospitals. Other participants further corroborated the issue of poor infrastructure. For instance, participants said:

> 'Outdated equipment.' (Participant 20, Female 41–50 years)

> 'Delayed refrigerator repairs and failure to replace damaged equipment.' (Participant 21, Female, 41–50 years)

> 'Timely maintenance and repair of food service equipment is neglected.' (Participant 9, Male, 41–50 years)

Additionally, participants emphasise the importance of adhering to storage protocols to preserve food quality and safety. Participant 12 mentions:

> 'Storage protocols are adhered to: Preservation of food quality: Proper storage protocols help preserve the freshness, flavour, and nutritional content of raw materials and ingredients.' (Participant 12, Female, 41–50 years)

Despite this recognition, inadequate infrastructure often forces FSMs to work in suboptimal conditions. For instance, Participant 14 stated:

> 'Lockable and safe storage areas are utilised to ensure the security and proper handling of food, raw materials, and ingredients. The storage areas are kept clean and sanitised regularly to prevent contamination. Shelving and containers are also regularly inspected and cleaned to ensure a hygienic environment. Storage areas are equipped with temperature control systems to maintain the appropriate conditions for different types of food. This helps in preserving the quality and safety of the ingredients.' (Participant 14, Male, 41–50 years)

While this highlights the ideal scenario, many FSMs struggled to achieve these standards because of structural and resource constraints.

Participants also emphasised the importance of inventory management practices, such as the FIFO system, to minimise spoilage. A participant explained:

> 'Implementing a FIFO system to ensure older stock is used before newer stock, minimising the risk of using expired or spoiled ingredients.' (Participant 15, Male, 41–50 years)

However, even effective systems like FIFO are undermined when storage conditions are compromised by poor infrastructure. For example, temperature fluctuations in unreliable refrigerators can lead to spoilage, regardless of how well inventory is managed (Tufa & Tebeka 2025).

Operational challenges and budget constraints

Operational challenges, particularly budget constraints, further complicate the raw material procurement processes, making FSMS implementation more challenging. Participants noted that financial limitations often force decision-makers to compromise the quality of ingredients procured. For example:

> 'Budget constraints are taken into account when planning menus and purchasing ingredients, but there are occasional compromises on ingredient quality or menu variety due to financial limitations.' (Participant 12, Female, 41–50 years)

Discussion

The findings emphasise the tension between the need for stringent supplier compliance and the practical challenges of enforcing these standards. While contracts and certifications, such as HACCP and GMP, provide a strong framework for ensuring food safety, systemic issues hinder effective implementation, particularly within the BBBEE framework. Noncompliant suppliers pose significant risks to food safety, as FSMs often lack the authority or resources to address these gaps directly. This reflects controversy between the policy objectives of economic inclusivity and the practical realities of maintaining consistent food safety standards.

The reliance on BBBEE suppliers often results in ingredient quality variability, compromising meal consistency and patient health outcomes. Participants also need improved communication, training and audits to bridge compliance gaps. These findings suggest that while contractual obligations and regulatory frameworks are in place, their enforcement remains inconsistent (Mkhwanazi, Camilla & Korsten 2024). Strengthening supplier relationships through capacity-building initiatives and regular monitoring could mitigate these challenges and enhance overall compliance (Cooper 2024).

Receiving and inspection protocols

The receiving stage emerged as a critical juncture for mitigating food safety risks. Food service managers highlighted the importance of temperature checks, labelling and traceability protocols. These practices ensure that raw materials meet safety standards upon arrival.

However, participants reported challenges related to noncompliant transportation conditions, such as open vehicles or a lack of refrigeration. These comments underscore the need for stricter adherence to transportation standards and greater supplier accountability. Addressing these gaps will require more straightforward guidelines, enhanced training and investments in logistics infrastructure to safeguard food safety during transit (Goedhals-Gerber, Fedeli & Van Dyk 2021).

Storage and infrastructure challenges

Storage practices were another key area of focus, with FSMs emphasising the importance of proper inventory management, cross-contamination prevention and temperature control. Participants allude to best practices such as implementing FIFO systems, separating raw and ready-to-eat foods and maintaining hygienic storage environments. This shows that the FSMs know how to ensure high food safety standards. Garayoa et al. (2017), for example, emphasised that separating food items according to food type and procurement dates is one of the key tools for ensuring food safety in areas where food is prepared for large groups of people. Despite this awareness, FSMs reported significant challenges when it comes to the proper storage of food items. These challenges include outdated infrastructure, insufficient equipment and delayed repairs. These comments highlight the reality that there is a divergence between theoretical best practices and the practical applications within the institutions studied (Mgaiwa 2021). This aspect of differences in knowledge and application is a challenge in developing countries, where education is now more accessible to individuals. However, the industry lags in having the tools to take advantage of the improved workforce (Marwala 2022). In the context of this study, it can be concluded that upgrading storage facilities, ensuring timely maintenance and investing in modern equipment are essential steps to align theorised storage practices with food safety requirements.

Operational challenges and budget constraints

Operational challenges, particularly budget constraints, further complicate the raw material procurement processes, making FSMS implementation more challenging. Participants noted that financial limitations often force decision-makers to compromise the quality of ingredients procured. Such challenges are seen as unavoidable in South Africa, given that the public healthcare system is struggling to serve the entire population effectively (Fana & Goudge 2024) – a challenge that is worsened by an influx of a large population of immigrants (Kaziboni et al. 2022). Additionally, variability in ingredient quality because of supplier issues or procurement challenges was a recurring concern. Poorly managed production schedules also led to delays, rushed meal preparation and inconsistent portions. These findings suggest that addressing operational inefficiencies requires a multi-pronged approach, including improved budget allocation, streamlined procurement processes and better coordination between FSMs and procurement teams.

Strengths and limitations

One of the study's strengths is its use of a qualitative methodology to uncover nuanced insights. Following the pilot study, questions on the interview schedule were rephrased to clarify their meaning for the participants. To

ensure credibility, trustworthiness and confirmability in this study, the researcher met weekly with the academic supervisor to discuss data analysis. The findings are based on self-reported data from FSMs. There is a likelihood of over-, under- or misreporting the findings in self-reported studies (Bispo Júnior 2022). The study was conducted in hospitals in Gauteng Province, and it must be appreciated that the other eight South African provinces may have different administrative procedures; it might be prudent to conduct similar studies in other provinces to ensure that the entire country adheres to sound food safety practices. Social desirability bias, which limits research by causing participants to provide false or inaccurate information to appear favourable to society, distorts findings, leading to incorrect conclusions about people's true behaviours and attitudes. Therefore, the researchers acknowledge that the individuals, FSMs, interviewed about the challenges in maintaining acceptable food safety standards, are also responsible for the quality of food served in their respective institutions. It is possible that these individuals could have suppressed information they felt would negatively affect their positions or provided false or inaccurate information to appear favourable to the hospital management.

Implications for practice and policy

To bolster FSMS in healthcare settings, it is crucial for hospital leadership to promptly address the identified gaps in current food procurement practices. This involves a thorough review of internal processes, enhancements to supplier management and ensuring that all procedures are in line with patient safety standards. Adequate resourcing is paramount; hospitals must invest in the right infrastructure, staff and technologies that empower FSMs to efficiently and safely manage procurement.

Another critical aspect is the continuous need for healthcare-specific training. Food service managers should be provided with regular professional development on relevant food safety regulations, risk management and the unique dietary needs of patients in clinical care. Standardised policies and clear procedures must be developed or updated with FSMs to ensure consistency and accountability across departments.

Effective FSMS implementation also hinges on cross-departmental collaboration. Valuable insights and support for more integrated, patient-centred food safety practices can be derived from the input of procurement officers, clinical staff and even patients. Future research should delve into these broader stakeholder perspectives to inform continuous improvement.

Conclusion

Finally, establishing routine monitoring and evaluation mechanisms is crucial to maintaining high standards. Regular audits, inspections and feedback systems are not just essential to ensure compliance and address issues proactively but also to instil confidence in the effectiveness of the food safety system and safeguard the health of all patients receiving hospital meals.

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Competing interests

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CRediT authorship contribution

Lingululani Mavhutha: Conceptualisation, Methodology, Formal analysis, Investigation, Writing - original draft, Visualisation, Project administration, Software, Validation, Data curation, Writing - review & editing. Lindiwe J. Ncube: Conceptualisation, Methodology, Writing - original draft, Visualisation, Validation, Data curation, Writing - review & editing, Supervision. Isabella C. Kleynhans: Project administration, Writing - review & editing, Supervision.

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Data availability

The authors confirm that the data supporting the findings of this study are available within the article and its references.

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