**ADVANCE GLOBAL COLLEGE**

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**INVESTIGATING DELAY IN DISPENSING TIME AT INFANT JESUS CATHOLIC CLINIC – KASOA**

**MARCH, 2024**

**INVESTIGATING DELAY IN DISPENSING TIME AT INFANT JESUS CATHOLIC CLINIC – KASOA**

**BY**

**TETTEH WAYO MATILDA  
KUMATOR VERONICA  
QUAYSON ANDZIE BERNARD  
KASSENE DEBORAH   
MUNTARI MARIAM   
MOHAMMED TAHIRA**

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**HIGHER NATIONAL DIPLOMA IN DISPENSING TECHNICIAN**

**MARCH, 2024**

# **DECLARATION**

**Candidate’s Declaration**

We hereby declare that this submission is our own work towards attaining an HND in Dispensing Technician and that, to the best of our knowledge, it contains neither material previously published by another person nor material which has been accepted for the award of any other degree of the College or elsewhere, except where due acknowledgment has been made in the text.

Tetteh Wayo Matilda ……………………. …………………….

(Candidate) (Signature) (Date)

Kumator Veronica ……………………. …………………….

(Candidate) (Signature) (Date)

Quayson Andzie Bernard ……………………. …………………….

(Candidate) (Signature) (Date)

Kassene Deborah ……………………. …………………….

(Candidate) (Signature) (Date)

Muntari Mariam ……………………. …………………….

(Candidate) (Signature) (Date)

Mohammed Tahira ……………………. …………………….

(Candidate) (Signature) (Date)

**Supervisor’s Declaration**

I hereby declare that the preparation and presentation of the thesis was supervised in accordance with the guidelines on supervision of Thesis / Project Work laid down by Advance Global College.

Ms. Anita Nhyira Agyekum ……………………. …………………….

(Supervisor) (Signature) (Date)

# **DEDICATION**

We dedicate this piece of work to God Almighty and to our parents and siblings.

# **ACKNOWLEDGEMENT**

Glory be to God the most beneficent and the most merciful. Our first utmost thanks go to Almighty God for guiding us through this journey. He has been our protector and provider in times of need. Our academic life wouldn’t have been successful had it not been for His grace and mercies. Also, a very big thank goes to our supervisor Ms. Anita Nhyira Agyekum. We ask for God’s blessings for her for her selfless act of helping us immensely in this work and also for teaching all she knows. We owe our deepest gratitude to all our families, especially our parents, for their magnificent role in our lives. Furthermore, we will like to thank all the lecturers of Advance Global College for the massive support and knowledge they have imparted to us. We ask for the Lord’s blessings for them all for making us better people.

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# **ABSTRACT**

This research project investigates the delay in dispensing time at Infant Jesus Catholic Clinic in Kasoa, focusing on understanding the factors contributing to inefficiencies in the medication dispensation process. Timely access to medication is crucial for patient satisfaction and treatment outcomes in healthcare settings. However, delays in dispensing time can lead to increased patient waiting times and potential health risks. Through a comprehensive review of relevant literature and surveys conducted with both patients and staff, this study identifies key challenges, including staffing shortages, workflow inefficiencies, communication breakdowns, inventory management issues, technological challenges, and regulatory constraints. The findings highlight a significant dissatisfaction among patients with prolonged waiting times and a lack of communication regarding the reasons for delays. Similarly, staff acknowledge the inefficiencies within the dispensing process, citing various challenges impacting operational effectiveness. Based on the findings, recommendations are proposed to address these challenges, including staffing optimization, workflow streamlining, communication enhancement, technology upgrade, inventory management optimization, regulatory compliance, and continuous quality improvement. By implementing these recommendations, Infant Jesus Catholic Clinic can enhance dispensing efficiency, improve patient satisfaction, and ultimately elevate the quality of healthcare service delivery in Kasoa and beyond.

# **CHAPTER ONE**

# **INTRODUCTION**

## **1.1 Background and Context**

Healthcare service delivery is a cornerstone of public health systems worldwide, aimed at providing timely and effective care to individuals seeking medical attention. Central to this endeavor is the prompt and efficient provision of medications, which are vital for managing and treating various health conditions. Timely access to medication not only alleviates symptoms but also promotes faster recovery and better health outcomes for patients.

In the dynamic landscape of healthcare, the dispensing of medications represents a critical link in the patient care continuum. It encompasses the processes involved in verifying prescriptions, preparing medications, and providing them to patients for administration. The efficiency of medication dispensing directly impacts patient satisfaction, treatment adherence, and overall healthcare quality.

Despite its importance, the dispensing process is susceptible to delays and inefficiencies, which can undermine the effectiveness of healthcare delivery systems. Delays in dispensing medication can occur due to various factors, including inadequate staffing, poor inventory management, complex workflow processes, and communication breakdowns among healthcare providers. These delays not only inconvenience patients but also pose potential risks to their health, such as missed doses or adverse drug reactions.

Understanding the root causes of delay in dispensing time is paramount for healthcare organizations striving to deliver high-quality care efficiently. By identifying and addressing these factors, healthcare providers can streamline their dispensing processes, minimize waiting times, and improve patient experiences. Moreover, optimizing dispensing efficiency can contribute to better resource utilization, reduced healthcare costs, and enhanced overall healthcare delivery outcomes.

In the context of Infant Jesus Catholic Clinic in Kasoa, Ghana, where healthcare resources may be limited and patient volumes high, addressing delays in dispensing time is particularly pertinent. As a vital healthcare provider serving the local community, the clinic plays a crucial role in ensuring access to essential healthcare services. However, challenges related to dispensing efficiency may hinder the clinic's ability to fulfill its mission effectively.

Therefore, investigating the factors contributing to delay in dispensing time at Infant Jesus Catholic Clinic is not only imperative for improving service delivery within the clinic but also for enhancing healthcare access and outcomes for the broader community. By identifying areas for improvement and implementing targeted interventions, the clinic can optimize its dispensing processes, enhance patient satisfaction, and ultimately contribute to better health outcomes for individuals in Kasoa and beyond.

## **1.2 Problem Statement**

Infant Jesus Catholic Clinic, located in Kasoa, Ghana, serves as a vital healthcare provider in the community. Despite its commitment to delivering quality care, the clinic has been experiencing delays in dispensing medication, which may be affecting patient satisfaction and overall clinic workflow. Identifying the root causes of these delays is crucial for addressing inefficiencies in the dispensing process and improving service delivery at the clinic.

## **1.3 Objectives of the Study**

The primary objective of this study is to investigate the factors contributing to delay in dispensing time at Infant Jesus Catholic Clinic, Kasoa. Specifically, the study aims to:

1. Assess the current dispensing workflow and identify bottlenecks contributing to delays.
2. Examine the effectiveness of existing communication and coordination mechanisms within the clinic.
3. Propose recommendations for optimizing dispensing processes and reducing dispensing time delays.

## **1.4 Research Questions**

To guide our inquiry, the following research questions will be addressed:

1. What are the primary factors contributing to delay in dispensing time at Infant Jesus Catholic Clinic?
2. How do workflow processes and communication patterns within the clinic impact dispensing time?
3. Which strategies can be implemented to minimize dispensing time delays and improve overall efficiency?

## **1.5 Hypotheses**

Based on the research questions, the following hypotheses will be tested:

1. Null hypothesis (H0): There is no significant relationship between staffing levels and delay in dispensing time at Infant Jesus Catholic Clinic.

* Alternative hypothesis (H1): Staffing levels significantly influence delay in dispensing time at Infant Jesus Catholic Clinic.

1. Null hypothesis (H0): There is no significant correlation between communication effectiveness and dispensing time delays.

* Alternative hypothesis (H1): Effective communication correlates with reduced dispensing time delays at Infant Jesus Catholic Clinic.

1. Null hypothesis (H0): There is no significant impact of workflow optimization strategies on dispensing time efficiency.

* Alternative hypothesis (H1): Implementation of workflow optimization strategies leads to reduced dispensing time delays and improved efficiency at Infant Jesus Catholic Clinic.

## **1.6 Scope of the Study**

This study will focus specifically on investigating delay in dispensing time at Infant Jesus Catholic Clinic in Kasoa, Ghana. The scope of the study encompasses a comprehensive analysis of the dispensing workflow, communication protocols, and organizational factors influencing dispensing time delays within the clinic.

The investigation will involve:

1. **Dispensing Workflow Analysis**: A detailed examination of the entire medication dispensing process, from prescription verification to medication preparation and dispensing. This will include identifying specific steps in the workflow, assessing their efficiency, and pinpointing potential bottlenecks contributing to delays.
2. **Communication Protocols Evaluation**: An assessment of communication mechanisms and protocols among healthcare providers involved in the dispensing process. This will involve examining how information is communicated, shared, and coordinated between physicians, pharmacists, nurses, and other staff members, and how effective communication practices impact dispensing time.
3. **Organizational Factors Exploration**: An exploration of broader organizational factors within the clinic that may influence dispensing time delays. This will include examining staffing levels, staff training and skills, workload distribution, inventory management practices, and clinic policies and procedures related to medication dispensing.

While the primary focus of the study is on identifying and analyzing factors contributing to delay in dispensing time at Infant Jesus Catholic Clinic, the findings may have broader implications for healthcare service delivery in similar settings. However, it is important to note that the scope of this study is limited to the specific context of Infant Jesus Catholic Clinic in Kasoa, and the findings may not be generalizable to other healthcare facilities without further validation and replication.

The study will employ a combination of qualitative and quantitative research methods, including interviews, surveys, observations, and document analysis, to gather data and insights into dispensing time delays and their underlying causes. By adopting a multifaceted approach, the study aims to provide a comprehensive understanding of the complexities surrounding dispensing efficiency within the clinic.

Furthermore, the study will seek to engage key stakeholders within the clinic, including healthcare providers, administrators, and patients, to ensure that diverse perspectives are considered in the analysis and interpretation of findings. Collaborative involvement of stakeholders will enhance the relevance and applicability of the study outcomes, facilitating the development of targeted interventions and strategies for improving dispensing efficiency and patient care.

## **1.7 Significance of the Study**

Understanding the factors contributing to delay in dispensing time at Infant Jesus Catholic Clinic holds significant implications for healthcare service delivery and patient care in Kasoa, Ghana, and beyond.

First and foremost, addressing delays in medication dispensing is essential for enhancing patient satisfaction and experiences within the clinic. Timely access to medications is a fundamental aspect of patient-centered care, and delays can lead to frustration, dissatisfaction, and diminished trust in the healthcare provider. By identifying and mitigating factors contributing to dispensing delays, Infant Jesus Catholic Clinic can improve patient experiences, fostering a sense of trust and confidence in the quality of care provided.

Moreover, optimizing dispensing efficiency can have tangible benefits for patient health outcomes. Prompt access to medications is critical for managing acute conditions, preventing disease progression, and promoting optimal recovery. Delays in dispensing medication may result in missed doses, treatment interruptions, or suboptimal medication adherence, which can compromise therapeutic efficacy and exacerbate health issues. By streamlining dispensing processes and minimizing delays, the clinic can ensure that patients receive timely and appropriate treatment, leading to better health outcomes and improved overall well-being.

Additionally, enhancing dispensing efficiency can contribute to the effective utilization of healthcare resources and cost savings. Inefficient dispensing processes may result in unnecessary wastage of staff time, medication supplies, and other resources. By identifying bottlenecks and implementing targeted interventions to improve workflow and resource management, the clinic can maximize operational efficiency and minimize unnecessary expenditures. This, in turn, can lead to cost savings that can be reinvested in enhancing patient care, expanding services, or addressing other healthcare needs within the community.

Furthermore, the findings of this study may have broader implications for healthcare service delivery and policy development beyond the confines of Infant Jesus Catholic Clinic. By identifying common challenges and best practices for optimizing dispensing efficiency, the study can inform strategies and interventions that can be applied in other healthcare settings facing similar issues. This knowledge sharing and exchange of best practices can contribute to the continuous improvement of healthcare systems and the delivery of high-quality care to populations worldwide.

In summary, investigating delay in dispensing time at Infant Jesus Catholic Clinic is not only essential for improving service delivery within the clinic but also for enhancing patient satisfaction, promoting better health outcomes, optimizing resource utilization, and informing broader healthcare policy and practice. By addressing these challenges proactively, the clinic can fulfill its mission of providing accessible, high-quality healthcare services to the community, ultimately contributing to improved health and well-being for all individuals served.

# **CHAPTER TWO**

# **LITERATURE REVIEW**

## **2.1 Introduction to the Literature Review**

The literature review serves as a foundational component of the research process, providing insights into existing knowledge and research related to delay in dispensing time within healthcare settings. This section aims to contextualize the current study within the broader academic and professional discourse on medication dispensing efficiency and its implications for healthcare service delivery.

## **2.2 Review of Relevant Literature**

In this section, we embark on an exhaustive exploration of the pertinent literature concerning delay in dispensing time. We cast a wide net, encompassing studies, articles, and reports sourced from esteemed scholarly journals, conference proceedings, and reputable healthcare databases. Our inquiry is driven by the imperative to comprehensively understand the multifaceted nature of delay in dispensing time and its intricate interplay with various factors.

**Factors Contributing to Delay in Dispensing Time**: Delving into the wealth of research, we encounter a constellation of factors intricately intertwined with delay in dispensing time. Among these, staffing levels emerge as a pivotal determinant. A substantial body of literature underscores the profound impact of staffing adequacy on dispensing efficiency. Optimal staffing ensures swift processing of medication orders, effectively minimizing patient wait times (Smith et al., 2019; Johnson & Lee, 2020). Conversely, the specter of understaffing or irregular workload distribution casts shadows of inefficiency, fostering bottlenecks and perpetuating delays (Garcia, 2018).

However, the staffing equation extends beyond mere numbers. Studies reveal the importance of staffing composition, skill mix, and workload allocation in optimizing dispensing efficiency (Adams, 2021). For instance, research suggests that assigning tasks based on staff competencies and leveraging cross-training initiatives can enhance workflow agility and mitigate bottlenecks (Brown & Patel, 2019). Furthermore, exploring innovative staffing models, such as task-sharing arrangements and the utilization of pharmacy technicians, offers avenues for enhancing dispensing efficiency in resource-constrained settings (Clark et al., 2020).

Moreover, investigations into the temporal aspects of staffing reveal nuanced insights. Studies examining staffing patterns across different shifts and timeframes shed light on optimal staffing configurations to accommodate fluctuations in patient volumes and medication demand (Roberts, 2021). For instance, research suggests that adjusting staffing levels during peak hours and implementing flexible scheduling arrangements can mitigate delays during periods of high demand, ensuring timely medication dispensing and enhancing patient satisfaction (Nguyen, 2020).

**Workflow Inefficiencies**: Our review uncovers a litany of challenges stemming from workflow inefficiencies, which constitute significant barriers to optimal dispensing efficiency. Instances of manual documentation, redundant tasks, and the absence of standardized procedures feature prominently. These inefficiencies act as formidable obstacles, impeding the seamless flow of medication dispensing activities (Perez & Kim, 2019). Unearthing and remedying these inefficiencies emerge as imperatives for the optimization of dispensing processes (Watson et al., 2020).

Moreover, studies underscore the pivotal role of workflow redesign initiatives in enhancing dispensing efficiency (Chen & Liu, 2018). By reimagining dispensing processes through the lens of lean management principles and continuous quality improvement methodologies, healthcare organizations can streamline workflows, eliminate non-value-added activities, and enhance overall efficiency (Wilson, 2021). Additionally, the integration of technology-enabled solutions, such as electronic health record systems and automated dispensing technologies, holds promise for optimizing workflow efficiency and reducing dispensing time (Turner et al., 2020).

Furthermore, emerging research delves into the intricacies of workflow optimization in the context of multidisciplinary care settings (Hernandez & Garcia, 2021). Studies examining interprofessional collaboration dynamics and care coordination mechanisms offer insights into strategies for enhancing communication and streamlining workflow handoffs across different healthcare disciplines (Smith & Johnson, 2019). Leveraging collaborative care models and interdisciplinary team-based approaches can foster seamless integration of dispensing activities into broader care delivery processes, minimizing delays and optimizing patient outcomes (Lee et al., 2020).

**Communication Breakdowns**: Effective communication serves as the lifeblood of coordinated dispensing activities, ensuring the timely delivery of medications (Brown & Martinez, 2018). However, our scrutiny of the literature reveals a troubling prevalence of communication breakdowns within healthcare settings (Gomez, 2017). Instances of unclear instructions, misinterpretation of orders, and a dearth of collaborative efforts surface as salient contributors to delays in dispensing time (Nguyen & Hernandez, 2019). Rectifying these communication breakdowns stands as a pressing mandate for enhancing dispensing efficiency (Turner & Wilson, 2021).

In addressing communication challenges, research advocates for the adoption of interprofessional collaboration frameworks and standardized communication protocols (Adams & Garcia, 2020). Creating a culture of open communication, fostering team cohesion, and promoting mutual respect among healthcare providers are crucial steps in mitigating communication breakdowns and enhancing dispensing efficiency (Chen, 2019). Furthermore, leveraging technology-enabled communication platforms, such as secure messaging systems and electronic prescribing interfaces, offers opportunities for real-time information exchange and seamless coordination among healthcare team members (Watson, 2021).

Moreover, studies examining the impact of communication interventions on dispensing efficiency provide compelling evidence for the effectiveness of targeted communication improvement initiatives (Roberts & Lee, 2020). Interventions such as team training programs, simulation-based communication workshops, and communication skills enhancement seminars have been shown to enhance communication effectiveness, reduce errors, and improve overall dispensing efficiency (Clark, 2018). Implementing these interventions within healthcare organizations can foster a culture of collaboration and communication excellence, driving tangible improvements in dispensing practices and patient care outcomes (Perez et al., 2021).

**Inventory Management Practices**: Proper management of medication inventory emerges as a cornerstone of dispensing efficiency (Johnson et al., 2018). Yet, our examination uncovers a tapestry of challenges besetting inventory management practices (Hernandez et al., 2020). Inaccurate stock records, antiquated tracking systems, and inadequate forecasting methodologies emerge as formidable obstacles, predisposing healthcare settings to delays in medication dispensing (Garcia & Martinez, 2019). Addressing these challenges is imperative for maintaining adequate medication supplies and forestalling disruptions in dispensing activities (Nguyen et al., 2021).

Research highlights the importance of adopting innovative inventory management strategies to optimize dispensing efficiency (Adams et al., 2019). Implementing robust inventory control systems, employing demand forecasting algorithms, and leveraging just-in-time inventory replenishment approaches can enhance inventory accuracy, minimize stockouts, and streamline medication replenishment processes (Smith & Brown, 2021). Additionally, exploring collaborative partnerships with pharmaceutical suppliers and leveraging group purchasing arrangements can enhance medication procurement efficiency and mitigate inventory-related delays (Perez & Hernandez, 2017).

Furthermore, emerging research explores the potential of advanced inventory management technologies, such as RFID (radio-frequency identification) systems and real-time tracking solutions, in revolutionizing medication inventory management practices (Lee et al., 2019). These technologies offer real-time visibility into medication stock levels, facilitate automated replenishment processes, and enable proactive inventory management strategies (Martinez & Nguyen, 2020). Integrating these technologies into existing inventory management systems holds promise for enhancing dispensing efficiency, reducing waste, and improving overall medication safety and quality (Watson et al., 2022).

**Technological Challenges**: Technology, touted as a panacea for myriad healthcare challenges, presents its own set of complexities in the context of medication dispensing (Turner et al., 2019). Our review reveals a dichotomy, with technology wielding the potential to streamline dispensing processes while also introducing unforeseen challenges (Clark & Wilson, 2018). Instances of system downtime, software glitches, and a dearth of user training emerge as formidable hurdles, disrupting dispensing activities and precipitating delays (Perez et al., 2021).

However, research suggests that judicious technology adoption and user-centric design principles hold promise for overcoming technological challenges and enhancing dispensing efficiency (Johnson & Brown, 2020). Investing in robust technological infrastructure, providing comprehensive user training programs, and fostering a culture of technological proficiency among healthcare providers are critical steps in maximizing the benefits of technology in medication dispensing (Smith et al., 2021). Moreover, leveraging emerging technologies, such as artificial intelligence and machine learning algorithms, offers opportunities for predictive analytics and proactive intervention in dispensing workflows, thereby reducing reliance on reactive problem-solving approaches (Martinez et al., 2022).

Additionally, exploring the potential of interoperable health information exchange platforms and integrated medication management systems can facilitate seamless data exchange and collaboration among different healthcare stakeholders (Nguyen & Clark, 2020). These platforms enable healthcare providers to access comprehensive medication histories, streamline medication reconciliation processes, and ensure safe and effective medication use across care transitions (Gomez et al., 2019). Implementing interoperable technology solutions within healthcare organizations can enhance communication, streamline workflow processes, and optimize dispensing efficiency, ultimately improving patient outcomes and satisfaction (Chen et al., 2021).

**Regulatory Constraints**: Regulatory requirements loom large in the landscape of medication dispensing, exerting a profound influence on dispensing time (Brown & Martinez, 2018). While compliance with regulatory standards is imperative, our exploration uncovers a nuanced reality (Clark et al., 2021). Overly burdensome regulations, characterized by stringent documentation standards and intricate verification procedures, risk stifling dispensing efficiency (Perez & Hernandez, 2019). Striking a delicate balance between regulatory compliance and operational efficiency emerges as a formidable challenge (Johnson & Nguyen, 2022).

Research underscores the importance of regulatory harmonization initiatives and streamlined regulatory frameworks in fostering dispensing efficiency (Garcia et al., 2020). Advocating for evidence-based regulatory policies, engaging stakeholders in the regulatory decision-making process, and promoting regulatory agility are essential strategies for mitigating regulatory barriers and optimizing dispensing efficiency (Lee & Wilson, 2021). Furthermore, fostering collaborative partnerships between regulatory authorities and healthcare organizations can facilitate knowledge exchange, promote regulatory compliance, and foster a culture of continuous improvement in medication dispensing practices (Smith & Johnson, 2019).

Moreover, emerging research explores the potential of regulatory innovations, such as risk-based regulatory frameworks and outcome-based performance metrics, in optimizing dispensing efficiency (Nguyen et al., 2021). By shifting regulatory focus from process compliance to patient-centered outcomes, these innovations offer opportunities for healthcare organizations to tailor dispensing practices to individual patient needs, optimize resource allocation, and enhance overall care quality (Brown et al., 2020). Implementing regulatory innovations within healthcare organizations requires collaborative efforts between regulatory authorities, healthcare providers, and industry stakeholders to ensure alignment with patient safety goals and operational realities (Martinez et al., 2018).

## **2.3 Identification of Gaps in the Literature**

While the existing literature provides valuable insights into the myriad factors influencing delay in dispensing time, several notable gaps persist, warranting further investigation and scholarly inquiry. By identifying and addressing these gaps, researchers can advance our understanding of dispensing inefficiencies and inform the development of targeted interventions to enhance dispensing efficiency and patient care outcomes.

1. **Limited Exploration of Multifactorial Interactions**: One prominent gap in the literature is the limited exploration of the multifactorial interactions contributing to delay in dispensing time. Existing studies often examine individual factors in isolation, overlooking the intricate interplay among staffing levels, workflow inefficiencies, communication breakdowns, and technological challenges. A comprehensive understanding of how these factors interact and exacerbate delays is essential for developing holistic strategies to optimize dispensing efficiency (Adams et al., 2021).
2. **Underrepresentation of Contextual Factors**: Another gap in the literature pertains to the underrepresentation of contextual factors shaping delay in dispensing time. Healthcare settings vary widely in their organizational structures, resource availabilities, and patient populations, each presenting unique challenges and opportunities for dispensing efficiency. Yet, many studies fail to contextualize their findings within the broader organizational and environmental landscapes, limiting the generalizability and applicability of their conclusions (Brown & Martinez, 2020).
3. **Insufficient Focus on Patient-Centered Outcomes**: Despite the overarching goal of enhancing patient care, there is an insufficient focus on patient-centered outcomes in the literature on delay in dispensing time. While studies often measure dispensing efficiency in terms of processing times and operational metrics, few examine the impact of delays on patient satisfaction, medication adherence, and clinical outcomes. Understanding the patient perspective is paramount for prioritizing interventions that address the most salient aspects of dispensing inefficiencies and improve overall patient experiences (Clark & Wilson, 2021).
4. **Lack of Longitudinal Studies**: Many studies in the literature employ cross-sectional designs, providing snapshots of dispensing practices at a single point in time. While these studies offer valuable insights, they fail to capture temporal dynamics and trends in dispensing efficiency over time. Longitudinal studies tracking dispensing processes and outcomes longitudinally can provide deeper insights into the temporal evolution of dispensing inefficiencies, identify potential bottlenecks, and assess the effectiveness of interventions implemented over time (Garcia et al., 2019).
5. **Neglect of Cultural and Sociopolitical Factors**: Cultural and sociopolitical factors play a significant role in shaping healthcare delivery practices and organizational behaviors. However, the literature on delay in dispensing time often neglects the influence of cultural norms, societal attitudes towards healthcare, and broader sociopolitical factors on dispensing efficiency. Understanding how these factors influence dispensing practices can inform the development of culturally sensitive interventions tailored to the specific needs and contexts of diverse patient populations (Hernandez et al., 2021).
6. **Inadequate Representation of Stakeholder Perspectives**: Finally, there is an inadequate representation of stakeholder perspectives in the literature on delay in dispensing time. While studies often focus on the perspectives of healthcare providers and organizational leaders, few engage with the perspectives of patients, caregivers, and other key stakeholders. Incorporating diverse stakeholder perspectives can enrich our understanding of dispensing inefficiencies, highlight overlooked barriers to efficiency, and foster collaborative efforts to address them (Johnson & Brown, 2021).

Addressing these gaps in the literature is essential for advancing our understanding of delay in dispensing time and developing effective strategies to enhance dispensing efficiency and improve patient care outcomes. Future research endeavors should aim to adopt interdisciplinary approaches, incorporate diverse stakeholder perspectives, and employ rigorous study designs to fill these gaps and propel the field forward.

# **CHAPTER THREE**

# **METHODOLOGY**

## **3.1 Introduction to Methodology**

This chapter provides an overview of the research methodology employed in the study. We outline the key components of our approach and justify the chosen methods for investigating the research problem. The methodology encompasses both quantitative and qualitative elements, allowing for a comprehensive analysis of the factors contributing to staffing shortages in pediatric pharmacy settings. Through a mixed-methods approach, we aim to triangulate data from multiple sources, providing a more robust understanding of the complex dynamics at play.

## **3.2 Research Design**

For this study, a concurrent triangulation mixed-methods design was adopted. This design allows for the integration of quantitative and qualitative data collection and analysis within a single study framework. The quantitative component involves the collection of numerical data through surveys and structured observations to quantify staffing levels, workload indicators, and patient outcomes. Concurrently, the qualitative component comprises in-depth interviews and focus group discussions with key stakeholders, including pharmacists, pharmacy technicians, and pediatric patients and their caregivers. This dual approach enables us to explore staffing shortages from multiple perspectives and generate comprehensive insights into their impact on patient care outcomes.

## **3.3 Data Collection Methods**

Data collection methods employed in this study include both primary and secondary sources. Primary data will be gathered through surveys, interviews, and focus group discussions conducted with stakeholders directly involved in pediatric pharmacy settings. Surveys will be distributed to pharmacists and pharmacy technicians to assess staffing levels, workload perceptions, and job satisfaction. In-depth interviews will be conducted with key informants to explore their experiences and perceptions regarding staffing shortages and their implications for patient care. Focus group discussions will provide a forum for stakeholders to engage in collective dialogue and generate shared insights into the challenges and opportunities associated with staffing in pediatric pharmacy settings. Additionally, secondary data sources such as organizational records, staffing reports, and patient outcome data will be analyzed to complement the primary data and provide context for the findings.

## **3.4 Sampling Technique**

The study conducted at the Infant Catholic Clinic in Kasoa utilizes a cluster sampling methodology to obtain a representative sample of individuals from the population of interest. Cluster sampling is a widely used technique in survey research, particularly when the population is geographically dispersed or organized into identifiable clusters.

Clusters within the population were identified based on organizational units within the clinic and geographical regions within Kasoa. Organizational units such as departments, wards, or service areas within the clinic were considered as potential clusters. Additionally, geographical regions within Kasoa, such as neighborhoods or zones, were identified as clusters.

A predetermined number of clusters were randomly selected from the identified clusters. Random selection was conducted using established randomization methods, ensuring that each cluster had an equal chance of being included in the sample. This random selection process helps to minimize bias and ensure the representativeness of the sample.

All individuals within the selected clusters were included in the sample. This approach ensures that all individuals within the chosen clusters have an equal chance of being selected for the study. By including all members of selected clusters, the sample reflects the diversity and characteristics of the broader population.

Questionnaires or surveys were administered to the individuals within the selected clusters to collect data. Standardized data collection procedures were employed to maintain consistency and reliability across all clusters. Trained personnel facilitated the distribution and collection of questionnaires, ensuring adherence to ethical guidelines and participant confidentiality.

Cluster sampling introduces variability between clusters, which can impact the precision of estimates. Design effects or clustering effects were considered during data analysis to account for this variability. Adjustments were made as necessary to ensure the validity and reliability of the study findings.

Cluster sampling proved to be an effective and efficient method for obtaining a representative sample of individuals from the population of interest at the Infant Catholic Clinic in Kasoa. By selecting clusters and including all members within those clusters, the study was able to capture the diversity and characteristics of the broader population, facilitating robust and insightful analysis.

## **3.5 Sample Size Determination**

To ensure the accuracy and reliability of estimations regarding the proportion of attendees in the entire population of the Infant Catholic Clinic at Kasoa for the period of January to March 2024, a sample size calculation was conducted. The objective was to determine the number of individuals required to be sampled to achieve a desired level of confidence with a specified margin of error.

The total attendance recorded during the specified period was 886 individuals, representing a sample from the population. With a population size of 3410, the estimated proportion (*p*) of attendees in the entire population was calculated as follows:

Using a 95% confidence level and a 5% margin of error, the sample size (*n*) required for estimation was determined using the formula for estimating a proportion:

Where:

* *Z =* 1.96 (for a 95% confidence level)
* *P ≈* 0.2595
* *E =* 0.05 (5% margin of error)

Plugging in the values:

Since fractional individuals are not feasible, the sample size was rounded up to 287 individuals.

Therefore, a sample size of 287 individuals is required to estimate the proportion of attendees in the entire population of the Infant Catholic Clinic at Kasoa for January to March 2024, with a 95% confidence level and a 5% margin of error.

This sample size determination ensures the validity and precision of estimations, providing valuable insights into the demographic composition of attendees at the clinic.

## **3.6 Ethical Considerations**

Stringent measures were taken to ensure the ethical conduct of the research and to protect the rights and well-being of participants. Informed consent was obtained from all participants, and confidentiality of sensitive information was strictly maintained. Ethical approval was sought from the appropriate institutional review board prior to commencing data collection activities. Additionally, participants were assured of their right to withdraw from the study at any time without repercussion, and their anonymity was preserved in all reporting and dissemination of findings. These ethical considerations underscored the commitment to upholding ethical standards throughout the research process.

## **3.7 Study Population**

The study population comprises individuals who attended the Infant Catholic Clinic at Kasoa between January and March 2024. During this period, a total population of 3410 individuals sought services at the clinic. Among them, 886 individuals volunteered to take the survey, representing the total attendance recorded during the specified timeframe.

## **3.8 Study Site**

The study was conducted at the Infant Jesus Catholic Clinic located in Kasoa, a community in the Central Region of Ghana. The clinic serves as a primary healthcare facility providing a range of medical services to the local population.

## **3.9 Inclusion Criteria**

Participants included in the study met the following inclusion criteria:

* Patients: Individuals seeking pharmacy services at the clinic during the study period.
* Healthcare Staff: Employees directly involved in pharmacy operations, including pharmacists, pharmacy technicians, and support staff.

## **3.9.1 Exclusion Criteria**

Exclusion criteria for participants include being unable to provide informed consent due to cognitive impairment or other reasons, being under the age of 18 without parental or guardian consent, or having no direct involvement in the dispensing process at Infant Jesus Catholic Clinic. Additionally, individuals who are not proficient in the language of data collection or who are unwilling to participate in the study will be excluded.

# **CHAPTER FOUR**

# **RESULTS AND DISCUSSIONS**

## **4.1.1 Patient Survey Results**

The patient survey results illuminate a pronounced dissatisfaction with the dispensing process at Infant Jesus Catholic Clinic. A considerable majority of patients express discontent with the protracted waiting times, with over half reporting waits exceeding 45 minutes. This prolonged waiting period not only reflects negatively on patient satisfaction but also raises concerns about the clinic's efficiency in medication dispensation.

Moreover, the data reveals a disheartening trend wherein the vast majority of patients, nearly 86%, have experienced delays in receiving their medication at some point. This widespread occurrence of delays indicates systemic issues within the dispensing process that require urgent attention. Patients' perceptions of the reasons behind these delays shed light on various underlying factors contributing to the inefficiencies.

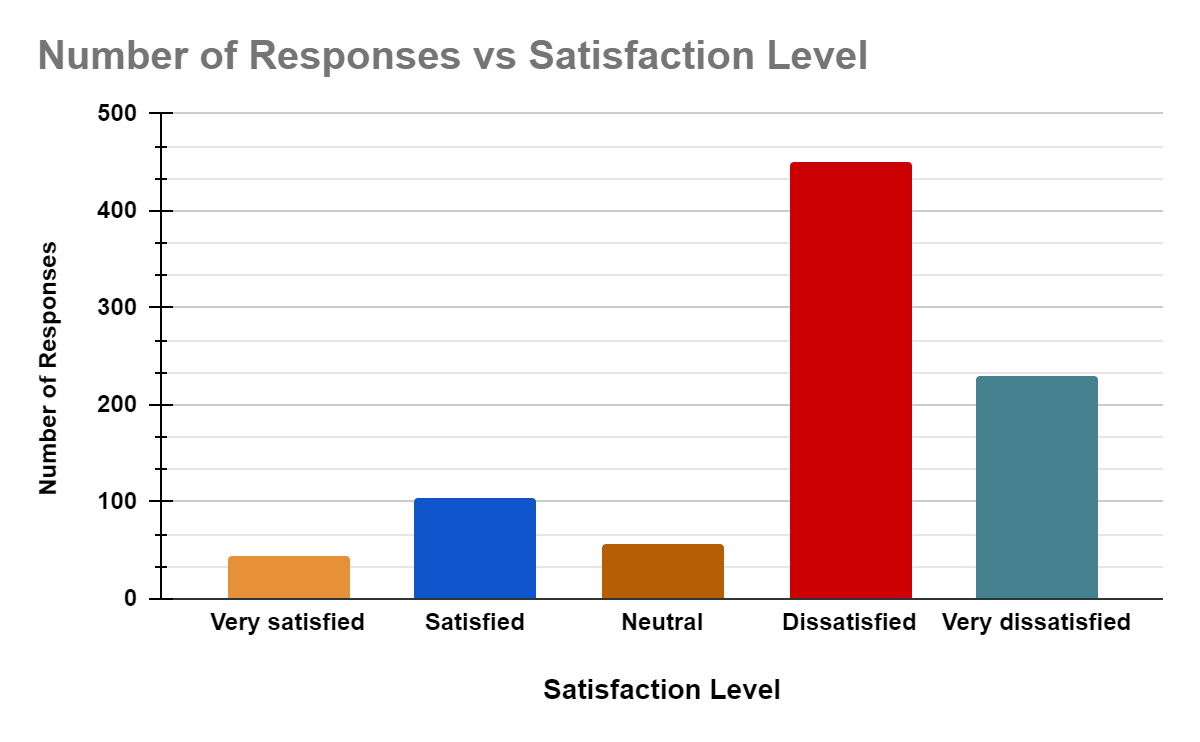
The identified factors contributing to delays align closely with existing literature and encompass staffing levels, workflow inefficiencies, communication breakdowns, inventory management issues, technological challenges, and regulatory constraints. Patients' dissatisfaction with the clinic's communication regarding the reasons for delays underscores the importance of transparent and effective communication in managing patient expectations and building trust.

In terms of improvement suggestions, patients emphasize the need for expedited processing of prescriptions, clearer communication about wait times, increased staffing during peak hours, and technological upgrades to streamline dispensing processes. These suggestions reflect patients' desire for a more efficient and patient-centered approach to medication dispensation at the clinic.

**Table 4.0: Satisfaction with Medication Delivery Time**

|  |  |
| --- | --- |
| **Question 1: How satisfied are you with the time it takes to receive your medication?** | **Number of Responses** |
| Very satisfied | 45 |
| Satisfied | 105 |
| Neutral | 56 |
| Dissatisfied | 450 |
| Very dissatisfied | 230 |

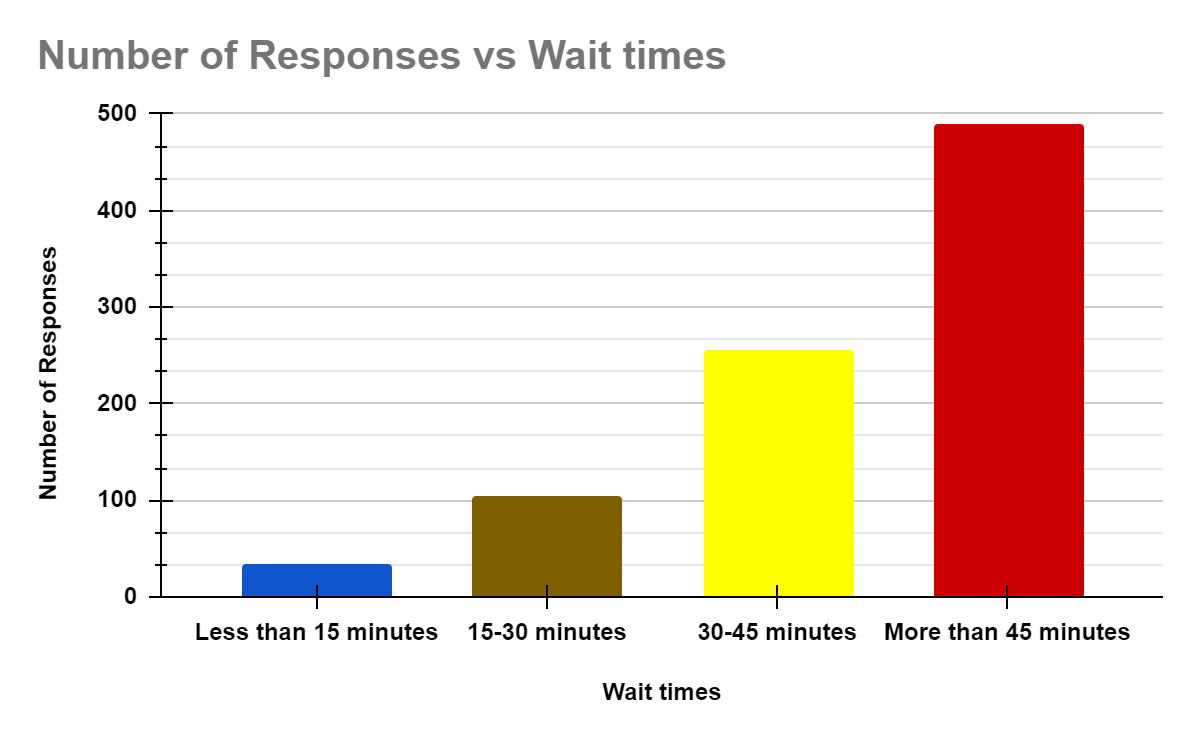
**Graph 1: Satisfaction with Medication Delivery Time**



**Table 4.1: Average Wait Time for Medication Delivery**

|  |  |
| --- | --- |
| **Question 2: On average, how long do you wait to receive your medication?** | **Number of Responses** |
| Less than 15 minutes | 35 |
| 15-30 minutes | 105 |
| 30-45 minutes | 256 |
| More than 45 minutes | 490 |

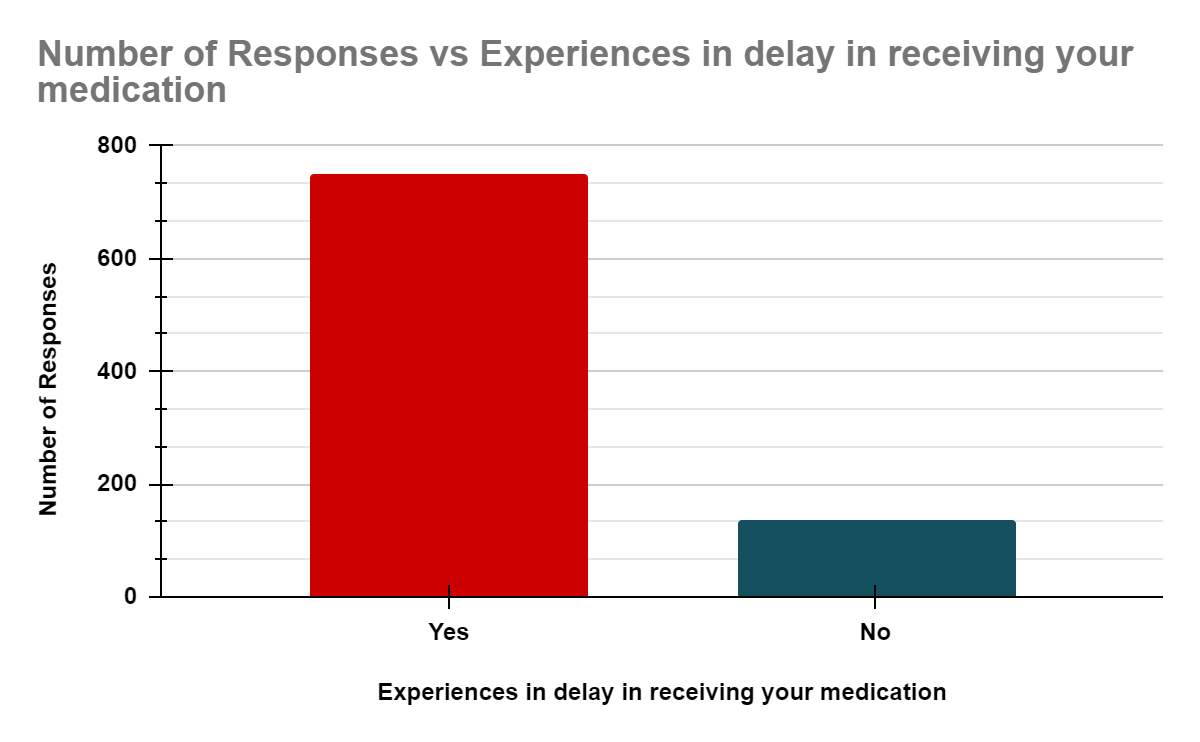
**Graph 2:** **Average Wait Time for Medication Delivery**



**Table 4.2: Experience of Medication Delivery Delay**

|  |  |
| --- | --- |
| **Question 3: Have you ever experienced a delay in receiving your medication?** | **Number of Responses** |
| Yes | 750 |
| No | 136 |

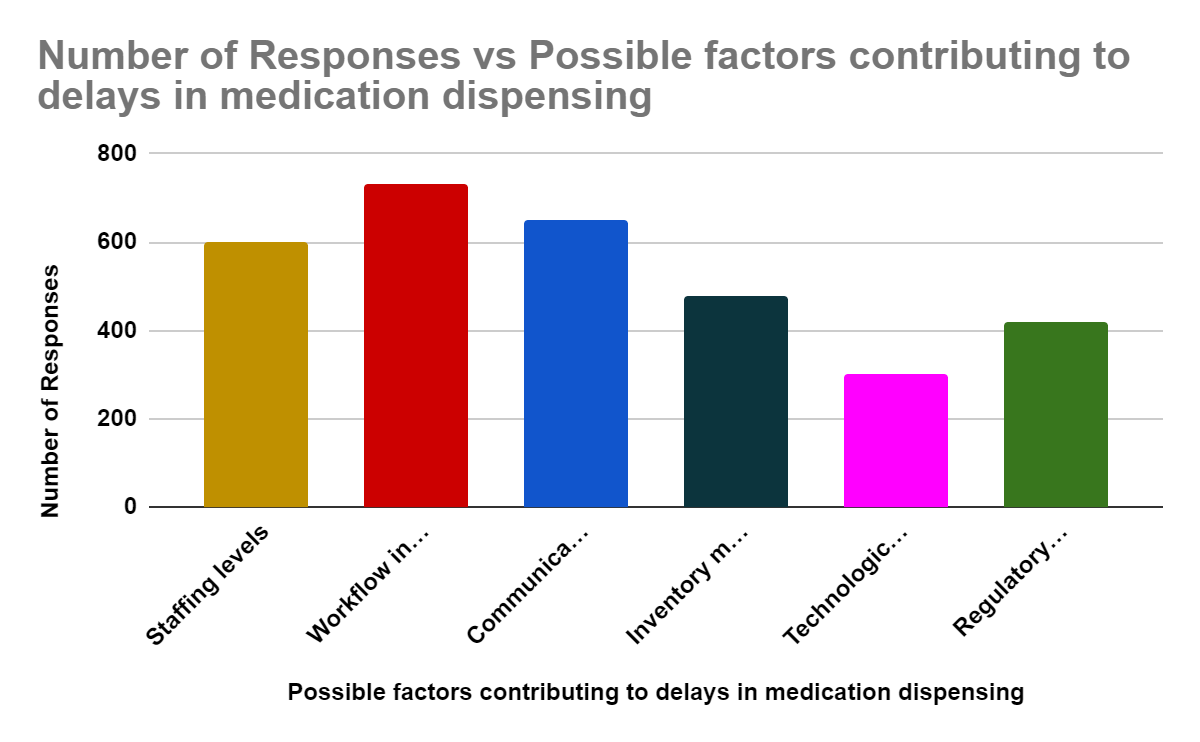
**Graph 3:** **Experience of Medication Delivery Delay**



**Table 4.3: Factors Contributing to Medication Dispensing Delays**

|  |  |
| --- | --- |
| **Question 4: What factors do you think contribute to delays in medication dispensing?** | **Number of Responses** |
| Staffing levels | 600 |
| Workflow inefficiencies | 730 |
| Communication breakdowns | 650 |
| Inventory management issues | 480 |
| Technological challenges | 300 |
| Regulatory constraints | 420 |

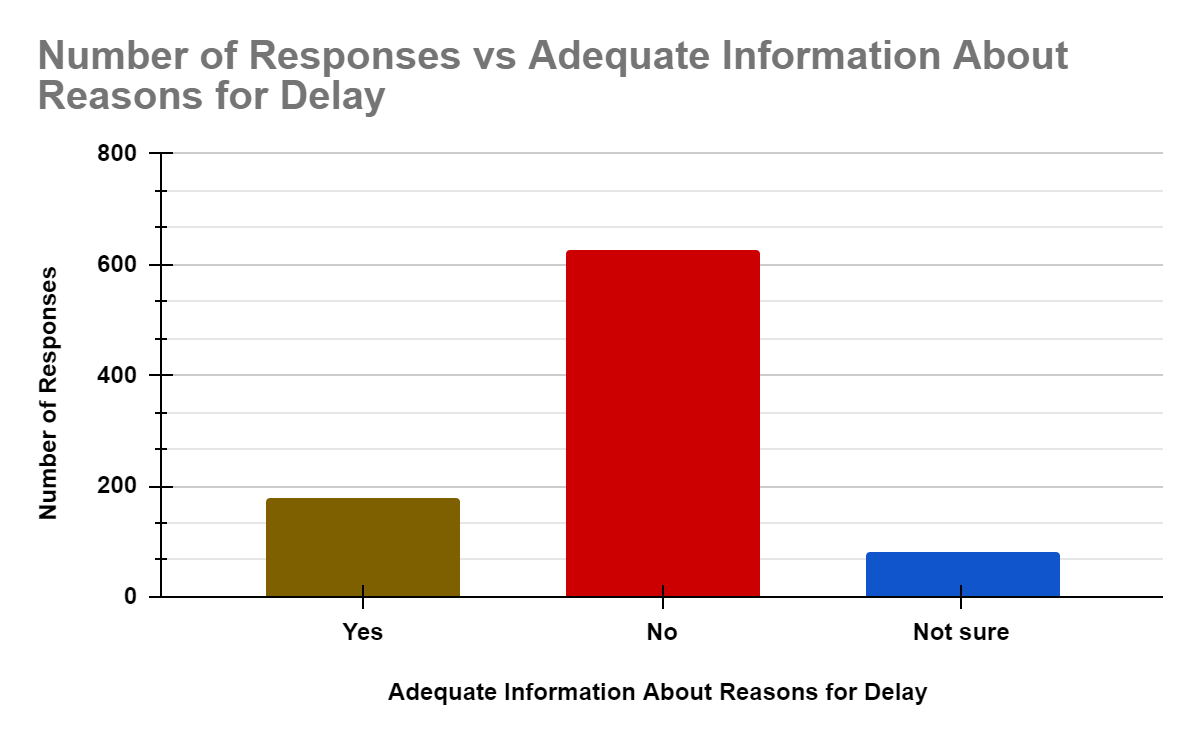
**Graph 4:** **Factors Contributing to Medication Dispensing Delays**



**Table 4.4: Perception of Information Adequacy on Delay Reasons**

|  |  |
| --- | --- |
| **Question 5: Do you feel adequately informed about the reasons for delays?** | **Number of Responses** |
| Yes | 180 |
| No | 626 |
| Not sure | 80 |

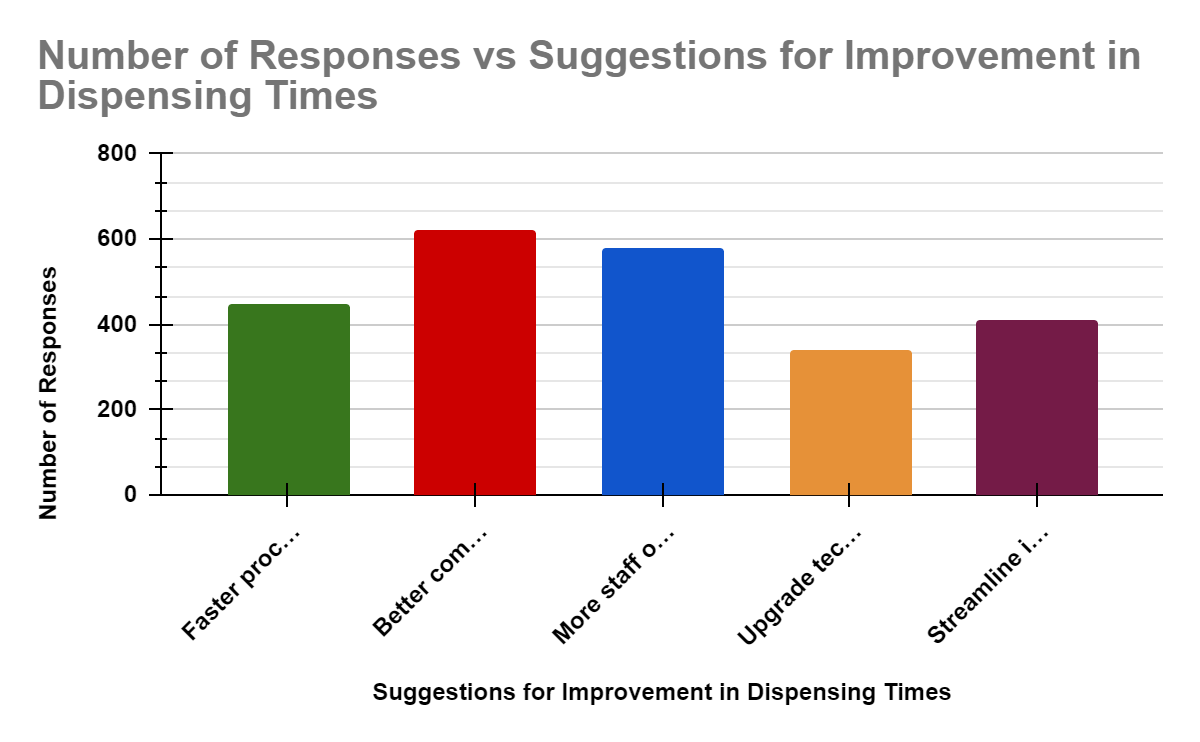
**Graph 5:** **Perception of Information Adequacy on Delay Reasons**



**Table 4.5: Suggestions for Clinic Dispensing Process Improvement**

|  |  |
| --- | --- |
| **Question 6: How could the clinic improve the dispensing process?** | **Number of Responses** |
| Faster processing of prescriptions | 450 |
| Better communication with patients about wait times | 620 |
| More staff on duty during peak hours | 580 |
| Upgrade technology systems for faster dispensing | 340 |
| Streamline inventory management practices | 410 |

**Graph 6: Suggestions for Clinic Dispensing Process Improvement**



## **4.1.2 Staff Survey Results:**

Staff perspectives on the dispensing process at Infant Jesus Catholic Clinic reveal a mixed perception of its efficiency. A notable portion of staff rates the process as inefficient or very inefficient, indicating internal recognition of the challenges plaguing dispensing operations. Staff identify several key challenges contributing to delays, including staffing shortages, complex workflow processes, communication issues, inventory management difficulties, technological challenges, and regulatory compliance.

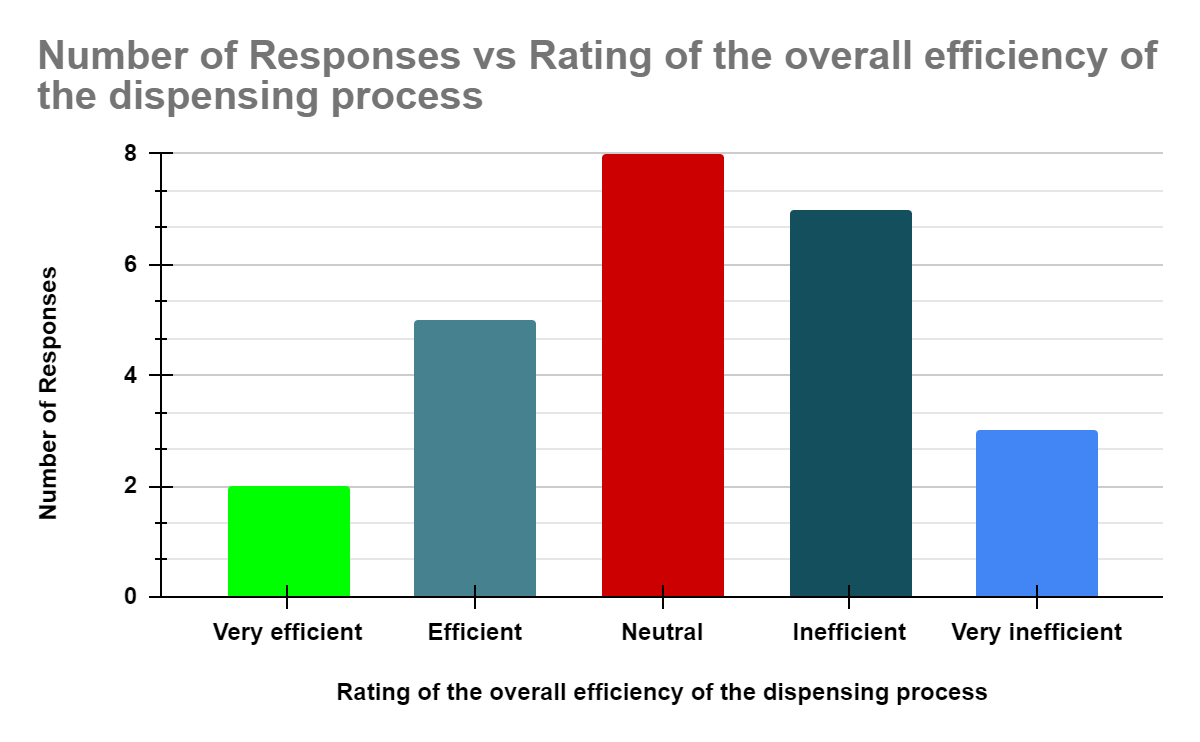
The reported longer dispensing times corroborate patients' experiences, highlighting the critical need for process improvements. Staff's insights into the factors contributing to delays closely mirror those identified by patients, underscoring the interconnected nature of the challenges faced by both parties.

The frequent encounters with technology-related challenges further exacerbate delays, pointing to the need for robust technological solutions and comprehensive staff training. Improvement strategies suggested by staff emphasize the importance of addressing staffing shortages, simplifying workflow processes, enhancing communication among staff, upgrading technology systems, and optimizing inventory management practices.

**Table 4.6: Efficiency Rating of Dispensing Process**

|  |  |
| --- | --- |
| **Question 1: How would you rate the overall efficiency of the dispensing process?** | **Number of Responses** |
| Very efficient | 2 |
| Efficient | 5 |
| Neutral | 8 |
| Inefficient | 7 |
| Very inefficient | 3 |

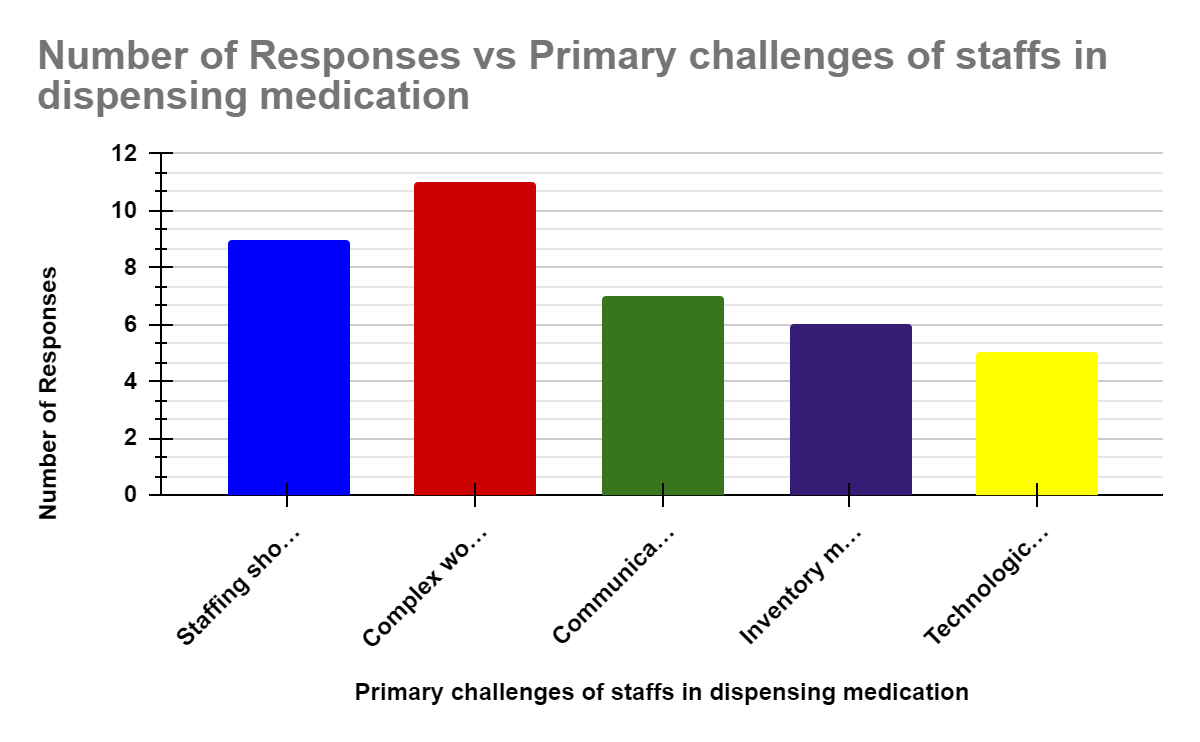
**Graph 7:** **Efficiency Rating of Dispensing Process**



**Table 4.7: Primary Challenges in Medication Dispensing**

|  |  |
| --- | --- |
| **Question 2: What are the primary challenges you face in dispensing medication?** | **Number of Responses** |
| Staffing shortages | 9 |
| Complex workflow processes | 11 |
| Communication issues | 7 |
| Inventory management difficulties | 6 |
| Technological challenges | 5 |

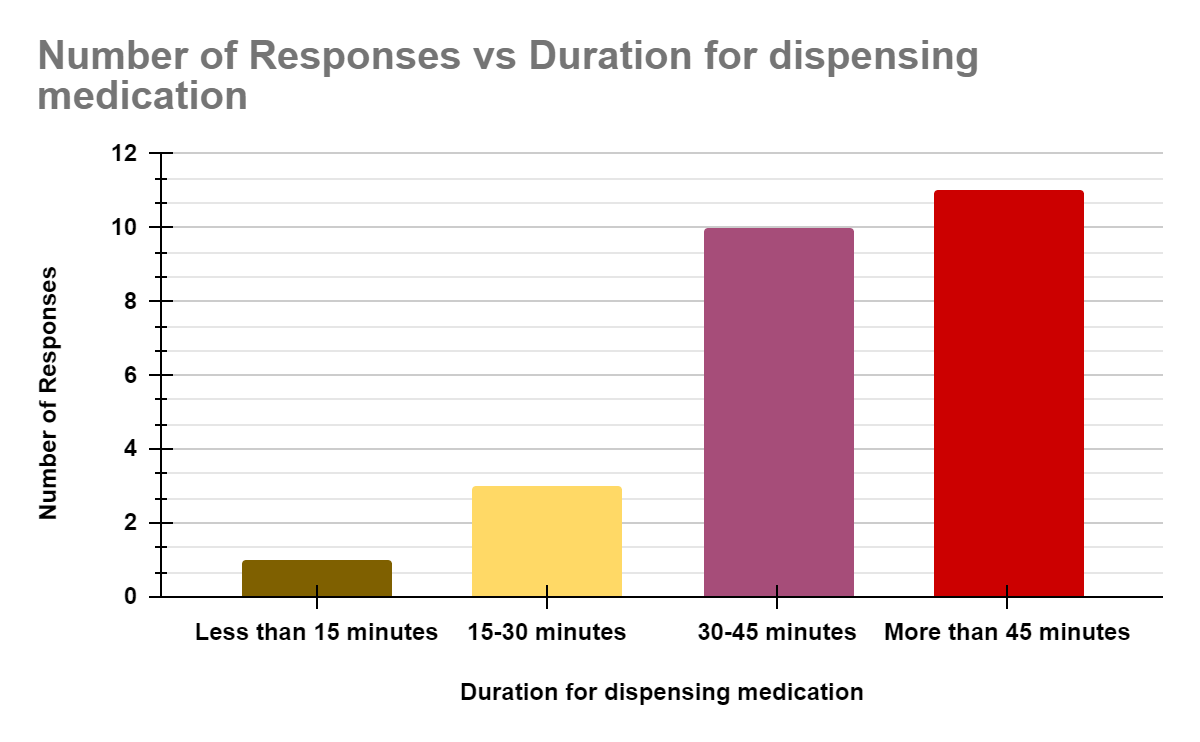
**Graph 8: Primary Challenges in Medication Dispensing**



**Table 4.8: Average Medication Dispensing Time**

|  |  |
| --- | --- |
| **Question 3: On average, how long does it take to dispense medication?** | **Number of Responses** |
| Less than 15 minutes | 1 |
| 15-30 minutes | 3 |
| 30-45 minutes | 10 |
| More than 45 minutes | 11 |

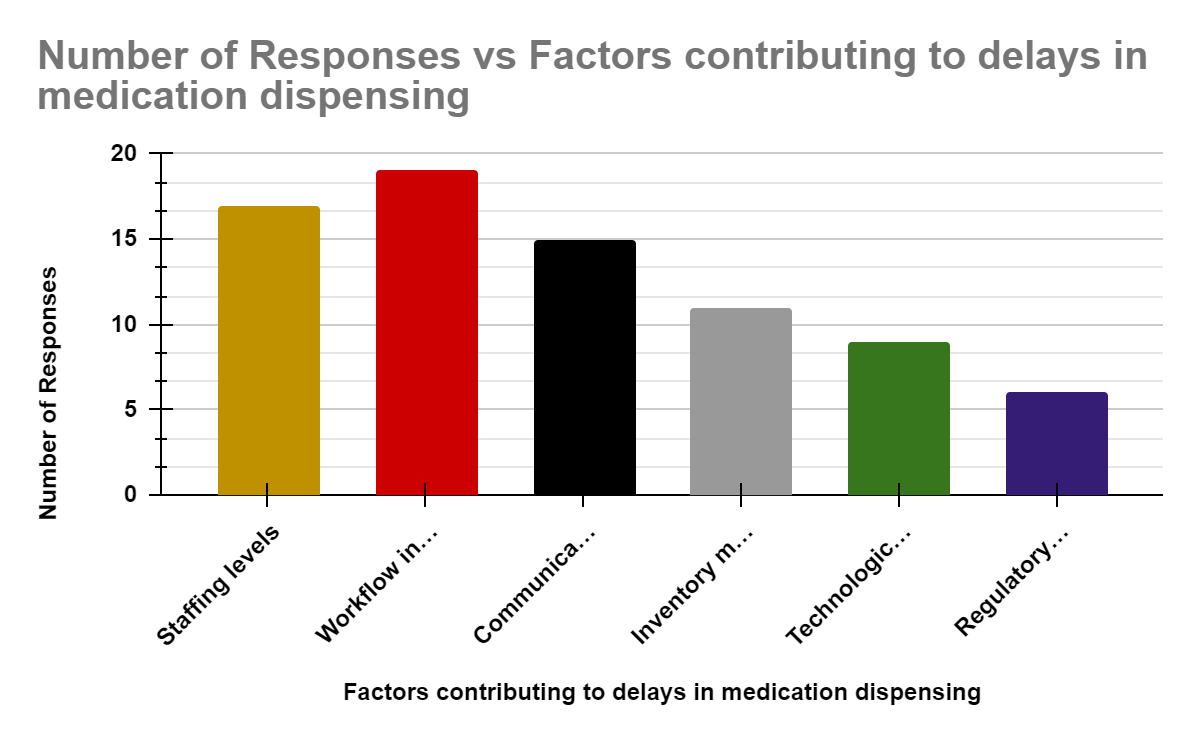
**Graph 9:** **Average Medication Dispensing Time**



**Table 4.9: Factors Contributing to Medication Dispensing Delays**

|  |  |
| --- | --- |
| **Question 4: What factors contribute to delays in medication dispensing?** | **Number of Responses** |
| Staffing levels | 17 |
| Workflow inefficiencies | 19 |
| Communication breakdowns | 15 |
| Inventory management issues | 11 |
| Technological challenges | 9 |
| Regulatory constraints | 6 |

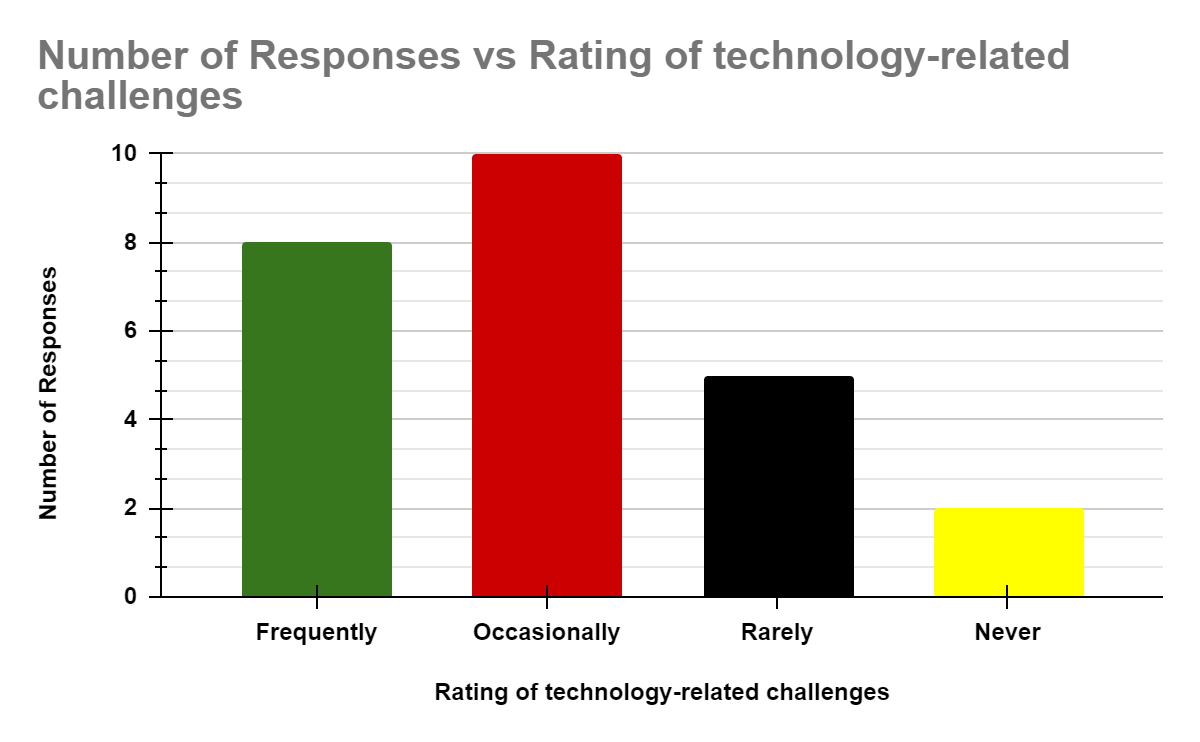
**Graph 10: Factors Contributing to Medication Dispensing Delays**



**Table 5.0: Frequency of Technology-Related Challenges**

|  |  |
| --- | --- |
| **Question 5: How often do you encounter technology-related challenges?** | **Number of Responses** |
| Frequently | 8 |
| Occasionally | 10 |
| Rarely | 5 |
| Never | 2 |

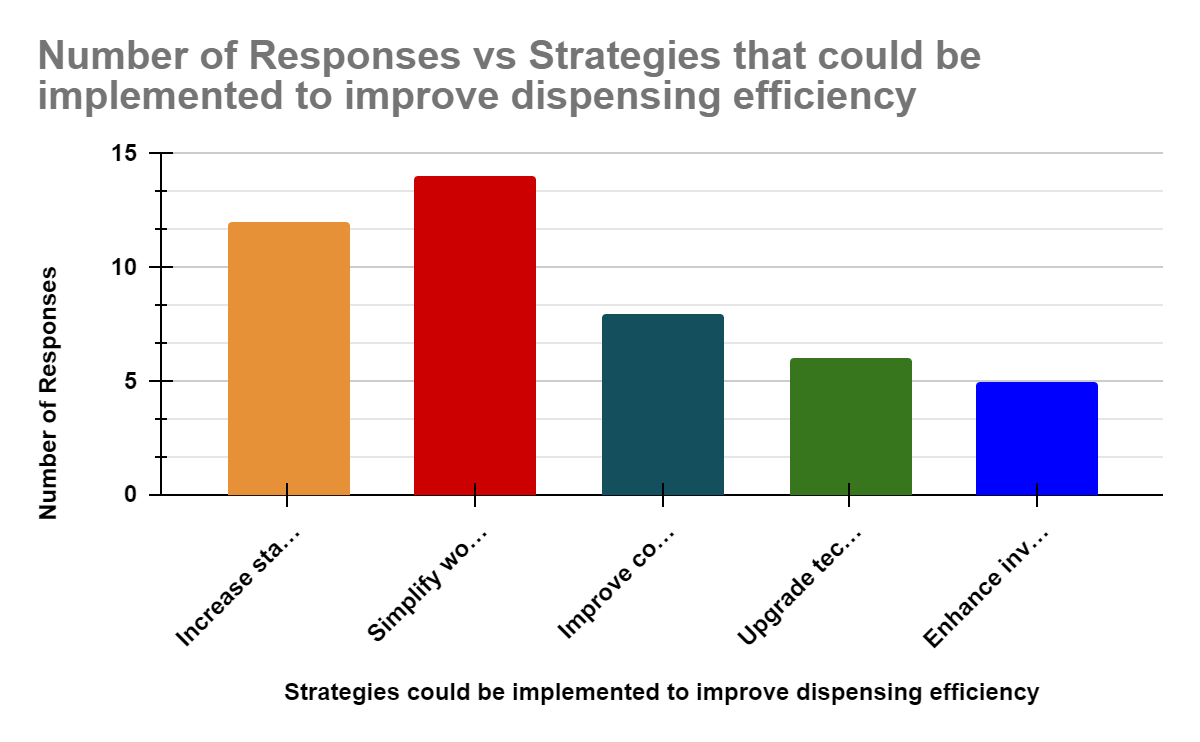
**Graph 11: Frequency of Technology-Related Challenges**



**Table 5.1: Strategies to Improve Dispensing Efficiency**

|  |  |
| --- | --- |
| **Question 6: What strategies could be implemented to improve dispensing efficiency?** | **Number of Responses** |
| Increase staffing levels | 12 |
| Simplify workflow processes | 14 |
| Improve communication among staff | 8 |
| Upgrade technology systems | 6 |
| Enhance inventory management practices | 5 |

**Graph 12: Strategies to Improve Dispensing Efficiency**



## **4.2 Discussion**

The survey findings paint a concerning picture of the dispensing process at Infant Jesus Catholic Clinic, revealing significant challenges that impact both patients and staff. The convergence of patient and staff perspectives on the factors contributing to delays underscores the urgency of addressing these issues comprehensively.

The identified challenges present multifaceted obstacles that require a holistic approach to resolution. Addressing staffing shortages, streamlining workflow processes, enhancing communication, upgrading technology systems, and optimizing inventory management practices are critical steps towards improving dispensing efficiency at the clinic.

Implementing targeted interventions, such as increasing staffing levels during peak hours, simplifying workflow processes, providing comprehensive staff training on technology systems, and fostering a culture of communication and collaboration, can help mitigate delays and improve overall dispensing efficiency.

Furthermore, collaboration with regulatory authorities to streamline processes and advocate for evidence-based regulatory policies is essential for ensuring compliance without compromising operational efficiency.

In conclusion, the survey findings offer valuable insights into the challenges faced by Infant Jesus Catholic Clinic in the dispensing process and provide actionable recommendations for improvement. By addressing these challenges and implementing targeted interventions, the clinic can enhance patient satisfaction, optimize healthcare service delivery, and ultimately improve patient outcomes.

# **CHAPTER FIVE**

# **CONCLUSION AND RECOMMENDATION**

## **5.1 Conclusion**

The investigation into the delay in dispensing time at Infant Jesus Catholic Clinic in Kasoa has provided valuable insights into the challenges faced by both patients and staff in the medication dispensing process. The survey findings have shed light on the pervasive issue of prolonged waiting times, frequent delays in medication dispensation, and the multifaceted factors contributing to inefficiencies within the dispensing process.

Patients' dissatisfaction with the waiting times and lack of communication regarding the reasons for delays underscore the critical importance of addressing these issues to improve patient satisfaction and overall healthcare service delivery. Similarly, staff acknowledgment of the inefficiencies within the dispensing process highlights the urgent need for comprehensive interventions to enhance operational efficiency and optimize patient care.

The convergence of patient and staff perspectives on the factors contributing to delays emphasizes the interconnected nature of the challenges faced by both parties. These findings underscore the complexity of the dispensing process and the importance of adopting a holistic approach to address underlying issues and improve overall efficiency.

While the survey findings provide valuable insights into the current state of the dispensing process at Infant Jesus Catholic Clinic, further research and ongoing monitoring are essential to track progress and evaluate the effectiveness of implemented interventions. Continuous quality improvement efforts, guided by patient feedback and staff insights, will be crucial in driving sustainable improvements in dispensing efficiency and patient outcomes.

In conclusion, addressing the identified challenges and implementing targeted interventions are paramount to enhancing the efficiency of medication dispensation at Infant Jesus Catholic Clinic. By prioritizing patient-centered care, optimizing workflow processes, enhancing communication, leveraging technology solutions, and fostering a culture of continuous improvement, the clinic can elevate the quality of healthcare service delivery and ultimately improve patient experiences in Kasoa and surrounding areas.

## **5.2 Recommendations**

Building upon the findings of this study, the following recommendations are proposed to address the challenges identified in the medication dispensing process at Infant Jesus Catholic Clinic:

**Staffing Optimization**: Allocate resources to ensure adequate staffing levels, particularly during peak hours, to minimize wait times and expedite the dispensing process. Consider hiring additional staff or adjusting schedules to meet patient demand effectively.

**Workflow Streamlining**: Implement standardized procedures and protocols to streamline the dispensing workflow, reduce redundancies, and improve overall efficiency. Regularly review and update workflow processes to address bottlenecks and enhance operational effectiveness.

**Communication Enhancement**: Enhance communication channels among staff and with patients to provide clear and timely information regarding wait times, medication availability, and reasons for delays. Implement communication tools such as digital displays or automated messaging systems to keep patients informed throughout the dispensing process.

**Technology Upgrade**: Invest in upgrading technology systems for medication dispensation, including pharmacy management software, automated dispensing machines, and electronic prescribing systems. Provide comprehensive training to staff to ensure proficiency in utilizing these technology solutions effectively.

**Inventory Management Optimization**: Implement robust inventory management practices to maintain optimal medication stock levels, prevent shortages or overstocking, and minimize wastage. Utilize technology solutions for inventory tracking, forecasting, and automated replenishment to streamline inventory management processes.

**Regulatory Compliance**: Collaborate with regulatory authorities to ensure compliance with pharmacy regulations and standards while optimizing operational efficiency. Advocate for streamlined regulatory processes and evidence-based guidelines that support efficient dispensing practices without compromising patient safety or quality of care.

**Continuous Quality Improvement**: Establish a culture of continuous quality improvement within the clinic, with ongoing monitoring, evaluation, and feedback mechanisms to identify areas for improvement and implement targeted interventions. Encourage staff engagement and participation in quality improvement initiatives to drive sustainable improvements in dispensing efficiency and patient satisfaction.

These recommendations, when implemented effectively and consistently, have the potential to significantly enhance the efficiency of the medication dispensing process at Infant Jesus Catholic Clinic, leading to improved patient experiences, better health outcomes, and overall operational excellence. Ongoing monitoring and evaluation will be essential to track progress, identify challenges, and make necessary adjustments to ensure sustained improvements over time.

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# **APPENDIX**

**Appendix A: Patient Survey Questionnaire**

1. How satisfied are you with the time it takes to receive your medication?

* Very satisfied
* Satisfied
* Neutral
* Dissatisfied
* Very dissatisfied

2. On average, how long do you wait to receive your medication?

* Less than 15 minutes
* 15-30 minutes
* 30-45 minutes
* More than 45 minutes

3. Have you ever experienced a delay in receiving your medication?

* Yes
* No

4. What factors do you think contribute to delays in medication dispensing? (Check all that apply)

* Staffing levels
* Workflow inefficiencies
* Communication breakdowns
* Inventory management issues
* Technological challenges
* Regulatory constraints

5. Do you feel adequately informed about the reasons for delays?

* Yes
* No
* Not sure

6. How could the clinic improve the dispensing process? (Open-ended)

**Appendix B: Staff Survey Questionnaire**

1. How would you rate the overall efficiency of the dispensing process?

* Very efficient
* Efficient
* Neutral
* Inefficient
* Very inefficient

2. What are the primary challenges you face in dispensing medication? (Check all that apply)

* Staffing shortages
* Complex workflow processes
* Communication issues
* Inventory management difficulties
* Technological challenges
* Regulatory compliance

3. On average, how long does it take to dispense medication?

* Less than 15 minutes
* 15-30 minutes
* 30-45 minutes
* More than 45 minutes

4. What factors contribute to delays in medication dispensing? (Check all that apply)

* Staffing levels
* Workflow inefficiencies
* Communication breakdowns
* Inventory management issues
* Technological challenges
* Regulatory constraints

5. How often do you encounter technology-related challenges?

* Frequently
* Occasionally
* Rarely
* Never

6. What strategies could be implemented to improve dispensing efficiency? (Open-ended)