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# Broken supply, broken promise: A qualitative study of health administration and essential medicine stockouts in Accra's primary health centers

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**Abstract**
**Purpose:** The study examined how health facility administrators, pharmacy managers, and supply chain officers navigate medicine procurement and inventory management within existing policy frameworks; identified administrative barriers perpetuating stockouts despite national policies; and explored coping strategies developed to manage medicine shortages in Accra's primary health centers.
**Methodology/Design:** The study employed a qualitative case study design grounded in interpretivism. Semi-structured interviews were conducted with 25 participants including administrators (n=3), pharmacy managers (n=5), supply chain officers (n=5), and frontline clinicians (n=12) from three public primary health centers in the Greater Accra Region. Data were analyzed using thematic analysis. Trustworthiness was ensured through credibility, transferability, dependability, and confirmability strategies.
**Findings:** Three main findings emerged. First, restricted procurement flexibility, reliance on informal communication, and inconsistent inventory practices characterized procurement navigation. Second, delayed NHIS reimbursements, restricted emergency procurement, inadequate storage, and poor communication were key barriers. Third, coping strategies included patient referral to private pharmacies, rationing, borrowing between facilities, and informal stockpiles.
**Implications:** Policies including the Framework Agreement system require urgent reform to incorporate local flexibility. NHIS reimbursement delays must be addressed to restore supplier confidence.
**Originality/Value:** This study provides novel qualitative evidence on administrative mechanisms of stockouts in Accra's urban primary health centers, applying Street Level Bureaucracy and Implementation Science theories.

**Keywords:** Essential medicine stockouts, health administration, primary health centers, framework agreement system, NHIS, Accra

## Introduction

Access to essential medicines is a fundamental pillar of universal health coverage and a basic indicator of a functioning health system (Kretchy *et al*., 2025) [11]. When a patient receives a diagnosis and prescription at a primary health center, the implicit promise is that the required medicine will be available. In Ghana, this promise is frequently broken. Essential medicine stockouts remain a chronic problem in the public primary healthcare system, forcing patients to purchase medications from private pharmacies at higher costs or forego treatment entirely (Kretchy *et al*., 2025) [11]. This gap between policy and reality constitutes a critical health administration problem, particularly in urban Accra where patient volumes and public expectations are high.

The Government of Ghana has made significant commitments to improving medicine access. The National Health Insurance Scheme (NHIS) includes essential medicines in its benefit package (Adewale, 2019). In 2017, the Ministry of Health introduced the Framework Agreement system, designed to address supply chain inefficiencies and maintain continuous medicine availability (Salia *et al*., 2025) [17]. However, these interventions have not achieved their objectives. A study in the Upper East Region found that following Framework Agreement implementation, medicine availability declined from 100 percent, lead times increased by over 40 percent, and supply inconsistencies emerged (Salia *et al*., 2025) [17].

The consequences of stockouts are severe. Medical products accounted for 63 to 75 percent of total out-of-pocket health spending between 2012 and 2023 (Ayanore, 2025). By 2022 and 2023[1, 4], nearly 12 percent of Ghanaians spent more than 10 percent of their household expenditure on medications alone, the threshold for catastrophic health expenditure (Ayanore, 2025) [4]. When essential medicines are unavailable at public facilities, the financial protection that the NHIS was designed to provide is systematically undermined (Adewale, 2023) [1].

Primary healthcare facilities in Accra are a particularly important site for investigation. Accra's primary health centers serve a dense, diverse, and largely low-income population that depends on public sector services. These facilities operate under significant resource constraints. Stakeholder research has identified barriers to medicine availability including inadequate financial and human resources, insufficient storage facilities, and delays in health insurance reimbursements (Kretchy *et al*., 2025) [4]. Understanding persistent stockouts requires moving beyond quantitative surveys to qualitative inquiry that examines administrative decisions, organizational processes, and frontline coping strategies. By centering the perspectives of health facility administrators, pharmacy managers, supply chain officers, and clinicians in Accra, this study can uncover the mechanisms and pressures that produce essential medicine stockouts.

**Problem Statement**

Despite national policies including the Framework Agreement system and NHIS medicine coverage, essential medicine stockouts remain persistent in Ghana's public health facilities (Kretchy *et al*., 2025) [11]. Patients in Accra's primary health centers are routinely told medications are unavailable, forcing them to purchase from private pharmacies at higher costs (Adewale, 2023) [1]. This policy implementation gap constitutes a serious public health administration problem.

This problem is poorly understood administratively in Greater Accra. Existing research documents stockout patterns quantitatively (Salia *et al*., 2025) [18] and finds availability disparities by location (Yeboah *et al*., 2026) [20]. However, this research treats availability as a binary outcome without investigating organizational processes or engaging facility level medicine supply managers.

Qualitative research remains limited. A stakeholder study identified barriers including inadequate resources, weak institutional support, and insurance challenges (Kretchy *et al*., 2025) [11]. Another study found obstacles including restricted emergency procurement and delayed payments (Salia *et al*., 2025) [17]. However, neither focused specifically on Accra's high volume primary healthcare environment.

Greater Accra presents a paradox. As the national capital with concentrated health resources, Accra might be expected to have reliable supply, yet stockouts persist. The consequences are severe. Out-of-pocket medication costs impose catastrophic household burdens (Ayanore, 2025) [4], undermine NHIS credibility, and reduce patient trust (Adewale, 2023) [1].

What makes this problem urgent is its resistance to simple solutions. Despite Framework Agreements, expanded coverage, and repeated directives (Salia *et al*., 2025) [17], stockouts persist, suggesting deeper structural problems in administrative logic and procurement systems. The literature offers almost no qualitative insight into how stockouts happen administratively in Accra. This gap represents the central problem this study seeks to address.

**Research Objective**

The study aims to explore and understand the administrative mechanisms, decision making processes, and organizational factors that contribute to essential medicine stockouts in public primary health centers in Accra, Ghana. Specifically, the study aims to:

1. Examine how health facility administrators, pharmacy managers, and supply chain officers navigate medicine procurement and inventory management within existing policy frameworks;
2. Identify the administrative barriers and institutional pressures that perpetuate stockouts despite national policies such as the Framework Agreement system and NHIS medicine coverage and;
3. Explore the coping strategies and workarounds that frontline administrators and clinicians develop to manage medicine shortages in their daily operations.

**Significance of the Study**

This study holds significance for multiple stakeholders.

For Health Administrators and Facility Managers: The findings will provide empirical insights into the administrative bottlenecks, decision making processes, and supply chain routines that contribute to medicine stockouts in Accra's primary health centers. This evidence can inform facility level interventions to improve stock availability.

For Policymakers: The study will generate actionable recommendations for reforming the Framework Agreement system, NHIS reimbursement mechanisms, and emergency procurement procedures. Understanding how policies fail administratively at the local level can guide more effective national reforms.

For Patients and Communities: By illuminating the root causes of stockouts, this research ultimately aims to support policy changes that reduce out-of-pocket medication costs and improve medicine access for Accra's low-income residents who depend on public primary care.

For Health Administration Scholarship: The study will contribute qualitative evidence on policy implementation gaps in urban primary healthcare, an underexplored area in Ghana's health systems research, particularly regarding the administrative mechanisms that produce and perpetuate essential medicine stockouts.

**Literature Review: Theoretical Foundation**

This study is grounded in Street Level Bureaucracy Theory (Lipsky, 1980) [13] and Implementation Science Theory to explain the gap between health policy intentions and implementation realities at the facility level.

**Street Level Bureaucracy Theory (Lipsky, 1980) [13]**

This theory posits that frontline workers, including health administrators, pharmacy managers, and clinicians, are not merely passive implementers of policy but active decision makers who shape policy outcomes through their daily discretionary actions. When resources are scarce, as with essential medicine stockouts, these street level bureaucrats develop routines, workarounds, and informal practices that can either align with or deviate from official policy. In Accra's primary health centers, this theory helps explain how administrators and pharmacy staff navigate the gap between the policy promise of medicine availability and the reality of chronic shortages, and how their coping strategies may inadvertently reproduce or exacerbate stockout patterns.

**Implementation Science Theory (Proctor *et al*., 2011) [15]**

Implementation science focuses on the systematic processes and organizational factors that influence whether evidence based policies and interventions are successfully adopted and sustained in real world settings. Key constructs relevant to this study include organizational readiness, resource availability, leadership support, and contextual barriers to implementation. This theory provides a framework for examining why Ghana's Framework Agreement system and NHIS medicine coverage have failed to achieve consistent medicine availability at primary health centers in Accra, and what administrative and organizational changes could improve policy implementation.

These theories collectively guide the qualitative inquiry into how administrative decisions, institutional pressures, and frontline practices produce and perpetuate essential medicine stockouts in Accra's primary health centers.

**Broken Supply**

The concept of "broken supply" in health systems refers to the persistent failure of pharmaceutical supply chains to

deliver essential medicines reliably to point of care facilities. Studies across Sub Saharan Africa have documented that supply chain breakdowns occur at multiple levels, including procurement, warehousing, distribution, and last mile delivery to primary health centers (Salia *et al*., 2025) [4]. These breakdowns are often attributed to weak forecasting, inadequate storage infrastructure, transportation failures, and poor coordination between regional medical stores and individual facilities (Kretchy *et al*., 2025) [17].

**Broken Promise**

"Broken promise" in the context of health policy refers to the gap between government commitments and actual service delivery outcomes. When Ghana introduced the National Health Insurance Scheme and the Framework Agreement system, the implicit promise was that essential medicines would be available and affordable to all citizens (Adewale, 2023) [1]. However, research has shown that this promise is routinely broken, as patients consistently face stockouts and are forced to pay out-of-pocket for medications that should be covered (Ayanore, 2025) [4]. This erosion of trust between citizens and the health system has significant implications for healthcare utilization and policy legitimacy.

**Health Administration**

Health administration encompasses the management, leadership, and governance of healthcare facilities and systems. In Ghana, health administration research has focused on how facility level decisions, resource allocation, staffing, and supply chain management affect service delivery outcomes (Kretchy *et al*., 2025) [11]. Administrators face competing pressures including budget constraints, delayed insurance reimbursements, and high patient volumes. Studies have shown that administrative practices, including procurement flexibility, inventory tracking, and staff training, directly influence medicine availability at primary health centers (Salia *et al*., 2025) [4].

**Essential Medicine Stockouts**

Essential medicine stockouts refer to the unavailability of medications on the World Health Organization's list of essential medicines at the point of care. In Ghana, stockouts are chronically reported for medications treating hypertension, diabetes, malaria, antibiotics, and pain relief (Yeboah *et al*., 2026) [20]. Research has documented that stockouts force patients to purchase medications from private pharmacies at significantly higher costs, leading to catastrophic health expenditures for low income households (Ayanore, 2025) [4]. Stockouts also contribute to treatment abandonment, disease progression, and reduced trust in public health facilities (Adewale, 2023) [1].

**Primary Health Centers**

Primary health centers constitute the first level of contact between populations and the healthcare system. In Ghana, these facilities are intended to provide comprehensive, accessible, and affordable care to local communities, particularly underserved populations (Kretchy *et al*., 2025) [11]. However, research has shown that primary health centers in Ghana face chronic resource constraints including inadequate staffing, insufficient storage facilities, unreliable supply chains, and delayed insurance reimbursements (Kretchy *et al*., 2025) [11]. In Accra, these facilities serve dense urban populations but often operate below capacity due to medicine stockouts, forcing patients to seek care at higher level hospitals or private pharmacies (Yeboah *et al*., 2026) [20].

**Navigation of Medicine Procurement and Inventory Management**

Street Level Bureaucracy Theory (Lipsky, 1980) [13] posits that frontline workers such as health administrators, pharmacy managers, and supply chain officers exercise significant discretionary power when resources are scarce, actively shaping policy outcomes through daily decisions. In Ghana, Ahmed (2025) [3] applied this theory to community health workers in Agona West, finding they exercise discretion through service prioritization, protocol adaptation, and resource mobilization. Within Ghana's primary health centers, administrators navigate the Framework Agreement system, which Salia *et al*. (2025) [4] found has paradoxically restricted local decision making flexibility, as facilities cannot easily make emergency purchases from non-prequalified suppliers. Kretchy *et al*. (2025) [11] documented that pharmacy managers rely on informal communication channels with regional medical stores to expedite orders, though inconsistently successful. Inventory management practices vary, with inadequate training and high staff turnover undermining consistent record keeping. Beyond Ghana, researchers in Tanzania are evaluating the Bottom-Up Quantification approach, recognizing frontline staff face challenges including poor data quality (Tanzania Health Research Bulletin, 2025) [18]. In Rwanda, a study of 15 rural health centers found stockouts persisted despite routine supervision, with logistical issues beyond health center capacity as primary drivers (Rwanda Essential Medicines Study, 2022) [16]. This literature suggests administrators in Accra prioritize medicines based on perceived patient need and pressure from clinicians, exercising discretionary power within rigid centralised systems (Ahmed, 2025; Lipsky, 1980) [2, 13].

**Administrative Barriers and Institutional Pressures Perpetuating Stockouts**

Implementation Science Theory (Proctor *et al*., 2011) [15] focuses on organizational factors that influence policy adoption and sustainability, including organizational readiness, resource availability, and inner and outer context factors. In Ghana, Kretchy *et al*. (2025) [3] employed the COM-B model and found delayed reimbursement from the National Health Insurance Authority was the most frequently cited barrier, reducing operational funds for procurement. Atibila *et al*. (2025) [3] used CFIR and EPIS frameworks, identifying gaps in outer context factors (policy support), inner context factors (organizational readiness), and bridging factors, revealing that regulatory costs and poor inter-professional collaboration impede implementation. Salia *et al*. (2025) [17] provided evidence of Framework Agreement implementation failure, documenting stock availability declined from 100 percent while lead times increased by over 40 percent, with obstacles including restricted emergency procurement, communication breakdowns, and delayed payments. Beyond Ghana, a mixed methods analysis of WHO Best Buys implementation found challenges including stakeholder engagement failures, enforcement gaps, and over centralization of care (Health Research Policy and Systems,

2024) [10]. Across sub Saharan Africa, systemic barriers including inadequate funding and weak regulatory frameworks account for persistent medicine access problems (Kretchy *et al*., 2025) [3]. These interconnected barriers explain why policy reforms have not eliminated stockouts in Accra (Proctor *et al*., 2011; Atibila *et al*., 2025) [3, 15].

**Coping Strategies and Workarounds Developed by Frontline Staff**

Street Level Bureaucracy Theory predicts that when frontline workers face resource constraints, they develop coping strategies to manage the gap between policy expectations and operational realities (Lipsky, 1980). In Ghana, Ahmed (2025) [3, 13] documented community health workers employed coping strategies including task prioritization, creative resource mobilization, and community engagement. Kretchy *et al*. (2025) [11] found administrators developed informal practices to manage shortages. Salia *et al*. (2025) [3] reported facilities resorted to emergency procurement outside the Framework Agreement system as a workaround. The most frequently reported coping strategy is referring patients to private pharmacies, shifting burden to vulnerable patients (Adewale, 2023) [1]. Other strategies include rationing, substitution, borrowing medicines from nearby facilities, and maintaining informal stockpiles (Salia *et al*., 2025; Kretchy *et al*., 2025). In Sierra Leone, Vesel *et al*. (2020) [11, 17, 19] found health workers routinely developed adaptive strategies to manage resource shortages, with coping skills associated with improved service delivery outcomes. In Rwanda, staff turnover contributed to stockout patterns, as institutional knowledge of coping strategies is lost (Rwanda Essential Medicines Study, 2022) [16]. While these strategies enable functioning, they are unsustainable. Lipsky (1980) [13] warned workarounds become normalized over time, with workers accepting stockouts as inevitable. Ahmed (2025) [2] similarly noted coping strategies signal deeper policy gaps that cannot be resolved at the individual worker level.

## Methodology

**Philosophical Foundation**

This study was grounded in an interpretivist philosophical paradigm. Interpretivism holds that social reality is constructed through the meanings, interpretations, and experiences of individuals within their specific contexts (Merriam & Tisdell, 2016) [14]. This paradigm was appropriate because the study sought to understand how health administrators, pharmacy managers, and supply chain officers interpreted and navigated medicine procurement policies, barriers, and coping strategies within Accra's primary health centers (Creswell & Poth, 2018) [7].

**Study Area**

The study was conducted in the Greater Accra Region, Ghana's capital and largest urban center. Greater Accra covers approximately 3,245 square kilometers and has a population of over 5 million people, making it the most densely populated region in the country (Ghana Statistical Service, 2021) [8]. The region is divided into 29 districts, including both metropolitan and municipal assemblies. Accra serves as the administrative, economic, and healthcare hub of Ghana, housing the national headquarters of the Ghana Health Service, the National Health Insurance Authority, and major teaching and referral hospitals. Despite this concentration of resources, primary health centers in Accra face unique challenges including high patient volumes, rapid urbanization, informal settlements, and significant socioeconomic disparities among residents. Three public primary health centers located in different districts within the Greater Accra Region were selected to capture diverse administrative contexts and patient populations.

**Research Approach**

A qualitative case study design was employed. This design allowed for an in depth exploration of a bounded system, in this case, essential medicine stockouts in Accra's primary health centers, from the perspectives of those who managed and experienced the phenomenon daily (Yin, 2018) [21].

**Study Setting and Population**

The study was conducted in three public primary health centers located in the Greater Accra Region. These facilities included polyclinics and health centers that served dense, low income urban populations. The target population comprised health facility administrators, pharmacy managers, supply chain officers, and frontline clinicians involved in medicine procurement, inventory management, and patient care.

**Sampling and Sample Size**

Purposive sampling was used to select participants who had direct knowledge and experience with medicine procurement and stockout management. The sample size was 25 participants, consisting of 3 health facility administrators, 5 pharmacy managers, 5 supply chain officers, and 12 frontline clinicians from the three selected health centers. This sample size was adequate for qualitative research to achieve data saturation (Guest *et al*., 2006) [6].

**Data Collection Methods**

Semi-structured interviews were conducted with all 25 participants using interview guides developed from the literature and theoretical frameworks. Each interview lasted approximately 45 to 60 minutes and was audio recorded with participant consent. Document review of procurement records, stock cards, and stockout reports supplemented interview data (Bowen, 2009) [5].

**Data Analysis**

Thematic analysis was used to identify, analyze, and report patterns within the data, following the six phases outlined by Braun and Clarke (2006) [6]: familiarization, generating initial codes, searching for themes, reviewing themes, defining themes, and writing up.

**Reliability and Trustworthiness**

To ensure trustworthiness, this study adopted the criteria established by Lincoln and Guba (1985) [12]: credibility, transferability, dependability, and confirmability.

1. Credibility was achieved through triangulation of data sources (interviews and document review), member checking where participants reviewed their interview transcripts, and peer debriefing with experienced qualitative researchers.

2. Transferability was addressed through thick description of the study context, participant characteristics, and the primary health center environments in Accra, allowing readers to assess applicability to other settings.

3. Dependability was established through an audit trail documenting all research decisions, data collection procedures, coding processes, and analytical steps.

Confirmability was ensured through reflexivity, where the researcher maintained a reflective journal to acknowledge personal biases and assumptions that may influence data interpretation (Creswell & Poth, 2018) [7].

**Ethical Considerations**

Ethical approval was obtained from an institutional review board. Informed consent was secured from all participants, explaining the study purpose, procedures, risks and benefits. Anonymity and confidentiality were maintained through the use of pseudonyms and secure data storage.

## Results

### Demographic Profile of Respondents

A total of 25 participants took part in this study. Table 1 presents the demographic characteristics of the respondents, including sex, age group, professional role, and years of experience, educational level, and health center affiliation. This profile provides context for understanding the perspectives and experiences captured in the data.

**Table 1:** Demographic Profile of Respondents (N = 25)

| Variable | Category | Frequency | Percent (%) |
|---|---|---|---|
| Sex | Male | 11 | 44 |
| | Female | 14 | 56 |
| Age | 25–34 years | 8 | 32 |
| | 35–44 years | 10 | 40 |
| | 45–54 years | 5 | 20 |
| | Above 55 years | 2 | 8 |
| Professional Role | Health Facility Administrator | 3 | 12 |
| | Pharmacy Manager | 5 | 20 |
| | Supply Chain Officer | 5 | 20 |
| | Frontline clinician | 12 | 48 |
| Years of Experience | 1-5years | 7 | 28 |
| | 6-10 years | 9 | 36 |
| | 11-15years | 5 | 20 |
| | Above 16 years | 4 | 16 |
| Educational Level | Diploma | 6 | 24 |
| | Bachelor's Degree | 14 | 56 |
| | Bachelor's Degree | 5 | 20 |
| Health Center | Health Center A | 9 | 36 |
| | Health Center B | 8 | 32 |
| | Health Center C | 8 | 32 |

**Source:** Field Data, 2026

As presented in Table 1, the majority of respondents were female (56 percent), aligning with prior studies in Ghana. Odonkor and Frimpong (2020) found females constituted 56.7 percent of healthcare professionals in 12 major Ghanaian facilities, while Sedzro *et al.* (2025) [4] reported 67.5 percent of health workers in deprived districts were female. Regarding age, 40 percent of respondents were aged 35 to 44 years, comparable to Odonkor and Frimpong (2020) who found 25.6 percent in the 31-40 age bracket.

Frontline clinicians (nurses and midwives) constituted 48 percent of respondents, the largest category, which is strongly supported by prior research. Odonkor and Frimpong (2020) [19] reported nurses made up 65.2 percent of their study population, while Konlan *et al.* (2022) [16] similarly found nurses and midwives represented the majority of frontline staff in three Accra public hospitals.

Regarding education, 56 percent of respondents held a Bachelor's degree, compared to 41.4 percent in Odonkor and Frimpong (2020). The majority (36 percent) had 6 to 10 years of experience, closely matching Odonkor and Frimpong (2020) who found 26.8 percent in the same category. Konlan *et al.* (2022) noted that workers with 6-10 years represent a stable, experienced segment. Participants were distributed across three public primary health centers in the Greater Accra Region.

### Reliability and Trustworthiness Results for the Three Objectives

Having presented the methodological strategies for ensuring trustworthiness, this section demonstrates how the four criteria of credibility, transferability, dependability, and confirmability were specifically applied to each of the three study objectives. Table 2 summarizes the trustworthiness strategies and outcomes for each objective.

**Table 2:** Reliability and Trustworthiness Results by Objective

| Objective | Credibility | Transferability | Dependability | Confirmability |
|---|---|---|---|---|
| Objective 1: Examine navigation of medicine procurement and inventory management | Triangulation of interviews with procurement documents confirmed findings across all 25 participants; member checking validated descriptions of procurement processes | Thick description of the Framework Agreement system and local procurement routines enables transferability to other primary health centers in urban Ghana | Audit trail documented all decisions regarding coding of procurement related themes; peer review confirmed coding consistency | Reflective journal entries identified researcher assumptions about procurement inefficiency; these were bracketed during analysis |
| Objective 2: Identify administrative barriers and | Data source triangulation between administrators, pharmacy managers, and | Detailed contextual description of NHIS reimbursement schedules, | Step by step documentation of barrier identification and theme development | Researcher journal documented initial bias toward blaming frontline |

| | | | | |
|---|---|---|---|---|
| institutional pressures perpetuating stockouts | clinicians consistently identified delayed NHIS reimbursements as primary barrier; peer debriefing confirmed theme plausibility | Framework Agreement constraints, and facility resource limitations supports transferability to similar settings | maintained; all analytical decisions recorded | staff; analysis revealed structural causes instead |
| Objective 3: Explore coping strategies and workarounds for medicine shortages | Multiple data sources (interviews and stockout reports) converged on patient referral and rationing as dominant strategies; member checking confirmed strategy accuracy | Rich description of coping mechanisms in Accra's high volume urban primary health centers allows readers to assess applicability to their contexts | Comprehensive audit trail of coding process for coping strategies; dependability confirmed through independent coding of 20 percent of transcripts by second coder | Reflexive journal entries tracked researcher reactions to coping strategies, preventing judgmental bias in interpretation |

**Source:** Field Data, 2026

**Objective 1: Navigation of Medicine Procurement and Inventory Management**

Three main themes emerged.

**Theme 1.1: Restricted Procurement Flexibility**

Participants reported that the Framework Agreement system limited their ability to respond to stock emergencies. A health facility administrator stated: "When we run out of a medicine, I cannot just go to any pharmacy to buy. The Framework Agreement says we must use only approved suppliers. My hands are tied." (Administrator 1) A supply chain officer added: "The approval process for emergency procurement is so long. We once waited 18 days for approval." (Supply Chain Officer 3)

**Theme 1.2: Reliance on Informal Communication Channels**

Pharmacy managers developed informal networks to expedite orders. A pharmacy manager explained: "I have the phone number of the storekeeper at the regional medical store. When I need something urgently, I call him directly. This is not the official process, but it works." (Pharmacy Manager 2) Another stated: "We have a WhatsApp group with supply officers from other facilities. If one has extra stock, we borrow." (Pharmacy Manager 4)

**Theme 1.3: Inconsistent Inventory Management Practices**

Inventory management varied across facilities. A supply chain officer reported: "We use a stock card for every medicine. But sometimes the cards are not updated because we are busy. When a new person comes, they do not know how to use the system." (Supply Chain Officer 1) An administrator added: "We tried a computer system, but the software crashed and we lost three months of data." (Administrator 2)

**Objective 2: Administrative Barriers and Institutional Pressures**

Four main themes emerged.

**Theme 2.1: Delayed NHIS Reimbursements**

The most frequently cited barrier was delayed reimbursement. An administrator stated: "The NHIA owes us for claims going back eight months. How can I order new medicines when I have no money?" (Administrator 3) A pharmacy manager added: "Last year, our facility was owed over 500,000 cedis. The suppliers stopped delivering." (Pharmacy Manager 1)

**Theme 2.2: Restricted Emergency Procurement Flexibility**

The Framework Agreement's restrictions were a major barrier. A supply chain officer explained: "If those suppliers do not have stock, we cannot go elsewhere. We just wait. Sometimes for a month." (Supply Chain Officer 4) A clinician added: "I asked administration to buy from a private pharmacy just this once. They said no because of the Framework Agreement." (Clinician 7)

**Theme 2.3: Inadequate Storage Infrastructure**

Insufficient storage contributed to waste. A pharmacy manager stated: "Our storage room is too small and has no air conditioning. Some medicines expire faster because of the heat." (Pharmacy Manager 3) A supply chain officer added: "We had a batch of malaria medicines damaged because the roof leaked. That was 200 boxes gone." (Supply Chain Officer 2)

**Theme 2.4: Poor Communication between Regional Stores and Facilities**

Communication breakdowns were common. An administrator explained: "The regional store tells us an order will arrive on Monday. Monday comes, nothing. We call, they say next week. No one gives a reason." (Administrator 1) A pharmacy manager added: "Sometimes they send us medicines we did not order, but the ones we need are not sent." (Pharmacy Manager 5)

**Objective 3: Coping Strategies and Workarounds**

Four main themes emerged.

**Theme 3.1: Patient Referral to Private Pharmacies**

The most common strategy was referring patients to private pharmacies. A clinician stated: "I tell the patient, 'Go to the pharmacy down the road and buy it.' But I know many cannot afford it. Some just go home and take nothing." (Clinician 2) A pharmacy manager added: "We refer patients every single day. The private pharmacies charge two or three times what we would charge." (Pharmacy Manager 1)

**Theme 3.2: Rationing and Substitution**

Clinicians rationed medicines. A clinician explained: "For antibiotics, instead of seven days, I give three days. For pain medication, I give paracetamol instead of ibuprofen because that is what we have." (Clinician 5) Another stated: "We ration insulin. Instead of a month's supply, we give two weeks." (Clinician 9)

**Theme 3.3: Borrowing Between Facilities**

Participants borrowed medicines from nearby facilities. A supply chain officer stated: "When we run out, I call my colleague at the health center two kilometers away. If they have extra, I send someone to collect it." (Supply Chain Officer 3) An administrator added: "Borrowing is not official policy, but we do it because our patients cannot wait." (Administrator 2)

**Theme 3.4: Maintaining Informal Stockpiles**

Some maintained informal stockpiles. A pharmacy manager explained: "I keep a small stock of essential medicines hidden in a different cabinet. I buy these with my own money sometimes, because I cannot get approval quickly." (Pharmacy Manager 2) An administrator stated: "I know it is against the rules, but I have authorized an informal reserve. Without it, we would have stockouts every week." (Administrator 3)

## Discussions

### Objective 1: Navigation of Medicine Procurement and Inventory Management

The findings for objective 1 revealed three themes: restricted procurement flexibility, reliance on informal communication channels, and inconsistent inventory management practices. Street Level Bureaucracy Theory (Lipsky, 1980) [13] posits that frontline workers exercise discretionary power when resources are scarce. The theme of restricted procurement flexibility demonstrates that administrators operate within rigid policies that limit emergency responses. This aligns with Ahmed (2025) [2], who found Ghanaian community health workers constrained by centralised policies. The theme of reliance on informal communication illustrates discretionary power, as participants used phone calls and WhatsApp groups to expedite orders when formal systems failed, consistent with Kretchy *et al*. (2025) [11]. The theme of inconsistent inventory practices reflects resource constraints, including inadequate training and high staff turnover, similar to findings from the Rwanda Essential Medicines Study. These findings confirm that administrators exercise discretion within rigid centralised systems (Lipsky, 1980; Ahmed, 2025) [2, 13].

### Objective 2: Administrative Barriers and Institutional Pressures

The findings for objective 2 revealed four themes: delayed NHIS reimbursements, restricted emergency procurement flexibility, inadequate storage infrastructure, and poor communication. Implementation Science Theory focuses on organizational and contextual variables influencing policy adoption (Proctor *et al*., 2011) [15]. Delayed reimbursements represent an outer context barrier, consistent with Kretchy *et al*. (2025) and Salia *et al*. (2025) [11, 17], who found delayed payments reduced supplier commitment. Restricted procurement flexibility represents an inner context barrier, aligning with Atibila *et al*. (2025) [3], who identified gaps in organizational readiness using CFIR. Inadequate storage reflects resource barriers, consistent with Kretchy *et al*. (2025) [11]. Poor communication represents a coordination barrier, similar to findings from a WHO Best Buys implementation study in Ghana (Health Research Policy and Systems, 2024) [10]. These interconnected barriers explain why policy reforms have not eliminated stockouts (Proctor *et al*., 2011; Atibila *et al*., 2025) [3, 15].

### Objective 3: Coping Strategies and Workarounds

The findings for objective 3 revealed four themes: patient referral to private pharmacies, rationing and substitution, borrowing between facilities, and maintaining informal stockpiles. Street Level Bureaucracy Theory predicts that frontline workers develop coping strategies when facing resource constraints (Lipsky, 1980) [13]. Patient referral shifts financial burden to patients, consistent with Adewale (2019) and Ayanore (2025) [4], who documented catastrophic out-of-pocket expenditures in Ghana. Rationing and substitution reflect service modification, similar to Salia *et al*. (2025) and Vesel *et al*. (2020) [17, 19] in Sierra Leone. Borrowing and informal stockpiles represent creative resource mobilization, aligning with Ahmed (2025). Lipsky (1980) [2, 13] warned that such workarounds become normalized over time, with workers accepting stockouts as inevitable. These coping strategies demonstrate frontline creativity but signal deeper policy gaps that cannot be resolved at the individual level (Ahmed, 2025; Lipsky, 1980) [2, 13].

## Conclusion

This qualitative study examined the administrative mechanisms, barriers, and coping strategies associated with essential medicine stockouts in three public primary health centers in Accra, Ghana. The study was guided by three objectives: to examine how health facility administrators, pharmacy managers, and supply chain officers navigate medicine procurement and inventory management within existing policy frameworks; to identify the administrative barriers and institutional pressures that perpetuate stockouts despite national policies; and to explore the coping strategies and workarounds that frontline administrators and clinicians develop to manage medicine shortages.

The findings revealed that the Framework Agreement system, while designed to ensure quality and transparency, paradoxically restricted procurement flexibility and forced reliance on informal communication channels. Delayed NHIS reimbursements, inadequate storage infrastructure, and poor communication between regional stores and facilities emerged as critical administrative barriers. In response, frontline workers developed coping strategies including patient referral to private pharmacies, rationing, substitution, borrowing between facilities, and maintaining informal stockpiles. These findings were interpreted through Street Level Bureaucracy Theory (Lipsky, 1980) [13] for objectives 1 and 3, and Implementation Science Theory (Proctor *et al*., 2011) [15] for objective 2.

The study concludes that essential medicine stockouts in Accra's primary health centers are not merely a result of resource scarcity but are systematically produced and perpetuated by administrative barriers embedded in procurement systems, financing mechanisms, and organizational routines. While frontline workers demonstrate remarkable creativity in developing workarounds, these coping strategies shift burdens to patients and become normalized over time, masking deeper policy implementation gaps.

## Recommendations

Based on the findings, the following recommendations are made:

For the Ministry of Health and National Health Insurance Authority:

1. Accelerate reimbursement payments to primary health centers to enable timely supplier payments and restore supplier confidence.
2. Introduce emergency procurement flexibility within the Framework Agreement system, allowing facilities to purchase from non-prequalified suppliers during verified stockouts.

3. Invest in storage infrastructure including climate controlled storage rooms and reliable roofing at primary health centers.

For Health Facility Administrators:
1. Standardize inventory management practices through training programs and simplified digital tracking tools appropriate for low resource settings.
2. Establish formal borrowing protocols between neighboring facilities to replace informal networks.

For Pharmacy Managers and Supply Chain Officers:
1. Implement regular communication updates with regional medical stores regarding delivery schedules and order status.
2. Develop accurate forecasting systems based on patient demand patterns and seasonal disease variations.

**Implications**

The study has some policy, theory and social implications

**Policy Implications:** The findings suggest that current policies including the Framework Agreement system require urgent reform. Policies designed at the national level must incorporate flexibility for local adaptation. The persistent gap between policy intention and implementation indicates that top down approaches alone are insufficient.

Practice Implications: Healthcare administrators should formalize existing informal workarounds such as borrowing protocols and emergency reserves rather than ignoring them. Standardized training in inventory management for supply chain officers could reduce inconsistencies across facilities.

**Theoretical Implications:** This study demonstrates the continued relevance of Street Level Bureaucracy Theory for understanding frontline decision making in resource constrained settings. It also shows that Implementation Science Theory, particularly constructs related to outer and inner context factors, provides a useful framework for diagnosing policy implementation failures in low and middle income country health systems.

**Social Implications:** The study highlights that stockouts disproportionately burden low income patients who cannot afford private pharmacy prices. This undermines the equity goals of the NHIS and universal health coverage, potentially widening health disparities in Accra's urban poor populations.

**Limitations of the Study**

This study has several limitations. First, it was conducted in only three primary health centers in Greater Accra, limiting transferability to other regions. Second, the sample of 25 participants may not capture all experiences across Accra's 29 districts. Third, self-reported data may be subject to social desirability bias. Fourth, document review was limited by incomplete records. Fifth, the cross sectional design cannot capture seasonal or cyclical stockout patterns.

**Suggestions for Future Research**

Future research should: (1) compare stockouts across multiple regions of Ghana; (2) conduct longitudinal studies over 12 to 24 months; (3) test interventions like emergency procurement flexibility and formal borrowing systems; (4) explore patient perspectives on out-of-pocket costs; (5) examine NHIS reimbursement delays politically and administratively; and (6) study the Framework Agreement system from national policymakers' perspectives.

**Disclosure**

The author declares no conflict of interest in conducting this study. All participants provided informed consent, and ethical approval was obtained prior to data collection. Anonymity and confidentiality of all respondents have been strictly maintained throughout the research process.

**References**


1. Adewale A. Comparative analysis of private retail community pharmacies' participation in the national health insurance scheme of Nigeria and Ghana: Implications for access to essential medicines. Ethiopian Journal of Health Sciences, 2023.
2. Ahmed A. Street level bureaucrats in community based health initiatives: A case study of Agona West. Uluslararası Anadolu Sosyal Bilimler Dergisi,2025:9(2):468–498.
3. Atibila F, Tenkorang-Twum D, Peprah MO, Ewusie TB, Ten Hoor G. Evaluating alternative medicines for hypertension using Ghana's Traditional and Alternative Medicine Practice Act: A comprehensive policy analysis using implementation science frameworks. Ghana Journal of Nursing and Midwifery,2025:2(2):1–17.
4. Ayanore M. Catastrophic health payments in Ghana post-National Health Insurance Scheme implementation: An analysis of service-specific health expenditures. BMJ Global Health, 2025.
5. Bowen GA. Document analysis as a qualitative research method. Qualitative Research Journal,2009:9(2):27–40.
6. Braun V, Clarke V. Using thematic analysis in psychology. Qualitative Research in Psychology,2006:3(2):77–101.
7. Creswell JW, Poth CN. Qualitative inquiry and research design: Choosing among five approaches (4th ed.). Sage Publications, 2018.
8. Ghana Statistical Service. 2021 Population and housing census: General report. Ghana Statistical Service, 2021.
9. Guest G, Bunce A, Johnson L. How many interviews are enough? An experiment with data saturation and variability. Field Methods,2006:18(1):59–82.
10. Health Research Policy and Systems. Mixed methods analysis of WHO Best Buys implementation for non-communicable disease prevention in Ghana, 2024.
11. Kretchy IA, Sunkwa-Mills G, Antwi MA, Alor SK, Squire A, Afful GY, *et al*. Stakeholders' perspectives and experiences with the quality of essential medicines in primary healthcare facilities in Ghana: A qualitative study. Discover Public Health,2025:22(1):1–14.
12. Lincoln YS, Guba EG. Naturalistic inquiry. Sage Publications, 1985.
13. Lipsky M. Street level bureaucracy: Dilemmas of the individual in public services. Russell Sage Foundation, 1980.
14. Merriam SB, Tisdell EJ. Qualitative research: A guide to design and implementation (4th ed.). Jossey-Bass, 2016.
15. Proctor EK, Silmere H, Raghavan R, Hovmand P, Aarons G, Bunger A, *et al*. Outcomes for

implementation research: Conceptual distinctions, measurement challenges, and research agenda. Administration and Policy in Mental Health,2011:38(2):65–76.
16. Rwanda Essential Medicines Study. Study of 15 rural health centers in Rwanda, 2022.
17. Salia A, Issifu BS, Oppong KG. Assessing the impact of framework agreements on the availability of essential medicines: A case study of 65 essential medicines at the Upper East Regional Medical Stores, Ghana. medRxiv, 2025.09.10.25335483.
18. Tanzania Health Research Bulletin. Evaluation of the bottom-up quantification approach for the availability of essential medicines in primary health facilities in Tanzania: A protocol for mixed method assessment. Tanzania Health Research Bulletin, 2025.
19. Vesel L, Waller K, Dowden J, Fotso JC. Psychosocial support and resilience building among health workers in Sierra Leone: Interrelations between coping skills, stress levels, and interpersonal relationships. BMC Health Services Research,2020:15(1):3.
20. Yeboah M, Bonney RA, Antwi LA, Anane PA, Amponsah OKO, Agyei-Baffour P. Availability and affordability of essential medicines for non-communicable disease management in primary healthcare: Evidence from three municipalities in Ghana. PLoS ONE, 2026.
21. Yin RK. Case study research and applications: Design and methods (6th ed.). Sage Publications, 2018.