



Improving Health Service Delivery and Outcomes through a Dedicated Supply Chain Workforce at Dodoma Regional Referral Hospital (2021–2025)

Case Study

Background and Context

Pre-Intervention Supply Chain Challenges

Before July 2021, all supply chain functions at Dodoma Regional Referral Hospital (DRRH) were centrally managed by the Regional Hospital Pharmacist. Responsibilities ranged from procurement and inventory management to logistics oversight and reporting. This overstretched model resulted in systemic inefficiencies that negatively affected service delivery and patient care.

Baseline Challenges (Pre-2021):

- Essential health commodity availability: 68%
- Commodity wastage due to expiries: 20%
- Poor data quality: 54%
- Frequent emergency orders and high operational costs
- Low revenue collection affecting operational sustainability
- Weak forecasting and planning due to fragmented data systems

These inefficiencies led to recurring stockouts, overstocking of slow-moving items, and limited financial flexibility to respond to service demands.



Rationale for Change

Recognizing persistent bottlenecks, hospital leadership endorsed a structural reform in July 2021: the establishment of a dedicated supply chain workforce. Selected pharmaceutical personnel were relieved of clinical duties and assigned exclusively to manage all aspects of health commodity supply chain operations.

Objectives of the Intervention

The intervention aimed to strengthen supply chain performance and overall service delivery through the following objectives:

- To improve essential commodity availability
- Enhance data quality and data-driven decision-making
- Reduce stockouts, overstocking, and expiries
- Strengthen forecasting accuracy
- Promote cost-effective procurement practices
- Build workforce capacity through structured in-service training and
- Institutionalize a sustainable and accountable supply chain system.

Description of the Intervention

Intervention - Phase I: Establishing a Dedicated Workforce (July 2021)

The Chief Pharmacist at Dodoma RRH presented a possible solution to the leadership team: a dedicated workforce within Dodoma RRH, exempt from all other clinical tasks and responsibilities, and focused solely on supply chain activities.

The hospital leadership endorsed the proposal, and two pharmaceutical personnel (one full-time pharmacist and one intern) were assigned initial basic roles and responsibilities that include creating and submit orders through the electronic Logistic Management Information System (eLMIS) to Medical Store Department (MSD) and supplementary supplies through prime vendors, receiving, proper documentation and distribution of health commodities to the respective departments across the hospital.

Phase II: Expansion and Role Optimization (July 2022)

Following the notable improvement in health commodity availability and significant reduction in stockouts and expiries, in July 2022 DRHH scaled up the intervention by expanding the team from one full-time personnel to four permanent pharmaceutical personnel, one procurement personnel, one laboratory technician, and broadened their supply chain roles and responsibilities across domains of the logistic cycle.

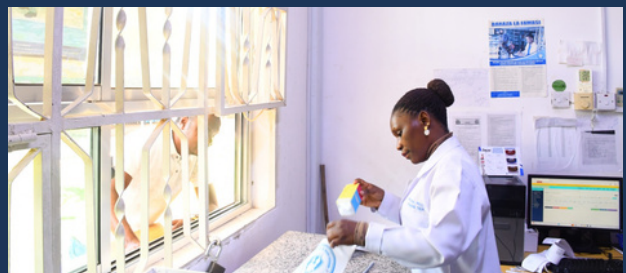
The additional roles and responsibilities are to collect, compile, and analyse logistics and service data to support accurate reporting and evidence-based decision-making, collaborate with procurement and finance departments to evaluate supplier performance, focusing on delivery timelines and quality of health commodities, supervise interns and field students, managerial responsibility of coordinating the Medicines and Therapeutics Committee (MTC) and IMPACT team meetings.

Capacity Building and Training

The expansion necessitated equipping the DRRH workforce with essential technical and managerial knowledge and skills to ensure effective fulfilment of roles and responsibilities.

This was achieved through a series of in-service training programs supported through Dodoma RRH funds and implementing partners.

The scope of capacity building included foundational training in basic supply chain management, including ordering, storage, reporting, distribution, inventory tracking, forecasting, data management, and quality improvement in health commodity management using 5S KAIZEN.



Key Achievements (2021-2025)



Improved Commodity Availability and Service Delivery: Commodity availability increased from 68% to 98%, stockouts reduced by 30%, overstocking reduced by 15%, and expiries reduced from 20% to <1%



Strengthened Data Quality and Forecasting: Data quality improved from 54% to 95%, a significant improvement in forecasting accuracy was recorded, and timely and accurate reporting was institutionalized



Improved Governance and Compliance: Audit queries reduced from 15 to 2 (CAG and MoH), with documentation and accountability strengthened.



Workforce Development: 68+ staff trained across multiple supply chain domains, enhancing cross-departmental collaboration

Enablers of Success



Strong Leadership, Governance: Hospital administration demonstrated strong commitment by allocating dedicated office space and equipment, providing financial resources, and supporting monitoring and supervision.



Strategic Partnerships: Collaboration with key stakeholders strengthened implementation, including: The Ministry of Health (MoH), Tanzania Medicines and Medical Devices Authority (TMDA), the President's Office - Regional Administration and Local Government (PO-RALG), Tanzania Institute of Accountancy (TIA), the Medical Stores Department (MSD), Prime Vendors, and implementing partners such as the Global Health Supply Chain Program – Tanzania (GHSC-TZ), JSI and, and inSupply Health. These partners provided training, technical assistance, financial support, and system strengthening.



Data-driven decision-making: Accurate consumption data-informed forecasting, procurement planning, performance monitoring, and targeted training interventions.



Operational shift: The hospital leadership's readiness and commitment to effective implementation, monitoring, and supervision, demonstrated through the allocation of dedicated office space and supply chain equipment, creating an enabling environment for staff to carry out their duties efficiently, contributed to the smooth functioning of hospital services.

Challenges and Mitigation Measures

Budget constraints and Payment Delays: Financial challenges, particularly delays in payments to suppliers such as the Medical Stores Department and contracted prime vendors. These delays disrupted the timely replenishment of essential commodities and occasionally threatened supply continuity.

At the same time, the introduction of new specialized clinical services created unplanned financial demands that were not originally captured in the Comprehensive Council Health Operational Plan (CCHOP). This mismatch between planned budgets and emerging service needs placed additional pressure on procurement processes and working capital.

To mitigate these constraints, the hospital strengthened partnerships with national institutions such as Jeshi la Kujenga Taifa and Jeshi la Wananchi wa Tanzania, integrated additional services into insurance reimbursement schemes, and enhanced internal revenue-collection mechanisms to finance direct procurement when necessary. These strategies helped buffer supply disruptions and maintain commodity availability.

Human Resource Constraints: Human resource limitations posed another major barrier: restrictions on new employment permits limited the hospital's ability to recruit additional pharmaceutical and logistics personnel, even as workload increased with improved reporting standards and system expansion.

In response, the hospital reassigned existing pharmaceutical staff to supply chain roles and later used internally generated funds to recruit additional dedicated personnel after early successes demonstrated the model's value. While this approach provided short-term relief, it required careful balancing to avoid compromising clinical service delivery.

Skills Gaps in Supply Chain Management:

Another key challenge identified at Dodoma Regional Referral Hospital (DRRH) was the inadequate knowledge and skills among hospital staff in supply chain and health commodity management. To address this gap, DRRH invested hospital funds and collaborated with external stakeholders to enrol staff in a series of in-service training programs, including basic supply chain management, store operations, bottom-up quantification, and the application of the 5S KAIZEN methodology in health commodities management.

Fragmented Digital Information System;

Despite the availability of various electronic systems such as the electronic Logistics Management Information System (eLMIS), electronic Health Management Information System (eHMIS), MUSE, District Health Information Software 2 (DHIS2), and the Vaccine Information Management System (VIMS) alongside advanced tools like artificial intelligence for bottom-up quantification, a lack of system integration remains a significant challenge

These platforms operate in silos, requiring substantial manual effort to extract, transfer, and consolidate data across systems. This fragmentation not only increases the workload but also delays decision-making processes and reduces the overall efficiency of data-driven supply chain and service delivery planning. To mitigate this gap, manual data triangulation was adopted, as well as advocacy for long-term system interoperability.



Lessons Learned

Strong leadership commitment, particularly hospital management's willingness to allocate human and financial resources and to monitor supply chain management activities, is key to improving performance.

The effective, proper use of health information systems for informed decision-making is only possible when supported by accurate documentation and high-quality data.

Clear terms of reference, defined roles and responsibilities of health personnel with relevant training, increased commitment that goes beyond the assigned tasks, and taking initiative in addressing additional supply chain needs that produce evident positive results in the hospital performance.

Scaling should include the laboratory and procurement teams to ensure holistic logistics management.

Next Steps and Sustainability

To sustain this model there is a need to do training need assessment to discover knowledge gap for the designated work force for supply chain management activities, develop relevant train materials, develop pool of national trainers to have standardized training delivery, also there is a need to do retrospective documentation on the initiations, challenges, risk factors and their mitigation and develop action plan for future improvements.

This model can be scaled or adapted for use in other facilities to manage SC activities; however, for sustainability, each facility should customize the model to its needs, resources, and challenges. Moreover, it is important to have monitoring mechanisms, such as monthly data review meetings, quarterly supportive supervision, and mentorship, to support continuous capacity building and enhance their performance.

There is a need to gather all the developed Standard Operating Procedures (SOPs), Protocols, Manuals, and Training Materials that have enhanced this model's operation.

“We now forecast more accurately and manage stock more efficiently than ever before. The availability of essential medicines has significantly improved patient care.”- Supply Chain Team Member, DRRH



Acknowledgement

This initiative was made possible through collaboration among Dodoma Regional Referral Hospital, the Global Health Supply Chain Program, Tanzania, inSupply Health, and the Ministry of Health, Tanzania.

Their support through policy guidance, technical assistance, training, and implementation of systems such as eLMIS has significantly strengthened staff capacity and improved the management and availability of essential health commodities.

Special appreciation goes to hospital leadership and the dedicated supply chain team, whose innovation and commitment have enhanced operational efficiency and patient outcomes.

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