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Strengthening Healthcare Supply Chain Management and Education in Ethiopia

Strengthening Health Care Supply Chain Operation and Education in Ethiopia

Achievements, Challenges, and Lessons Learned (2022–2025)

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Executive Summary

The Senselet Project is a collaborative initiative to strengthen Ethiopia's public health supply chain system by investing in human resource development and institutional capacity enhancement. It is implemented closely with the Ministry of Health (MoH), the Ethiopian Pharmaceutical Supply Service (EPSS), the Ethiopian Public Health Institute, higher education institutions, Regional Health Buraus, and other stakeholders.

The Project focuses on enhancing academic, institutional, and humanitarian response capacity. In the area of Academic Capacity Building, the Project supported the training of 34 MSc students in Health Supply Chain Management (HSCM), helping to meet the country's critical need for qualified mid-level professionals. Additionally, 5 PhD students were enrolled and supported through mentorship, travel, grants, and research and publications funding. This investment builds a pipeline of future leaders and scholars in health supply chain systems.

Continuous Professional Development (CPD) and Vocational Education and Training (TVET) are included in the institutional capacity building. Under the CPD component, the Project successfully developed and piloted 12 accredited training modules tailored to the Ethiopian Health Supply Chain System. These modules were designed through an inclusive process involving multiple stakeholders and subject matter experts to ensure quality, relevance, and sustainability. A total of 1,151 individuals participated in these training sessions, significantly contributing to the national effort to improve the skills and competencies of health supply chain professionals. Through its TVET component, the Senselet Project provided structured, practical training for 1,048 frontline health logistics workers, many of whom had limited access to formal education and safety training. The Project also worked closely with regional TVET institutions to deliver context-specific modules that addressed real-world logistics and workplace safety needs, laying the groundwork for institutionalizing these trainings within the national TVET framework. Translation of Modules into Ethiopia's two widely spoken languages, Amharic and Oromiffa, is being carried out.

In humanitarian response capacity, the Project achieved Health Emergency Kits (HEKs) and flagship initiatives at Tikur Anbesa Specialized Hospitals. The HEKs standardization initiative brought together the Ministry of Health (MoH), the Ethiopian Public Health Institute (EPHI), and other key partners to develop and institutionalize standardized emergency health kits. A total of 5 kits were standardized, and an additional six kits are being standardized. These efforts aim to improve readiness and response time during public health emergencies by ensuring consistency in pharmaceutical procurement, packaging, and distribution. Under flagship initiatives at Tikur Anbesa Specialized Hospitals, efforts have been made, such as the process of the TASH supply chain mapping and the Formulary list being drafted, expired medicines segregation being done, and forecasting training and activities being in progress.

Despite challenges such as limited capacity but high demand, security concerns about reaching some target areas, and lower-than-expected MSc program enrolment, the Project achieved significant results. It demonstrated the feasibility and impact of a coordinated, capacity-driven health supply chain strengthening approach.

The Project adopts a collaborative partnership model grounded in a shared vision and the active engagement of all stakeholders through the Advisory Forum. This inclusive structure ensures that stakeholders are involved in the planning, monitoring, and approving of project activities, fostering ownership, transparency, and sustainability. The Project will achieve sustainability as it has invested a lot in supporting the MSc and PhD programs, investing in ToT Training and module developments, and scaling up training through digital platforms. The next step is finalizing the standardization of remaining HEKs, developing additional modules, and expanding access to underserved regions. The Senselet Project has contributed to laying a strong foundation for Ethiopia's resilient, skilled, and sustainable health supply chain workforce.

Acronyms and Abbreviations

CPD – Continuing Professional Development

EPHI – Ethiopian Public Health Institute

EPSS – Ethiopian Pharmaceutical Supply Service

HEKs – Health Emergency Kits

HSCM – Health Supply Chain Management

MoH – Ministry of Health

MGPS – Medical Gas Pipeline Systems

MSc – Master of Science

NGOs – Non-Governmental Organizations

PPE – Personal Protective Equipment

PhD – Doctor of Philosophy

PSTP – Pharmaceuticals Supply Transformation Plan

TVET – Technical and Vocational Education and Training

1. Project background

1.1. Context

Ethiopia is the second most populous African country, with over 40% of the population under 15. Despite gradual urbanization, the population remains heavily concentrated in rural areas, and only approximately 21% live in urban areas. Economic growth has resulted in declining poverty rates, yet the development has primarily been around urban areas, leaving rural areas vastly behind. Consumers dedicate 73% of their spending to food and shelter as average disposable income remains low. This is strongly reflected in the total annual consumer spending on healthcare, which in 2020 was as low as 2%. Ethiopia can further be found on the United Nations list of least developed countries, which was last updated on February 11, 20211, and the country faces continuous humanitarian conflicts and issues that significantly impact the healthcare supply chain.

The health system in Ethiopia has extensively evolved during the last 20 years and has successfully implemented a community-based approach to bring health services closer to families. However, being increasingly faced with a triple burden of infectious diseases (including tuberculosis, HIV, malaria, and COVID-19), communicable and non-communicable diseases (NCDs), and trauma (injury due to car accidents and armed conflicts)2 has presented new challenges for the health system in the country. The figures show that Ethiopia's 37% mortality rate from non-communicable diseases (NCDs) is as high as its Sub-Saharan African peers and that almost 1.7 million adults live with diabetes in Ethiopia, making specifically diabetes the fourth most significant cause of mortality among NCDs. Despite the high diabetes prevalence and associated mortality, diabetes-related spending in Ethiopia lags the African average by around 80%. Also, diagnosis rates remain as low as 32% of prevalent diabetes cases, which to some degree can be attributed to reimbursement on diabetes tests or screening being non-existent.3 A 2018 service availability and readiness assessment in Ethiopia showed that not all health facilities offered care for NCDs and specifically diabetes-related items, with a lack of drugs available in facilities and a limited number of clinical guidelines4out.

The Ethiopian government seeks to address this situation through several strategic initiatives. The Ministry of Health has adopted a National Strategic Action Plan for Prevention and Control of Non-Communicable Diseases (2018-2025), which sets out several targets for reduction in prevalence and premature mortality from NCDs, including an 80 % availability of affordable basic technologies and essential medicines to treat major NCDs in both public and private facilities by 2025. In addition to this, the second Health Sector Transformation Plan (HSTP II) (2020-2025) gives priority to the prevention and control of NCDs, and more recently, a new national priority package was developed by the Ministry of Health and the University of Bergen to help health facilities re-prioritize specific NCD interventions.

Large-scale public health emergencies such as the recent COVID-19 pandemic, SARS in 2003, and Ebola in 2014, as well as a high level of insecurity at the borders of the country, created massi ve, forced displacement of populations, had a severe impact on the health of the affected population. In 2020, UNHCR and the Administration for Refugee and Returnee Affairs (ARRA) jointly completed the comprehensive registration of 67,617 refugees and asylum-seekers.Refugee flows into Ethiopia continued in 2020, with almost 26,400 people seeking safety and protection within the country's borders, a majority from South Sudan, and in 2021, arrival from 25,000 Eritrean refugees and almost a million people fleeing Tigray.By the end of the year, the operation was host to some 802,355 refugees and asylum seekers countrywide, 51% female and 60% children.

This represented a 100,000-increase compared to 2019.

The Ministry of Health (MoH) recognizes the burden of i) continuously serving its population with necessary medical supplies and ii) doing so also during - and despite disaster times. The MoH acknowledges the need to better protect people from health emergencies, whatever their cause. Implementing emergency risk management measures at the community, regional, and national levels requires capacity and strong coordination with other sectors. The Public Health Emergency Management (PHEM) department of the Ethiopian Public Health Institute has identified a series of activities to strengthen the country's capacity for preparedness, detection, prevention, response, and recovery to all health emergencies and disasters.

Improving the functioning of the HSCM has been identified as a key contributor to improving the health and well-being of the people of Ethiopia, not least those living in rural areas and people affected by humanitarian crises. The current distribution model results in high patient costs due to significant markups. Stock-outs are frequent due to problems relating to procurement, forecasting, and local requisitioning, and cold chain capacity is limited, which justifies the implementation of a capacity-strengthening project. The following challenges along the Ethiopian pharmaceutical supply chain can be observed in more detail.

[1]https://www.un.org/development/desa/dpad/wp content/uploads/sites/45/publication/ldc_list.pdf
[2]Global burden of 369 diseases and injuries in 204 countries and territories, 1990â€"2019: a systematic analysis for the Global Burden of Disease Study 2019 (thelancet.com)
[3]IQVIA report to NN, 2021
[4]NCDs in Ethiopia_WHO article 178817.pdf [5]Ethiopia | Global Focus (unhcr.org)

1.2. Project objectives

The overall project aims are

1. Strengthening of the long-term supply of Ethiopian specialists in pharmaceutical supply chain handling through updated Master and PhD programs at Addis Ababa University/School of Pharmacy

2. Strengthening of the institutional capacity to handle a pharmaceutical supply chain for NCD medicines within the Ethiopian Pharmaceuticals Supply Services (EPSS) and at different levels of the country's health supply system; and through
i) the implementation of accredited "continuous professional development (CPD)-programs," and
ii) through "vocational training."

3. Strengthening the capacity of humanitarian actors operating in Ethiopia to handle a pharmaceutical supply chain for NCD medicines through the realization of integrated and applied flagship sub-projects in TASH and MoH.

2.Organizations and their involvement

The project involved several organizations and institutions, each with specific roles and responsibilities:

A. Addis Ababa University

The primary project owner. The continuous ownership, engagement and presence of relevant competent staff, participation in and administration of training are key roles combined with the securing of continuous alignment, buy-in and approval of the project by the Ethiopian Ministry of Health, EPSS and other relevant public institutions.

B. LEARN Logistics by Kuehne Foundation

•Co-fund the project
•Overall grant holder responsible for managing and transferring funds
•Handles and disburses grants and other payments from partners
•Makes direct payments to international service partners
•Produces quarterly progress and financial reports

C. World Diabetes Foundation

• Co-fund the project
• Provided technical support for successful implementation of the project

D. Novo Nordisk (NN):

• Co-fund the project
•Contributes expert pharmaceutical supply chain knowledge
•Provides mentorship opportunities for faculty and students
•Acts as project coordinator between partners
•Participates in the development of training modules

E. University of Geneva

•Contributes expertise in supply chain management in humanitarian settings
•Provided recommendations and collaborates with partners
• Conducts current-state analysis
• Co-develops modules
• Supports the PhD program
• Monitors and evaluates the project as global academic lead

3. Project Approach

The project adopted a collaborative partnership model, grounded in a shared vision and the active engagement of all stakeholders through the Advisory Forum. This inclusive structure ensures that stakeholders are involved in the planning, monitoring, and approval of project activities, fostering ownership, transparency, and sustainability. The initiative is implemented through a strategic partnership among LEARN Logistics by Kuehne Foundation (KF), Novo Nordisk (NN), World Diabetes Foundation (WDF), the University of Geneva, and Addis Ababa University (AAU) each contributing distinct expertise and resources. To execute its duties the advisory forum met 12 times in the past three years.

4. Deliverables and Milestones

4.1 Academic Capacity Building

The academic capacity-building program focuses on strengthening the MSc and PhD programs in Health Supply Chain Management. Key activities include curriculum evaluation and revision, internship and field trip organization, guest lecture delivery, and direct support for MSc and PhD students. In addition, specialized modules and guidelines have been developed to enhance the quality and relevance of academic training.

Implementation of the MSc and PhD program: Currently, 34 students are supported in the HSCM MSc program. Some of the supports provided through the Senselet are discussed below.

Guest lectures: Guest lecturers delivered courses for the HSCM MSc program, which helped finish the coursework on time. In addition, students were also exposed to guest lectures to complement the curricular contents further and expose them to contemporary topics. In this regard, guest lecturers have included local professionals from the industry and international experts from world-renowned universities such as the University of Toronto, Cardiff University, University of Derby, University of KwaZulu-Natal, and others. Around 100 staff and students attended lectures on highly specialized topics such as the application of AI to research, demand forecasting of reproductive health products, etc.

Internships and field trips: In addition to the theoretical courses, students had internships in different EPSS hubs and were exposed to different supply chain-related companies to enhance their supply chain knowledge and skills in the sector. Senselet provided students with the opportunity to visit national gateway hubs such as sea or dry ports, cargo areas of airports, multi-modal terminals, etc.
Through Senselet support, an internship guideline was prepared, and 34 students participated in the internship, with their expenses covered.

Thesis Support: Thesis funding of 500 Euros is available to HSCM MSc students. Monthly stipend payment for 10 students effected.

Teaching Modules: Four modules (i.e., Transportation and Distribution Management in HSCM module, Health Supplies Quantification, Epidemiology for Health Supply Chain Management) and Internship guidelines were prepared.
The support from the Seneselet project in the HSCM MSc Program has been instrumental in achieving the students' expectations of obtaining standardized content. It has also helped the students get focused and finish their courses and research work in a timely manner.

PhD Students Support: Th Senselet currently supports PhD students. Support includes assigning international supervisors, research funding, and student exchange. The latest curricular revision of the PhD in Social and Administrative Pharmacy has led to the introduction of the HSCM track PhD Students Support, which can testify to this program's popularity.

Conference attendance: Opportunity to attend regional annual conferences on supply chain management has been provided by the Senselet Project.

Leadership training

- First round: 24 participants from the School of Pharmacy faculty & student leaders
- Second round conducted in collaboration with the UNIGE & a local senior HSCM expert: 26 Participants from EPSS, MOH, EPHI, AARHB & Kenema Pharmacies (Fig 1).

Figure 1: Train-the-trainer course for HSCM academics

Train-the-trainer needs assessment

As part of the "Senselet Project", a needs assessment was conducted for the instructors involved in the HSCM MSc program, which is jointly run by the Schools of Pharmacy and School of Commerce. Three focus group discussions (FGDs) were conducted virtually with three groups of participants: full-time academics from the Schools of Pharmacy and Commerce, and part-time instructors.

Sixteen participants completed the needs assessment questionnaire, resulting in an 80% response rate. The results are depicted by the figure 2.

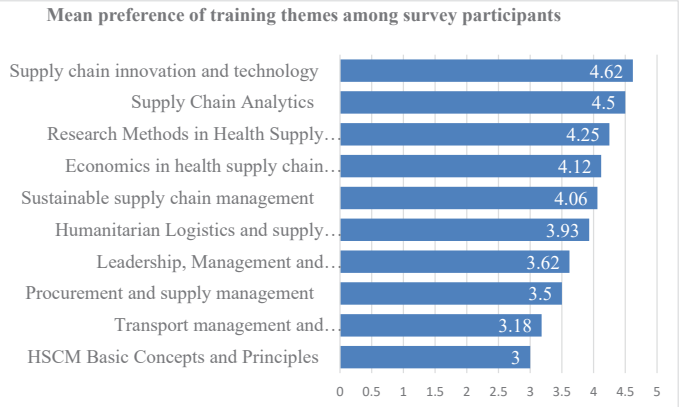

Figure 2: Mean preference of training themes among survey participants

Train-the-trainer for Faculty

•Eight participants from SOP and part-time faculty participated in a training on policy brief writing that was facilitated by a renowned expert in the area.

•Theoretical training coupled with hands-on practice at the end of which policy briefs on two topics drafted.

Figure 3: Train the trainer for acdemic staff on policy brief writing

4.2. Institutional Capacity Building

Institutional capacity building in this project focused on two key areas:

4.2.1. Continuous Professional Development (CPD): This component targets professionals with a bachelor's degree or higher who are seeking to enhance their skills in health supply chain management. Structured accredited training sessions were provided to support their professional growth and improve system performance.

4.2.2. Technical and Vocational Education and Training (TVET): This training targets frontline personnel such as drivers, porters, pickers, packers, and forklift operators—individuals who may not have formal education but play a critical role in the health supply chain. The TVET program aims to equip them with the practical knowledge and skills required for their day-to-day responsibilities.

The following section outlines key achievements in both CPD and TVET areas.

4.2.1 CPD

CPD Need Assessment: A national survey was conducted to identify and prioritize Continous Professional Development (CPD) training needs for health supply chain management professionals. The assessment was guided by the People that Deliver and EPSS health supply chain competency frameworks. The survey was carried out across all regions except one due secirity reasons. A total of 523 professionals were sampled from various institutions (Figure 4).

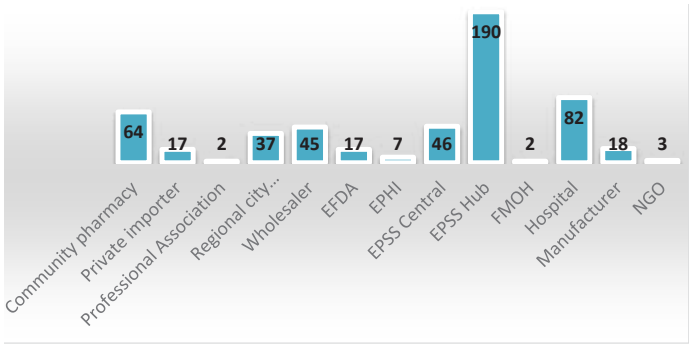

Figure 4: Number of institutions involved in training needs assessemnt

CPD Course Development Process: Based on the need assessment 12 modules were identified and these were approved by the Senselet Advisory Forum for development. The 12 modules were prepared by involving academicians and practitioners, and were enriched by professionals from academia, the healthcare system, private sector, and NGOs. The modules are listed below:

1.Management of Health Commodities Supply Planning (MHCSP)
2.Introduction to Humanitarian Logistics (IHL)
3.Technologies in Health Supply Chain Systems (THSCS)
4.Health Supply Chain Project Management (HSCPM)
5.Leadership in Health Supply Chain (LHSC)
6.Advanced Forecasting and Demand Planning (AFDP)
7.Health Supply Chain Financial Management (HSCFM)
8.Medicines and Medical Devices Import Management (MMDIM)
9.Laboratory Commodities Test Proportion Management (LCTPM)
10.Logistics Management Information System (LMIS)
11.Medical Devices Supply Chain Management (MDSCM)
12.Inventory Analytics and Optimization (IAO)

A total of 68 experts were involved across both phases of the CPD module development as module developers, reviewers, and participants in the validation workshop. The targeted 12 modules were successfully developed and received accreditation (Fig 5).

Figure 5: Draft CPD modules validation workshop

Figure 6: Sample Accredited CPD Module

CPD Trainings Delivery: A total of 1,151 (323 ToT and 828 basic training were provided) individuals participated in the training sessions. Out these supply chain professionals trained, 404 were female and 747 were male. Of all the modules offered, many participants were trained in Introduction to Humanitarian Logistics
(Fig 7).

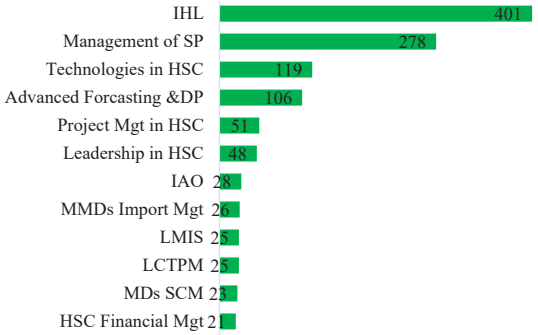

Figure 7: Types of CPD module provided for the participants

The training participants came from a diverse array of institutions within the health sector. The majority were drawn from hospitals, followed by community pharmacies and health centres, highlighting strong representation from frontline healthcare service providers (Figure 8)

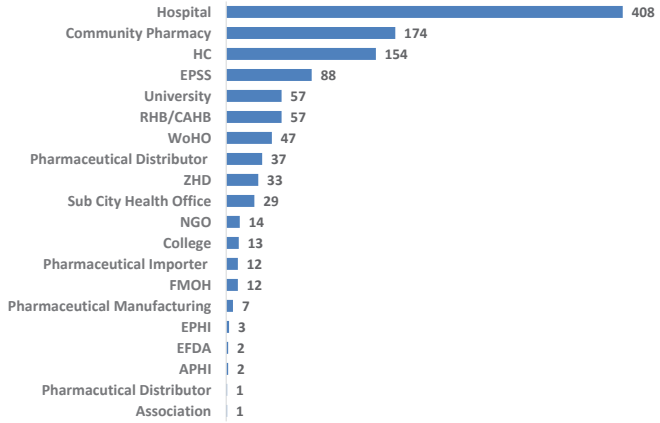

Figure 8: Institutions where the CPD module participants involved

The training participants were selected from diverse regions across the country, ensuring broad national representation and varying levels of regional involvement. Addis Ababa had the highest number of participants, followed by the Amhara and Sidama Regions (Fig 9).

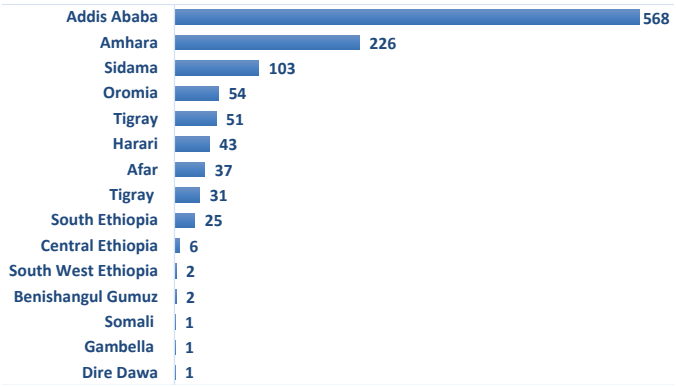

Figure 9: CPD training participants by region

Across the three years of the project period, a total of 1,151 health supply chain professionals were trained, surpassing the cumulative target of 1,000. The training cascade is still ongoing, and the actual number of trained individuals is expected to continue growing over time (Fig 10).

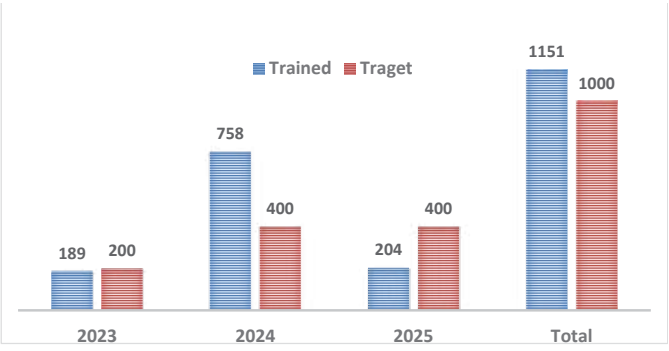

Figure 10: number of trained versus target for the CPD training

Sample photos for the CPD training

4.2.2. TVET related activities

4.2.2.1. HSCM TVET framework: Developing a HSCM TVET framework bridges the skills gap, promotes economic development, reduces youth unemployment and fosters innovation and adaptability. LEARN Logistics by Kühne Foundation, in collaboration with SoP/AAU, organized a series of workshops with key stakeholders. During the workshops, German's technical and vocational training, which combines theoretical learning in vocational schools with practical, on-the-job training in companies, was presented and discussed for its adaptability and suitability to the Ethiopia context. Drivers, porters, pickers, packers, and forklift operators were identified as target audience for Level 1 training and agreement was reached to design training for frontline health logistics workers in six levels. These include:

Operative logistics/blue-collar staff/frontline logistic workers: This group includes all logistics employees who carry out basic operational tasks. Classic examples are truck drivers, forklift operators, porters, pickers, packers, porters, and administrative.

Administrative logistics staff: This level includes traffic planners, expediters, warehouse clerks, customs clearance officers and customer service employees. Staff at this level perform information-processing tasks and have limited supervisory or managerial responsibilities.

Logistics supervisors: Supervisors have frontline responsibility, controlling logistics operations on the ground rather than in the office. Examples are shift leaders in warehouses or team leaders.

Logistics managers: This category includes managerial staff, with higher-level decision-making responsibility. The extent of these responsibilities can range from junior through middle management roles to board-level responsibility for logistics and supply chain strategy.

4.2.2.2. Content development for the training manuals

In a series of TVET stakeholder workshops, key competencies that frontline health logistics workers need to develop, understand, or contribute were identified and agreed.

These include having an overall understanding and skills around health supply chain, health commodities (types, characteristics, and requirements), warehouse processes and material flow, transportation of health commodities, and business communication and job readiness. Accordingly, six modules were prepared by the support of Senselet project (Table 1).

Courses	Total Hours	Classroom hours	Practical hours	Self-study hours
QL1 M1: Introduction to pharmaceutical logistics and health supply chain	6	4	1	1
QL1 M2: Health commodities: type, characteristics and requirements	8	6	1	1
QL1 M3: Introduction to warehouse operation	8	5	2	1
QL1 M4: Warehouse processes and material flow-in and outbound	19	12	6	1
QL1 M5: Transportation of health commodities	18	11	6	1
QL1 M6: Business communication and job readiness	16	12	3	1

Table 1: List of courses, duration and training modalities identified

4.2.2.2. Training of frontline health logistics workers

Between June 2023 and May 2025, the Senselet conducted 22 training sessions for frontline health logistics workers in Addis Ababa, Adama, Arbaminch, Jimma, and Bahir Dar. Fourteen sessions were held at the trainees' own facilities (e.g., EPSS warehouses, hospital CPD centres), reducing accommodation costs and enhancing practical learning. Hospitals were selected by the Addis Ababa City Health Bureau, and participants were nominated and relieved from duty to attend.

In total, 156 people took part in ToT program in four rounds and a total of 1,048 participants received the basic training by experienced supply chain professionals, with hands-on sessions led by skilled drivers and porters. The training employed lectures, games, demonstrations, and experience sharing (Table 2).

Table 2: Background characteristic of TVET trainees (n=1204)

Variable	Training of Trainers N (%)	(Participant Training N (%)
Gender		
Female	23 (14.9)	173 (16.4)
Male	131 (85.1)	875 (83.6)
Region		
Addis Ababa	53 (34.0)	832 (79.2)
Oromia	24 (4.5)	159 (15.1)
Amhara	2 (1.3)	36 (3.4)
Sidama	24 (15.4)	NA
South Ethiopia	67 (42.9)	21 (2.0)
Central Ethiopia	3 (1.9%)	NA
Occupation/profession		
Pharmacist	139 (46.7)	NA
Biomedical Engineer	2 (1.2)	NA
Porter	NA	593 (56.4)
Driver	NA	239 (22.7)
Others	13 (8.4)	218 (20.9)
Organization		
Hospital	67 (43.5)	272 (25.9)
EPSS	44 (28.5)	531 (50.5)
Health Bureau	36 (23.5)	43 (4.1)
Others	7 (4.5)	202(19.5)

4.2.2.3. Module Standardization and Adaptation to local languages

The six modules were revised to make the modules relevant and appropriate for the target group (frontline health logistics operators). Then the modules were translated into local languages (i.e. Amharic and Affan Oromo).

4.2.2.4. Institutionalization of the frontline health logistics training

In Ethiopia there is no Technical and Vocational Education and Training (TVET) program that prepares frontline health logistics workers for essential tasks such as handling, storage and distribution of health commodities. To institutionalize this, a Technical Working Group (TWG) composed of key stakeholders including the EPSS, Ministry of Transport and Logistics, Ministry of Skills and Labor, regional health bureaus, Civil Service Commission, and the Senselet project was formed with the objective of professionalizing and operationalizing health logistics training. A labour market assessment has been identified as a critical step to understand the skills and development needs of frontline logistics personnel (Fig 11).

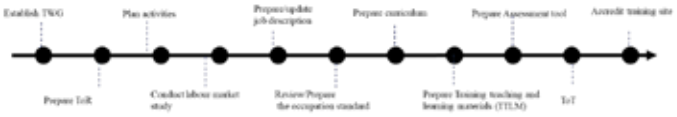

Figure 11: Roadmap for TVET Health Logistics training institutionalisation

Sample photos for TVET trainings

4.2.3. Flagship Projects

Two flagship projects that support initiatives already taken by the Ethiopian Ministry of Health, Ethiopian Public Health Institute, Ethiopian Pharmaceutical Supply Services and Tikur Anbessa Specialized Hospital (TASH) to improve the general access to NCD care and to respond for humanitarian crisis were identified and implemented. These were:

4.2.3.1 Strengthening Pharmaceutical Supply Chain Management at Tikur Anbessa Specialized Hospital (TASH): This involves targeted interventions to enhance the hospital's day-to-day pharmaceutical supply chain activities.

4.2.3.2 Standardization of Health Emergency Kits (HEKs):
This component supports the development and implementation of standardized kits for use in public health emergencies across Ethiopia.

4.2.3.1. Improving TASH Pharmaceutical Supply Chain Management

This flagship project aims to strengthen the pharmaceutical supply chain at TASH, focusing on improving medicine availability and reducing wastage. It is a collaborative effort between the Pharmacy Service Directorate of TASH, Department of Social and Administrative Pharmacy, School of Pharmacy and the Senselet project, involving healthcare professionals, academics and students from the HSCM MSc program.
Key activities include process mapping, formulary revision, improved quantification, and waste minimization. Prior to implementation, experts from the University of Geneva conducted a baseline assessment and helped develop a process evaluation protocol (Table 3).

Intervention 1	process mapping of TASH's pharmaceutical supply chain management
Intervention 2	revision of the hospital formulary list 2.1 Senior management buy-in 2.2 Workshops organized with key stakeholders
Intervention 3	redesign of the pharmaceutical forecasting process (focused on replenishment request; also improve budget forecast) 3.1 change forecasting data source (shifting from warehouse to prescriptions data) 3.2 develop and implement a combined quantification approach (epi + consumption) 3.3 develop guidelines/ SOPs for the revised forecasting approach 3.4 CPD training to TASH staff
Intervention 4	redesign of the pharmaceutical waste management process 4.1 developing and popularizing guidelines (waste management, donations) 4.2 developing waste management plan 4.3 conducting training of staff 4.4 create alert system for near-expiry products 4.5 create re-distribution system for near-expiry products 4.6 implement a 24-hour dispensing system in in-patient wards. 4.7 disposal of unusable pharmaceuticals including sorting, documenting, and appropriate processing for disposal.
Intervention 5	upgrade selected IT infrastructure at TASH 5.1 purchase and set-up computers for SCM 5.2 distribute new laptops to key staff

Table 3: Flagship related activities in TASH

Under flagship initiatives at Tikur Anbesa Specialized Hospitals various activities had been performed, some of these include TASH supply chain process of the hospital mapped, Formulary list been drafted, different forecasting models were developed. Expired medicines segregated. Accumulated pharmaceuticals waste has been sorted segregated, repackaging and documented. Waste minimization activities for near expiry products namely regular alerts to prescribers and dispensers and redistribution of near expiry products to different outlet within the hospitals and to other hospitals strengthen.

4.2.3.2. HEK Standardization

Ethiopia faces recurring public health emergencies but lacks a standardized Health Emergency Kits (HEKs) system, leading to delayed and inefficient responses. To address this, a multidisciplinary task force was formed in December 2022, led by the Ministry of Health and supported by partners like WHO, EPHI, and others. The task force identified critical gaps in emergency supply management through a structured, consultative process. It developed standardized HEKs that were aligned with global guidelines and adapted to Ethiopia's needs with the input of relevant experts from various disciplines.

In the first phase, five kits were standardized: Cholera, Essential Public Health Emergency Service, Nutrition, sexual and Reproductive Health, and Trauma and Emergency surgery kits. For each kit, SOPs for forecasting, procurement, packaging, distribution, and waste disposal were developed (Fig 11).

Figure 11: Standardized HEKs Dissemination Workshop

5. Challenges

The project experienced different challenges, some of which are listed below.

- The project experienced delays during the first six months, primarily due to a lag in fund transfers and the time required for stakeholder mobilization and need assessments.
- There was an extremely high demand for training support from various institutions nationwide, which exceeded the project's capacity due to limited resources.
- Security conditions in specific regions led to rescheduling training sessions, flagship project implementation, and subsequent delays.
- Bureaucratic procedures within the government procurement process also contributed to implementation delays.
- The number of students enrolled in the HSCM MSc program is below expectations primarily due to the high cost of living in Addis Ababa and the increase in tuition fees at the university.

6. Recommendations

•Leverage regional training institutions and CPD centers to improve equitable access and sustainability by targeting underserved and remote areas.
•Establish a centralized digital platform to host all accredited CPD modules and materials.
•To enhance the quality and relevance of CPD modules, use blended development approaches involving subject matter experts, developers, and local professionals.
•For consistent emergency response, Institutionalize standardized Health Emergency Kits (HEKs) across stakeholders and regions.
•Develop clear guidelines for the procurement, packaging, and distribution of HEKs.
•Promote local manufacturing of HEK components to reduce donor dependency and improve responsiveness during emergencies.
•Strengthen coordination among MoH, EPSS, NGOs, and partners for kit planning, mobilization, and replenishment.
•Regular reviews of HEK contents should be conducted to maintain relevance to emerging health threats.
•Expand the standardization process to include additional types of emergency kits.
•Develop a structured TVET program specifically tailored to health logistics roles, addressing current gaps in practical skills.
•Sustain and expand training opportunities to meet high demand among frontline health logistics workers.
•Create new training modules on Safe handling, use, and storage of medical gases, Cryogenics and emergency response for MGPS cylinders, Infection prevention, and First aid for porters and ambulance drivers.
•Expand scholarship schemes for the MSc in Health Supply Chain Management to improve access, enrolment, and retention.
•Offer evening and weekend program options to accommodate working professionals.
•Strengthen program promotion efforts to attract high-quality applicants.
•Provide PhD students with comprehensive scholarships, including tuition and monthly stipends.
•Enhance academic advising, progress monitoring, and mentorship to support student commitment and timely completion.

7. Sustainability

The project demonstrates strong potential for sustainability due to its inclusive, capacity-building approach that actively engages a wide range of stakeholders. Its activities are well-aligned with existing government structures and ongoing initiatives, ensuring institutional ownership and integration. By embedding the project within these frameworks, its impact can be maintained and scaled beyond the project period.

8. Lessons Learned

There is a high demand among frontline health logistics workers for training to improve their knowledge, skills, and attitudes. However, no structured program links vocational training with the practical technical skills required for job readiness in this field. This gap highlights the need to design and institutionalize a TVET program tailored to health logistics roles.

Institutionalizing CPD training through dedicated centers and integrating CPD within public and private institutions promotes sustainability, ensures continuity, and enables employers to track trainees' progress.

Participation in the module development process provided valuable experience and skill-building opportunities for local professionals, contributing to capacity building in the sector.

Early involvement of key stakeholders was critical in facilitating access to a wide range of experts for the kit development process. This collaborative approach enabled the Ministry of Health (MoH) and Ethiopian Public Health Institute (EPHI) to carry out a well-informed prioritization process, identifying the most critical emergency kits. The knowledge and experience gained through this process can be shared with other countries facing similar public health preparedness challenges.

9. Next Steps

•Develop training modules on the safe handling, use, and storage of medical gases, cryogenics, and emergency procedures for Medical Gas Pipeline Systems (MGPS) and cylinders, specifically for porters and ambulance drivers.

•First aid training should be included as a complementary component for these frontline workers.

•Sensitize hospital and health bureau leadership to ensure proper provision of personal protective equipment (PPE) for logistics staff, addressing current gaps in occupational safety.

•Institutionalize logistics training programs through TVET colleges to ensure sustainability, national accreditation, and alignment with skill development frameworks.

•Scale up CPD training using newly developed modules, focusing on underserved and hard-to-reach regions.

•Develop additional CPD modules and digitalize existing content to increase accessibility and support flexible learning.

•Institutionalize CPD delivery within dedicated centers and implement monitoring systems to ensure consistent quality and relevance of training.

•Finalize standardization of the six health emergency kits, incorporating stakeholder feedback for content validation.

•Pilot standardized kits in real emergency settings to test usability, effectiveness, and readiness.

•Integrate standardized kits into national emergency procurement and warehousing systems to guarantee timely availability during public health crises.

•Continue expanding HEK standardization in line with emerging national health emergency priorities and threats.

10. Conclusions

The Senselet Project has demonstrated the importance of investing in human resource development and institutional capacity to strengthen Ethiopia's public health supply chain. By strategically targeting key areas such as Continuing Professional Development (CPD), Health Emergency Kits (HEKs) standardization, Academic Capacity Building, and Technical and Vocational Education and Training (TVET), the project has laid a strong foundation for long-term system resilience.

The project's achievements are tangible and impactful. One thousand one hundred fifty-one professionals were trained through CPD programs using 12 newly developed modules tailored to national needs. In parallel, 1,216 frontline logistics workers benefited from targeted TVET programs to equip them with practical, job-ready skills. In higher education, 33 MSc students and 5 PhD candidates received academic and financial support, contributing to the country's growing base of supply chain professionals and future leaders.

Despite notable successes, the project also faced challenges such as delays due to fund disbursement bottlenecks, regional security issues, and low MSc program enrolment, which highlighted the complexities of implementing system-wide interventions in dynamic contexts. Nevertheless, these obstacles offered valuable lessons and underscored the need for sustained stakeholder engagement, flexible implementation strategies, and long-term investment.

The Senselet Project has proven that coordinated, context-sensitive, and inclusive approaches can drive meaningful change. As the health system continues to evolve and respond to new demands, the tools, partnerships, and capacities developed through this initiative will serve as a solid platform for continued progress. Ensuring the sustainability of these efforts through institutionalization, digital transformation, and policy alignment will be vital for scaling the impact and achieving Ethiopia's broader health system goals.

In moving forward, the project's legacy should not only be measured by the number of trained or standardized kits but also by its contribution to building a responsive, efficient, and equitable health supply chain system that ultimately serves the needs of the population.

Annexes

CERTIFICATE
OF APPRECIATION

THIS CERTIFICATE IS PROUDLY PRESENTED TO:

Senselet Project

For giving TVET training for drivers, porters and cleaners of our hospital on Health commodity transportation and business communication for 2 rounds.

Hospital Chief Executive Officer

Ethiopian Pharmaceutical Supply Service — Proud to Serve

Certificate of Recognition

This certificate is presented to **Senselet – Project** in appreciation of their outstanding technical contributions to the **Health Supply Chain Management Professional development** from July 2023 to June 2024

Dr Abdulkedir Gelgelo
Director General
Ethiopian Pharmaceutical Supply Service

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Strengthening Healthcare Supply Chain Management and Education in Ethiopia