Building a Stronger Ukrainian Health System: Assessment of SAFEMed Capacity-Strengthening Efforts

September 2025

SAFEMed

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Acronyms and Abbreviations

AMP	Affordable Medicines Program
ART	antiretroviral therapy
ARV	antiretroviral
CPH	Center of Public Health
ERP	enterprise resource planning business system
FGD	focus group discussion
HTA	health technology assessment
IT	information technology
KII	key informant interview
LCS	local capacity strengthening
MOH	Ministry of Health
MPU	Medical Procurement of Ukraine
MSH	Management Sciences for Health
NHSU	National Health Service of Ukraine
SCA	State Control Authority
UAH	Ukrainian hryvnia
USD	US dollar

Executive Summary

This assessment aimed to evaluate the extent to which SAFEMed's capacity-strengthening activities from 2017 to 2025 have contributed to the development of Ukraine's pharmaceutical and supply chain management systems. It focused on identifying key outcomes, measuring sustainability, and understanding the impact of activities across five technical workstreams, including evidence-based policy setting, product quality assurance, procurement, reimbursement, supply chain optimization, and digitalization.

To achieve these objectives, the assessment employed a mixed-methods approach combining a comprehensive desk review, qualitative interviews, and focus group discussions. Specifically, 312 project documents containing qualitative and quantitative information—including progress reports including project indicators, technical briefs, and training reports—were systematically analyzed to identify activities and outcomes. Additionally, individuals from institutions that participated in SAFEMed's capacity-strengthening activities were purposively selected, with data collected through 40 semi-structured key informant interviews (KIIs) and 3 focus group discussions (FGDs). Participants included government officials, healthcare providers, regulatory staff, and private sector representatives involved in the project.

The findings confirm that SAFEMed's capacity-strengthening activities have been sustainable and impactful. These efforts addressed critical priorities such as establishing and strengthening the Medical Procurement of Ukraine (MPU), reforming supply chain systems for programs like HIV, TB, and COVID-19, and advancing digital health solutions like MedData, eStock, and an enterprise resource planning (ERP) business system. For example, we provided strategic, legal, and technical support that helped MPU evolve into a highly professional full-cycle procurement and distribution hub, resulting in cost savings exceeding UAH 9.2 billion (USD 259 million) over six years through central procurement.

Capacity strengthening in supply chain systems for priority health programs including HIV and TB was significant, improving access to medicines—including antiretrovirals and vaccines—despite wartime disruptions. The adoption of digital

tools facilitated real-time demand tracking and optimized logistics and fostered transparency and accountability, which in turn contributed to the system's resilience during emergencies. Furthermore, SAFEMed contributed to aligning Ukraine's pharmaceutical practices with international standards through capacity assessments, knowledge exchanges, and the development of legal and procedural frameworks.

This report highlights the importance of designing capacity-strengthening activities that account for global standards and local capacities, maintain adaptability in crises, and promote systemic reforms that foster long-term sustainability. Continued digitalization, stakeholder coordination, and institutional strengthening are essential to ensuring Ukraine's pharmaceutical system remains durable, resilient, efficient, and capable of addressing future public health challenges.

Introduction

Background Information

SAFEMed is an eight-year (2017–2025) project funded and guided by the U.S. Government in Ukraine. The project strengthens Ukraine's pharmaceutical system in line with Ministry of Health of Ukraine (MOH) reform goals by improving access to lifesaving high-quality medicines, optimizing budget use, and drafting and operationalizing new policies. SAFEMed collaborates with key partners like the MOH, National Health Service of Ukraine (NHSU), Medical Procurement of Ukraine, Center of Public Health (CPH), State Expert Center, and State Service of Ukraine on Medicines and Drug Control, focusing on the following project objectives:

- Strengthening governance in the pharmaceutical sector
- Optimizing funding of the pharmaceutical sector
- Improving the availability and appropriate use of medicines

Throughout the life of the project, we have undertaken substantial capacity-strengthening efforts across all three project objectives, targeting Ukrainian institutions as well as personnel in the government and the private sectors. These efforts aimed to boost the ability of local organizations to improve pharmaceutical and supply chain management services to the people of Ukraine. Capacity-strengthening activities have included supporting the establishment of new government institutions and functions within existing institutions, development of national curricula and training programs, staff secondments, mentoring and coaching, study exchanges, and other initiatives to ensure progress sustainability. Selection of which capacity-strengthening approach to take relied on input from local counterparts, global best practices, local experience, and standardized tools.

Key Objectives and Research Questions

This assessment aimed to determine the extent to which SAFEMed's capacity-strengthening activities have been systematically institutionalized across its five technical workstreams and to identify key outcomes based on assessment

participants' perspectives and a detailed document review. The US Government and Management Sciences for Health (MSH)'s conceptual framework for local capacity strengthening (LCS) informed the research design and questions.

The five project workstreams are[1]:

1. Evidence-based policy setting
2. Product quality assurance and transparent pharmaceutical system
3. Stronger state reimbursement system
4. Advanced public procurement instruments and operations
5. Optimized quantification and supply chain for priority commodities

This assessment sought to answer the following questions:

1. What capacity-strengthening activities did SAFEMed implement?
2. To what extent have these activities led to sustainable performance improvements within pharmaceutical and supply chain management institutions?
3. In what ways has digitalization contributed to institutional strengthening?

Assessment Methodology

This assessment employed a mixed-methods approach that combined desk review and qualitative and quantitative data sources to ensure a comprehensive and reliable evaluation. An embedded sequential design ensured systematic and thorough analysis. This methodology balanced different data types to generate a richer understanding of processes and perceptions beyond existing documentation. The use of mixed methods also increased the validity of findings, minimized bias, and captured both numerical data from program and implementation records as well as contextual insights from key informant interviews and focus group discussions. Primary data sources included transcripts from key interviews and focus groups, and project documents and project data served as secondary data sources. This integrated approach addressed the

[1] As is to be expected with a project of this length, the project workstreams evolved and were influenced by factors such as MOH's needs, COVID-19, and Russia's full-scale invasion of Ukraine. This study is based on the workstreams from the last year of the project.

project's complexity, spanning eight years and including the COVID-19 pandemic and full-scale invasion of Ukraine starting in 2022, when in-person participation in capacity-strengthening activities was limited, especially in the first 18 months of the war.

Desk Review Methods

SAFEMed conducted a comprehensive desk review of project documents including progress reports with project indicators, technical briefs, and training reports using a structured data collection worksheet to systematically capture information from project documents. For each document reviewed, an MSH LCS expert external to the SAFEMed project recorded the specific capacity-strengthening activities with the corresponding SAFEMed workstream; whether activities were structured (e.g., workshops, trainings, or other formal learning events) or unstructured (e.g., coaching, mentoring, on-the-job training, or learn-by-doing); key outputs; quantitative measurement and qualitative description of new skills and behavioral changes and institutional outcomes. The analysis covered documentation from project years 1 to 7, during which the project underwent significant changes in workstreams including names, meanings, and priorities. Despite these shifts, this report consistently uses the terminology and framework defined in project years 7 and 8. SAFEMed reviewed 312 documents including quarterly and annual progress reports, technical briefs, technical reports, and training reports and then analyzed the results to identify the range of activities and quantitative and qualitative outcomes. MSH's Local Capacity Strengthening Conceptual Framework was used to shape the review (Figure 1).

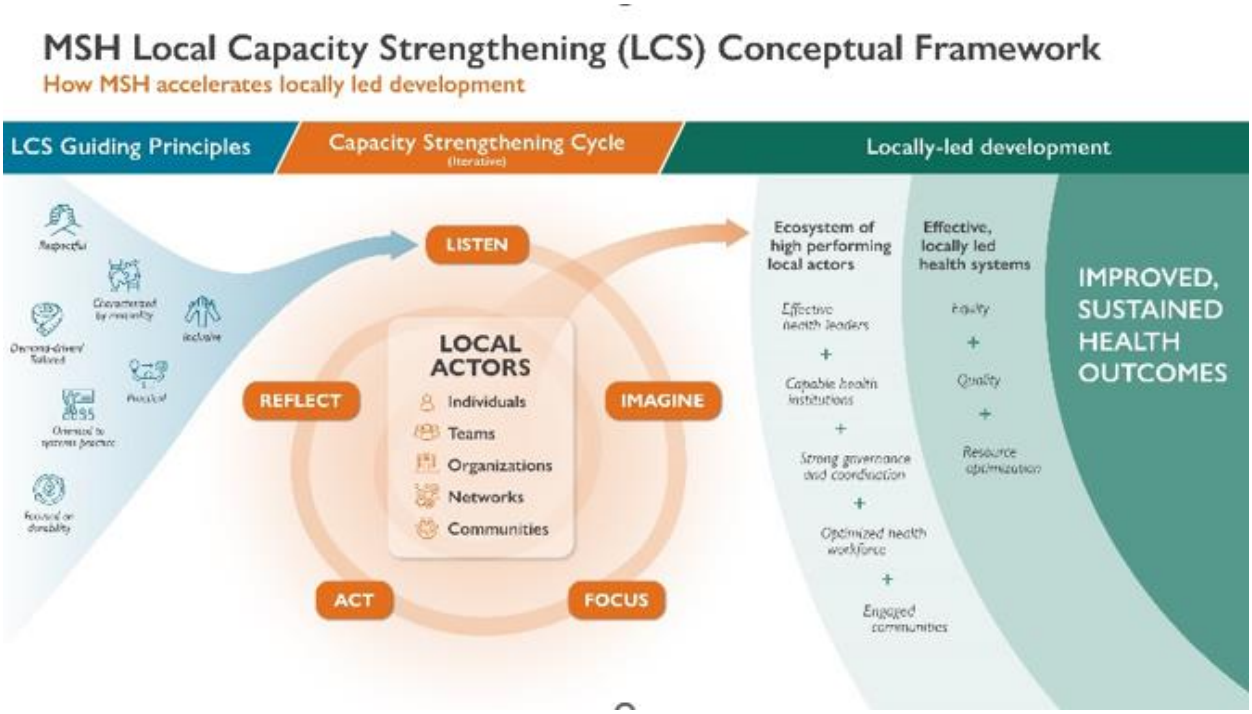

Figure 1. MSH LCS Conceptual Framework

Qualitative Methods

Semi-structured interview guides were developed in English (Annex 1) and translated into Ukrainian. We conducted a pilot test and incorporated additional probing questions, prompts, and contextual explanations to improve the effectiveness and relevance of the tools' use in the field. These adaptations included translating abbreviations, expanding clarification questions, and tailoring the questions to the specific responses anticipated from operational and managerial-level respondents. While these adjustments made the tools clearer and culturally appropriate, they also helped mitigate potential issues such as misinterpretation or loss of nuance to ensure more reliable and contextually relevant findings. Importantly, these modifications did not alter the core content or findings but supported accurate interpretation within the Ukrainian context, thus strengthening the validity of the data analysis.

Three FGDs comprised individuals (19) who participated in team-based capacity-strengthening activities, while KIIs (21) were held with individuals who engaged in individual capacity-strengthening efforts. Interviews and focus groups explored

respondents' experiences with SAFEMed's capacity-strengthening activities. Discussions covered direct participation and with respondents emphasizing the results and changes resulting from these activities.

Sampling and inclusion criteria: Purposive sampling was used to select 40 individuals from institutions that participated in SAFEMed's capacity-strengthening activities. (Annex 2 has full participant lists and participation status.) The inclusion was limited to adults aged 18 or older currently or previously employed by an institution that received capacity-strengthening support from SAFEMed and who directly participated in project-led capacity-strengthening activities. Individuals were excluded if they were under the age of 18 or declined to participate.

Recruitment: We invited individuals to participate via email, followed by a phone call using a standardized script. The script explained the purpose of the study and how participants were selected and reiterated the voluntary nature of participation with no consequences for declining. A maximum of three contact attempts were made per individual. For those who agreed to participate, the KIIs or FGDs were scheduled at a mutually convenient time. Annex 3 summarizes the recruitment efforts. We contacted 54 individuals, which resulted in 40 enrolled participants (response rate: 74%).

Informed consent: Informed consent was obtained verbally before the interview, using the informed consent script at the start of the interview. Participation in this assessment posed minimal risk. Therefore, verbal consent was appropriate.

Analysis: All FGDs and KIIs were conducted in Ukrainian, audio-recorded, and transcribed. The analysis was conducted by Ukrainian-speaking specialists, which helped minimize the risk of losing essential subtleties of meaning due to linguistic differences. We reviewed the transcripts to identify patterns and themes. Finally, SAFEMed staff deeply familiar with the eight years of project activities mapped the themes to one or more workstreams to support data interpretation. This mapping activity did not change findings from the qualitative analyses but rather supported accurate interpretation.

Data Triangulation

Data from the methods were triangulated to strengthen the validity and depth of the findings. Patterns and themes emerging from the combined analysis informed the development of best practices in capacity strengthening to explain the observed relationships between activities, contextual factors, and outcomes. The identification of these best practices was grounded in evidence from both data sources, allowing for a nuanced understanding of how and why SAFEMed's capacity-strengthening efforts produced their effects.

Limitations

This assessment had several limitations. The qualitative findings relied on self-reported data, which may have been subject to recall bias or social desirability bias. Recall bias arose when some KII and FDG participants grouped outcomes and impacts from multiple trainings; however, mapping themes to specific workstreams helped address this challenge and improve validity. Additionally, we drew the qualitative data from a purposive and snowball sample, which may have limited the generalizability of the findings to all individuals or institutions involved in SAFEMed's capacity-strengthening efforts. While the project made efforts to recruit participants from across the eight project years, some early-stage participants could not be included due to different factors, such as their current high-level government positions and limited availability. Finally, while capacity strengthening is a commonly understood term in English, it does not have an exact equivalent in the Ukrainian language. During data collection and analysis, we observed inconsistencies in how this established terminology was applied in Ukrainian, which could have potentially affected the interpretation of participants' responses and the overall thematic analysis. To address this, as noted above, all FGDs and KIIs were conducted in Ukrainian and bilingual English and Ukrainian-speaking research specialists analyzed the transcripts and experienced SAFEMed staff mapped the identified themes to relevant workstreams.

For the desk review, while documents were systematically reviewed, many described successful outcomes of project activities and may not have reflected the full range of challenges experienced and overcome to achieve success. Furthermore, the assessment covered an eight-year period during which COVID-19 and wartime conditions significantly affected access to participants and partners'

documentation. The ongoing crisis shifted priorities and limited opportunities to gather comprehensive data, meaning that perceptions and challenges from earlier years might differ from those relevant today.

Assessment Results

The findings highlight key capacity-strengthening initiatives, their role in enhancing sustainability performance, and the contribution of digitalization. This report section combines desk review results with insights from the KIIs and FGDs. Supporting these findings are relevant statistics, indicators, and direct quotes from respondents to provide a comprehensive understanding of the impact.

Evidence-based Policy Setting

SAFEMed implemented targeted capacity-strengthening initiatives focused primarily on building national expertise in health technology assessment (HTA) as well as establishing the HTA function and optimizing the use of the essential medicines list. FDG and KII participants recalled key activities to institutionalize HTA, including conducting pilot HTA studies and supporting the development and adoption of a national HTA procedure. They noted that SAFEMed improved the availability and appropriate use of essential medicines and supported procedural changes:

> *Without SAFEMed, we would not have gained experience from the pilot project on hospital assessment of medical technologies. International experts were impressed that we managed to do this under wartime [conditions]. These are institutional changes that will leave a lasting impact.*

> *…improving the availability of medicines for patients – both in terms of geography and price [thanks to the system support of the HTA].*

We conducted structured learning activities such as formal training, workshops, forums, and produced an instructional video series designed to build practical skills in essential medicine list demand quantification, policy application, anticorruption, and HTA. A wide range of stakeholders attended the learning events including government officials, academics, healthcare providers, and members of the pharmaceutical sector. Participants noted that the training sessions leveraged

multiple educational formats and supported initiatives like the ePrescription fraud-prevention verification function.

Digitalization played a meaningful role in institutional strengthening by supporting the consistent application of evidence-based tools. SAFEMed developed and disseminated digital learning products including instructional videos on essential medicines list quantification and COVID-19 demand forecasting. Integrating digital tools into capacity strengthening helped reinforce major concepts, supported ongoing learning, and enabled broader participation, particularly when travel or in-person gatherings were limited:

> *The development and dissemination of digital training modules and video tutorials allowed for broad participation, especially important during wartime restrictions and for remote capacity strengthening.*

Through technical training, systems development, stakeholder engagement, and digital innovation, SAFEMed helped institutionalize evidence-based approaches and set the cornerstone for continued improvement in pharmaceutical governance including the development of regulatory and legal frameworks, established new institutions such as the HTA Department, and promoted digital innovations that underpin ongoing improvements:

> *With SAFEMed we have been actively working on the development of HTA, in particular, we have supported [with the help of SAFEMed's consultants] about 50 regulatory acts regulating the procedure for health technology assessment process, and have contributed to their development and implementation, including conducting pilot HTA studies and supporting the adoption of a national procedure.*
>
> *SAFEMed supported the adoption of a national HTA procedure and facilitated the involvement of legal experts to draft the regulatory framework, laying a strong foundation for evidence-based decision-making.*
>
> *As part of the SAFEMed project, we were supported and actually contributed to the creation of a department for medical technology assessment at the State Expert Center of the Ministry of Health of Ukraine. This was one of the key stages of institutional development, which allowed for a systematic and*

transparent assessment of medicines and medical devices, contributing to increasing the accessibility and safety of medicines for the Ukrainian population.

I am impressed by such dedication to this course [Training in Health Technology Assessment, Netherlands, Radboud University]. …. This is not some superficial knowledge, [it was] not basic, [there were] a lot of specific examples in various countries. A lot of additional information, which they did not spare, sent various reports so that we could see how they were not only carried out, but how they were drawn up.

Product Quality Assurance and Regulatory Alignment

The mixed-methods approach found that SAFEMed implemented diverse capacity-strengthening initiatives to align Ukraine's pharmaceutical regulatory practices with international standards. Structured and informal activities focused on enhancing technical skills such as how to conduct literature reviews, economic modeling, budget impact analysis, and ethics assessments.

Bioequivalence. Our assessments of local bioequivalence study centers led to recommendations for organizational improvement and continuous professional development. Participants highlighted that SAFEMed's capacity assessments and improvement initiatives for local biomedical and regulatory centers improved quality of the services they provided:

Assessments of bioequivalence study centers allowed us to identify gaps and develop targeted recommendations for organizational improvement and staff training.

This [SAFEMed] support has contributed to improving the quality and reliability of local [bioequivalence] studies, which are crucial for clinical approvals and regulatory trust.

With the support of SAFEMed, a regulatory framework for bioequivalence confirmation procedures was developed and maintained, allowing for a higher level of safety and quality of medicines.

State Control Authority (SCA). SAFEMed also supported the establishment of the SCA, that will oversee pharmaceutical regulations, by providing training programs designed for personnel in existing regulatory bodies and knowledge-exchange visits to regulatory bodies in Sweden, Poland, and the United States. These visits helped Ukrainian officials gain firsthand exposure to international regulatory frameworks and administrative innovations.

With the support of SAFEMed, a team of experts is working in Ukraine to develop a concept and regulatory [legal] framework for the creation of a new state control body that will cover the functions of analysis, evaluation and regulation of medicines and medical devices.

SAFEMed is directly involved in the development of the methodology, procedures and documentation necessary for the launch and operation of the body, including the creation of mechanisms for data collection and analysis, their automation and integration.

Table 1 summarizes the status of legal acts needed to establish the SCA.

*Table **1.** Legislative framework to establish SCA supported by SAFEMed and consultants as of September 2025*

Legislation (legal acts)	Number of acts	% of total
Already adopted	10	20%
Drafted	20	40%
Yet to be developed	8	16%
Technical acts/no amendments required/non-urgent/minor changes	9	18%
Outside the scope of SCA	3	6%
TOTAL	**50**	**100%**

SAFEMed helped organize visits to Sweden, Poland, and the U.S., providing Ukrainian officials with direct exposure to advanced regulatory frameworks and administrative innovations. Additionally, the project provided technical assistance in drafting and submitting the European Union Twinning Fiche[2].

With the support of SAFEMed, a draft application and terms of reference for the implementation of the Twinning project were prepared, allowing Ukraine to create a body with a European model of regulatory activity.

SAFEMed involved specialists and consultants who were engaged in the development of a technical solution for the creation of such a body, taking into account the experience and standards of the European Union.

With the support of the SAFEMed project, an analysis and modeling of the functionality of the future body was carried out, as well as documentation was prepared for further implementation within the framework of the Twinning project.

Mobile pharmacies. SAFEMed contributed to the development and institutionalization of mobile pharmacies to improve access to medicines in underserved areas including conflict-affected regions. The qualitative findings verified that specific activities led to tangible improvements such as more citizens receiving medicines thanks to mobile pharmacies and stronger stakeholder engagement and coordination in national regulatory reforms. One participant said that:

Operational mobile pharmacies [set of rules and operational procedures] have been successfully established [with SAFEMed facilitation], and stakeholder engagement in regulatory reforms has significantly strengthened.

Digitalization. Digitalization was also instrumental in supporting institutional growth. Interviewees noted that we helped enhance cybersecurity systems and:

[2] Document that outlines the objectives, activities, and expected results of the technical assistance or partnership project aimed at capacity building and institutional strengthening within the European Union framework.

…supported the initiative for the National Medicines Verification Organization, strengthening digital infrastructure for medicine safety.

The integration of accounting systems is being developed within the framework of the Twinning project to create a single digital regulator, which will allow for automation of management and reduction of bureaucracy.

State Reimbursement

SAFEMed implemented a comprehensive suite of capacity-strengthening activities to support the development and institutionalization of Ukraine's pharmaceutical reimbursement program, also known as the Affordable Medicines Program (AMP). In addition to organizing training sessions, SAFEMed worked with the NHSU Academy to develop learning modules to improve the reimbursement process.

SAFEMed supported technical and soft skills training for NHSU staff, strengthening their capacity to manage the reimbursement program effectively.

Coaching NHSU reimbursement experts was a key activity to build their expertise and support the institutionalization of the program.

Consultants were hired and integrated into ongoing projects to develop, implement, and support new IT systems, which are tasks that are beyond the capacity of state institutions to perform independently. Our support for enhancing digital systems with consultants' efforts included integrating NHSU's digital infrastructure, supporting the development of fraud detection and pricing automation tools to increase transparency and efficiency, and developing a reimbursement software module aimed at improving process efficiency.

The development of an SAP-based reimbursement module was a significant activity that modernized the financial processes within the program.

SAFEMed helped us to automate the ePrescription tracking system, ensuring transparency and quick access for patients and healthcare professionals.

SAFEMed organized AMP forums and workshops to encourage stakeholder dialogue and promote shared learning and feedback collection.

Reimbursement Forums and regional workshops created platforms for frontline stakeholders to share feedback, challenges, and best practices.

These user-centered learning formats strengthened collaboration between the ministry, NHSU, and regional partners, facilitating system improvements.

These efforts led to measurable and sustainable improvements. NHSU built a stronger internal team to administer the reimbursement program that issued approximately 96.7[3] million ePrescriptions with a high fulfillment rate nationwide (Figure 2) and with an 856% increase in the cumulative number of prescriptions filled annually (Figure 3).

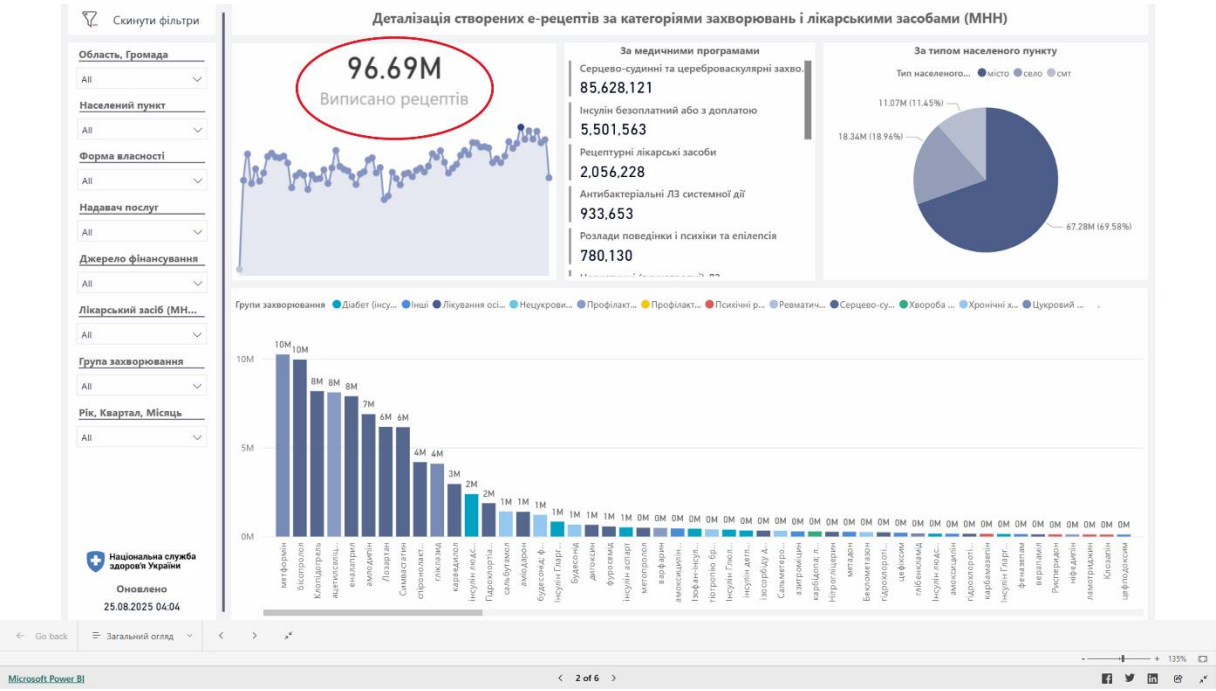

Figure **2***. Prescriptions issued according to NHSU dashboard data as of August 25, 2025*

[3] Data as of August 25, 2025, resource - NHSU website https://edata.e-health.gov.ua/e-data/dashboard/reimb-prescription-details

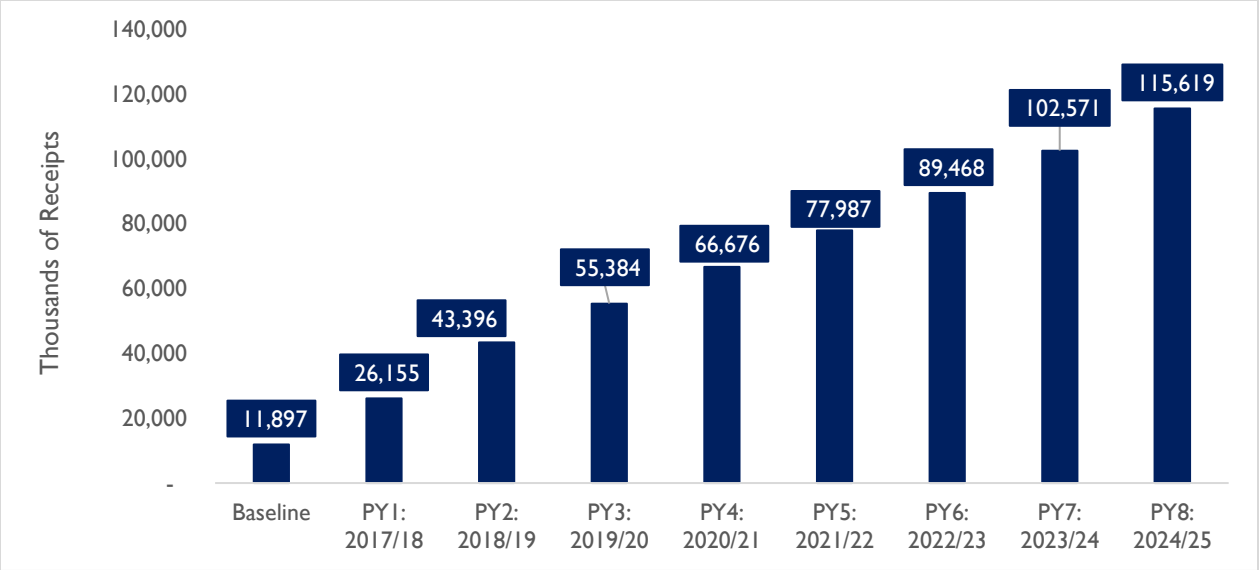

Figure 3 Project indicator #2 Cumulative number of prescriptions filled out of total number of medicines prescribed under the AMP as of Q3 PY8 (2025)

Public Procurement

SAFEMed contributed significantly to the establishment and strengthening of the national procurement agency, MPU, which was documented through the desk review and verified by the qualitative findings. We supported MPU from its inception by providing legal, technical, and strategic assistance, including embedding consultants as its first staff through to its transition to full-cycle procurement and distribution hub and its merger with another MOH-managed state enterprise, Ukrmedpostach.

> *SAFEMed helped us to create MPU from scratch, supporting the design of its organizational structure, procurement strategy, and governance models. They also supported the merger with Ukrmedpostach, which transitioned MPU into a full-cycle procurement and distribution hub.*

We also seconded experts to national bodies to support product forecasting and data visualization and embedded consultants within MPU to build technical capacity and help draft policies and strategies such as MPU's 2024–2026 Human Capital Strategy. Qualitative findings reiterated that SAFEMed's contributions to forecasting, development of strategic documents, and involvement in policy discussions enhanced technical capacity and policy development within national

bodies like the MOH and MPU. The qualitative data also verified expert involvement in IT system development and data analysis for institutional growth.

> *SAFEMed seconded specialists who worked within MPU, providing tailored technical expertise and sharing best practices that helped us improve our operational routines and strategic planning.*

> *SAFEMed's support in developing MPU's Human Capital Strategy for 2024–2026 was instrumental. They provided expert input and conducted training that helped us formalize our leadership and development initiatives, enabling long-term institutional growth.*

To build internal capacity of various organizations, including the MPU, the project facilitated extensive training initiatives and programs. These training initiatives covered a wide array of topics relevant to MPU's functions, such as supply chain management, data management, leadership, performance management, and specific skills such as category management and patent law.

> *The training programs supported by SAFEMed helped us develop practical skills, which are critical for transitioning MPU into a full-cycle procurement and distribution hub. It was very beneficial for staff capacity building.*

> *SAFEMed's initiatives helped embed a culture of continuous learning within MPU, including leadership development programs, which are now part of our strategic planning.*

SAFEMed bolstered these efforts with support during emergency procurements such as during the COVID-19 response and through implementing compliance functions and anticorruption mechanisms and organizing strategic donor coordination meetings. During COVID-19, we helped develop IT systems for vaccine tracking and distribution.

> *When COVID hit, it became clear that Excel spreadsheets could not withstand such dynamics and such volume. And they [MOH] turned to us [embedded consultant] again.*

Participants' mentions of anticorruption certification and public events related to anticorruption indicated efforts to put war-related compliance functions in place.

References to communication with donors and coordination meetings further supported the project's claim of strategic donor coordination.

These investments in institutional and human capital led to tangible and sustainable performance improvements. Cumulatively, MPU saved over UAH 9.2 billion (~USD 259 million) through efficient, transparent centralized procurement from 2018-2025 (Figure 4) and an additional UAH 5.7 billion (~USD 160 million) from 2021 to August 2025 by using eCatalog as the main tool for regional procurements with savings reinvested to provide more free medicines and services to patients (Figure 5).

> *SAFEMed supported the development and implementation of an eCatalog system for purchasing and accounting of medical devices, which ensured process automation and increased transparency.*
>
> *With the help of SAFEMed, we organized trainings for healthcare workers on the correct use of the Prozorro eCatalog system, which helped increase their competence and procurement efficiency.*

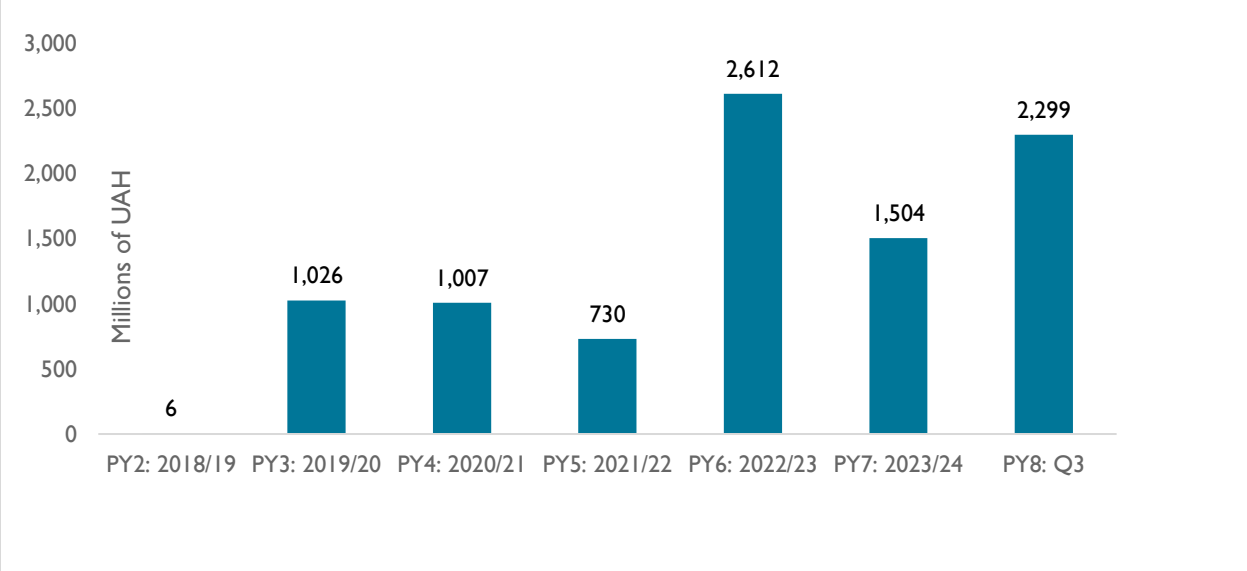

Figure **4***. Project indicator #5: Money saved by the health care system through central procurements as a result of USG support by project yearly through Q3 PY8 (2025)*

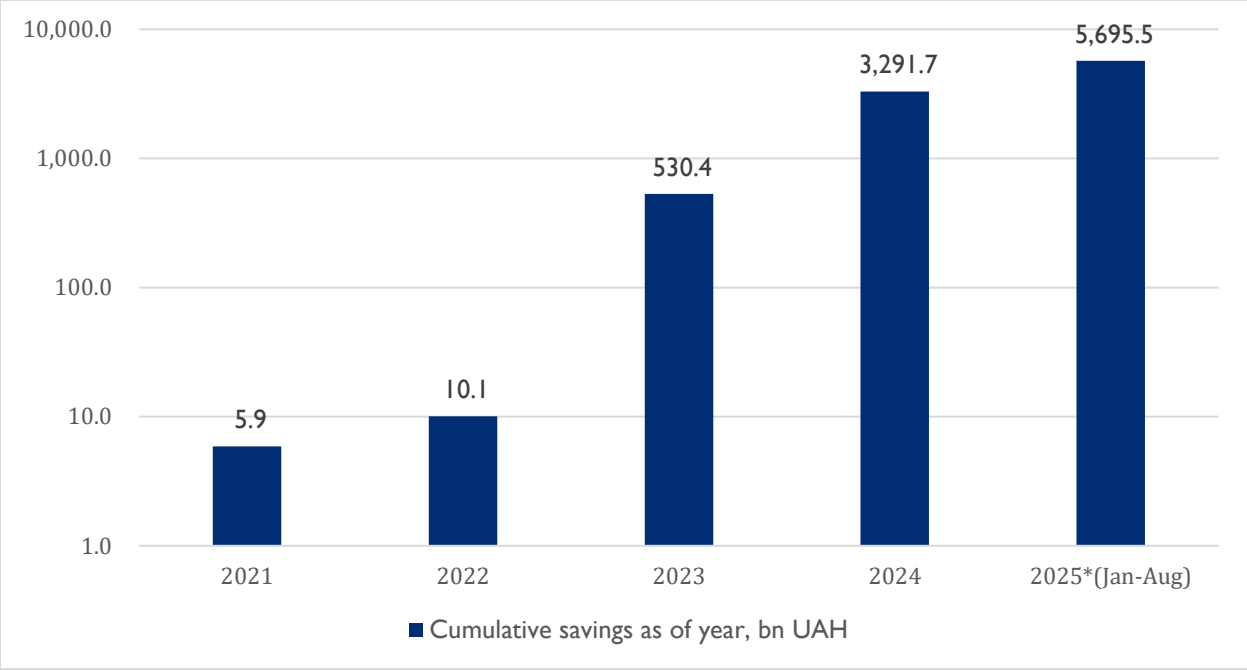

Figure **5***. Money saved by the health care system through eCatalog procurements: January 2021-August 2025*

SAFEMed also supported MPU access and use to reliable medicines pricing data from external sources such as those provided by private sector medicine and pricing databases SMD and Pharma14.

Overall, SAFEMed's approach fostered institutional resilience and helped create a more efficient, transparent, and sustainable pharmaceutical supply chain in Ukraine. SAFEMed's contributions to supply chain improvements through training, development of IT systems (eStock, MedData), support for regional warehouses, and logistical assistance improved pharmaceutical supply chain efficiency, transparency, and resilience. Participants specifically described improved data management, reduced corruption risks, and better coordination with international organizations, which support the notion of a more sustainable system.

> *Support from SAFEMed in developing modules and dashboards increased transparency and provided a reliable analytical basis for policy decisions in medicines supply and reimbursement.*
>
> *It [SAFEMed's trainings and leadership and development program] definitely gave a common understanding of the supply chain, which is incredibly*

important for our current activities. It influenced the current operating procedures that we have in place today.

As part of the SAFEMed project, we created a new website, a modern portal that allows all patients and doctors to quickly check stocks and needs, as well as obtain information about procurement and certification, which significantly improved accessibility and transparency.

The development and use of digital tools such as MedData, eStock, and MPU's SAP-driven ERP played a crucial role in institutional strengthening. These systems improved forecasting, enabled real-time demand tracking from over 2,500 facilities, streamlined data processing, and market analysis that increased MPU's negotiation capabilities while also fostering accountability, and also improved MPU's ability to respond to public health needs efficiently and at scale. The comments of key informants supported evidence of SAFEMed's effectiveness in institutional strengthening.

Now [due to SAFEMed's support] there is the possibility to take, for example, the system's historical data [and] see the usage. Accordingly, you can track exactly where these medical devices are being used. Again, this improves the quality of data and the responsibility of institutions regarding reporting and the impossibility of manipulation, [like] resale or something like that.

Over the past 7 years [because of SAFEMed efforts], there has been significant progress in the digitalization of the Ministry's processes: compared to 2018, it is difficult to imagine what it was like at all. Well, everyone is so used to the fact that some basic things are digitalized, they are convenient, they are done in a few clicks.

Supply Chain for HIV/TB/Vaccines

SAFEMed implemented a wide range of capacity-strengthening activities across Ukraine's supply chain ecosystem for priority programs such as HIV, TB, hepatitis, COVID-19, and other immunizations, as well as humanitarian aid during the war. These efforts included extensive training programs on drug quantification, procurement, vaccine logistics, and immunization supply chains. SAFEMed also seconded experts to national bodies to support forecasting and visualization and

embedded consultants within MOH, CPH, and regional bodies to build technical capacity and provide hands-on support in logistics coordination and dashboard development. Participants further noted support for vaccine delivery during COVID-19, including logistical assistance and improving regional warehouses.

> *With the support of SAFEMed, training was provided for regional staff on how to use the vaccine accounting system, which contributed to improving the efficiency of logistics and inventory management.*
>
> *SAFEMed financed and coordinated the creation of a vaccination accounting module, which significantly improved inventory control and procurement management in accordance with current needs.*
>
> *The developed system with automatic adjustment of vaccine stocks allowed hospitals and regions to quickly respond to changes and vaccination needs, which increased availability and safety.*

SAFEMed's extensive activities focused on HIV and TB supply chain systems aimed to reinforce government stewardship. Participants spoke of activities to strengthen data-driven decision-making, develop IT tools, and support legal and regulatory reforms to improve these specific supply chains. They also described a model system of laboratory optimization in HIV, TB, and hepatitis:

> *[We] created a system of laboratory research. Colleagues [from SAFEMed] analyzed the systems that are available and offered several options for how to optimize the systems. Also, [they worked] on attracting, finalizing, [and] developing a model of laboratory capacity to assess models, provide laboratory [services], [and] conduct laboratory research in the field of HIV, tuberculosis, and hepatitis.*

For HIV and TB commodities, SAFEMed enhanced the forecasting and quantification capacity of the MOH, MPU, and CPH, and developed a modern antiretroviral (ARV) quantification e-tool integrated with MedData. The project supported the transition and expanded access to World Health Organization-recommended tenofovir/lamivudine/dolutegravir regimens and improved regional warehousing and last-mile delivery through a private sector logistics model compliant with Good Distribution Practice. These efforts led to measurable and sustainable

improvements such as increased ARV access, optimized stock levels, and expanded service delivery to over 230 health facilities. The development of e-tools integrated with MedData, support for last-mile delivery, and collaboration with the private sector was mentioned by one participant, while others acknowledged SAFEMed's support collecting and using relevant data and delivering medicines to end users.

> *The distribution of medicines—this project covered in coordination with our TB manager and in coordination with regional specialists. They were all SAFEMed consultants.*

Over the course of the project, SAFEMed assisted with deliveries to 513 unique[4] medical institutions across all regions of the country[5]. For example, figure 6 illustrates the number of ARV shipments to antiretroviral therapy (ART) sites.

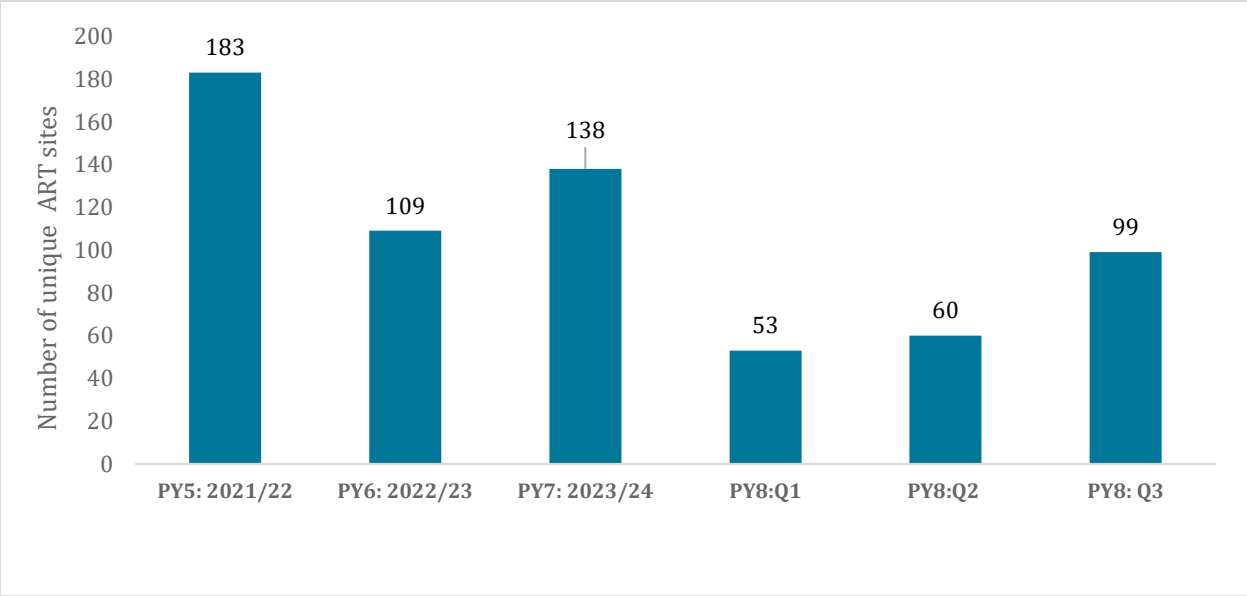

Figure 6. Project indicator #8: Number of unique ART sites receiving at least one shipment of ARVs (engaged in public-private partnership intervention) through June 30, 2025

Digitalization—automation, dashboards, and data interoperability—greatly contributed to institutional strengthening by enabling transparent, real-time planning and monitoring. Even during the war, these systems sustained HIV and TB service delivery, aligning with U.S. Government's strategic priorities.

[4] Facilities identified by EDRPOU number, the Ukraine tax ID code.
[5] Coverage varied due to availability constraints resulting from military actions.

[SAFEMed] colleagues developed an online tool for collecting ART needs.

There was a need to assess the regional warehouses that store ART. [SAFEMed] colleagues responded very quickly. They had just hired a consultant. They expanded the "scope," and he conducted assessments of the regional warehouses according to a methodology that suited everyone well. It was such a good [effort] and quickly worked out.

The project also assessed and helped improve regional distribution center capacities and supported COVID-19 vaccine supply chains through training, daily troubleshooting, and coordination. These capacity-building efforts contributed significantly to sustainable performance improvements; for example, the training led to higher-quality quantification data from regions and improved procurement procedures. Long-term sustainability was bolstered by institutionalizing practices such as more accurate methods for estimating demand for commodities and standardizing data use in decision making. Ultimately, we delivered 9.7 million vaccines (Figure 7).

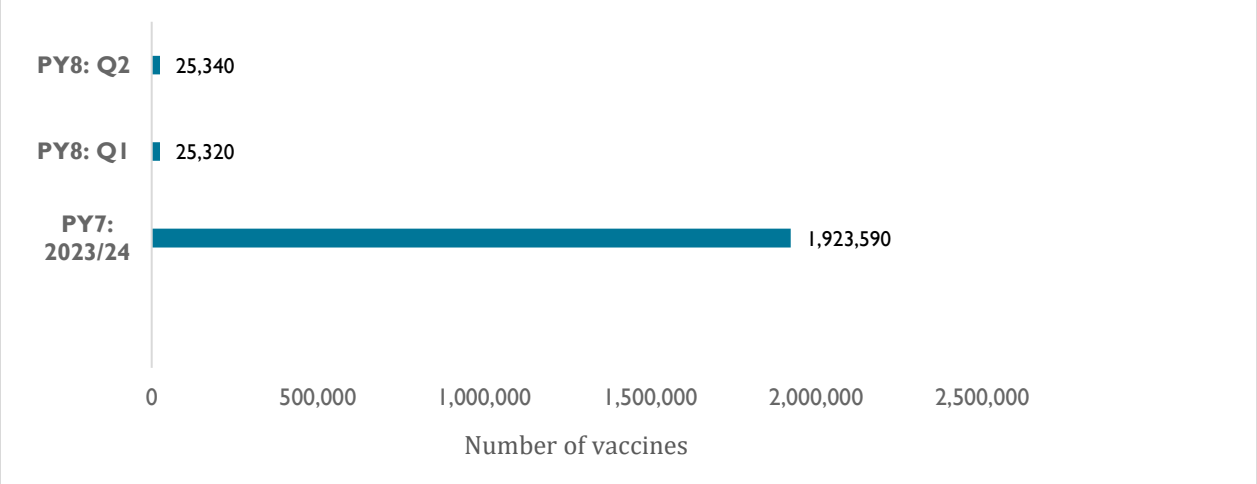

Figure 7. Number of COVID-19 and routine vaccines received through COVAX, European Union, or other sources and distributed to the regions through Q2 PY8

Regional immunization coordinators, who had the status of seconded project consultants, were deployed to manage vaccine stock, and facility assessments identified needed improvements to logistics and infrastructure. Digitalization contributed to this transformation with SAFEMed developing and institutionalizing dashboards and MedData modules to monitor stock and vaccine distribution,

increase accountability, and support data-driven decisions. These tools now serve as core infrastructure to improve vaccine supply chain management and are embedded in national immunization planning, which demonstrates tangible institutional strengthening through digital integration.

> *SAFEMed coordinated the development and implementation of the eStock system, which allowed for centralized accounting of drug stocks, requests, and distribution in the regions, increasing transparency.*
>
> *The implementation of the eStock system allowed hospitals and regions to quickly and accurately track stocks and needs, which significantly improved resource planning and management.*
>
> *Thanks to this system [eStock], it is possible to automate the transfer of information, reduce human errors, and increase the efficiency of drug stock management.*

SAFEMed's Local Capacity-Strengthening Approach

As part of the analysis, researchers sought to further elucidate SAFEMed's approach to LCS given the Ukraine's unique operating context. Elements of this approach are described in the following sections and depicted in Figure 9 below.

Identifying Key Project Actions/Practices

The analysis of documents and study participants' stories revealed a series of five recurring practices that we applied in working with local partners, described below.

1. **Start with the local system and align capacity strengthening with local priorities**

SAFEMed employed an intensive dialogue mechanism to collect information about current needs, considering the broader context of health system reforms and national development. The approach studied macro-level demands for change including the U.S. and Ukrainian governments' strategic goals and Ukraine's international commitments and development priorities.

We determined needs through in-depth communication with the management and key specialists of government partners and beneficiaries and with other in-country experts. Special attention was given to understanding the unique context of each organization, their role within national reforms as well as their developmental history, current challenges, and processes for formulating their needs and strategies. This approach allowed for rapid identification of real gaps in competencies or processes and directed efforts toward areas where change will have the maximum impact on the local health system and contribute to achieving sustainable national development goals.

> *At the beginning of each year, we gather with the entire team. The [MOH] International Cooperation and Support Department communicates with all stakeholders and identifies the needs.*
>
> *We directly engaged regional and local institution leaders during the needs assessment, organizing numerous face-to-face meetings and consultations to gain a deep understanding of their unique context, history, and current challenges.*
>
> *During discussions with regional leaders and experts, we paid special attention to understanding unique processes, such as identifying organizational needs, their internal mechanisms, and roles in national reforms, which allowed us to quickly identify real gaps.*
>
> *Needs were identified based on personal communication between managers and subordinates. We met quite frequently, including regional meetings. These were operational regional gatherings.*

2. Adapt support to ensure sustainable institutional growth

SAFEMed did not impose external solutions, rather it consistently boosted the existing potential of partner organizations by building on their strengths to empower them to find solutions based on their context and expertise. The spectrum of capacity-strengthening activities included consultations, training, mentorship, and support for specific tasks such as development of internal procedures, management of strategic changes, and program renewal.

SAFEMed's flexible solutions considered the diversity of needs and contexts. Particular attention was paid to staff capacity development and the cultivation of leaders at partner organizations to ensure long-term impact and foster sustainable growth.

> *Each [capacity-strengthening] program had certain perks that will help every team member in the future, both in their personal lives and in their professional careers.*

> *SAFEMed has many activities that require understanding the specifics of the local market or how certain sectors are structured here, such as the pharmaceutical industry or other areas. From our side, if we see that certain information is missing, we proactively reach out [to SAFEMed] and communicate our needs. We have very proactive and serious dialogue.*

> *Through consulting and mentoring, SAFEMed helped to increase internal competence, skills and leadership qualities, which allowed us to independently respond to challenges and develop.*

3. Help institutions to develop strategies and set goals

The project facilitated strategic sessions, supported the development of strategic documents, and assisted in transformational and structural changes. Organizations received guidance in setting realistic goals, planning, and implementing both national and organizational reforms. An essential element of this approach was joint planning and progress measurement, which ensured transparency and accountability throughout the process.

> *If we talk about government organizations, I believe that thanks to SAFEMed's activities, these organizations now have, first of all, the opportunity to see the strategic goal.*

> *They [SAFEMed] actively involved organizations in shaping their own plans and procedures, taking into account their own context, development history and available human resources.*

SAFEMed covers a wide range of activities, starting from involving consultants who assist us across different areas. For example, the transformation of the Supply Chain Agency, human resources, and communication strategies.

4. Facilitate dialogue, alignment, and agreement on future action

An important aspect of SAFEMed's approach was establishing effective communication among all stakeholders. We often served as an 'honest broker' helping facilitate dialogue between ministries, international organizations, the expert community, and the private sector, particularly in developing reforms, legal changes, and professional growth. This approach is built on the principles of mutual respect and partnership, with careful consideration of the potential consequences of capacity-strengthening efforts and a focus on seeking common vision across stakeholders with diverse perspectives and interests. The project integrated partner feedback at all stages to help guide adjustments and ensure relevance in a dynamic context.

[Meetings] were highly effective and more will follow. We are eagerly looking forward to SAFEMed's support. SAFEMed helps coordinate these meetings and also brings its own expertise to them. In other words, this is not just supporting the Ministry of Health but also coordinating efforts with the industry. The industry is involved, providing its input and feedback. It is actively analyzing the regulations drafted by the MOH's team. Moving on to the second point, SAFEMed's representatives are included in the MOH's working group.

For this, an open discussion is held [facilitated by SAFEMed] with the involvement of various specialists. In order for the initiatives implemented to be more effective and to have a greater positive impact, this process needs to be open, more transparent, professional [which SAFEMed facilitates].

5. Prioritize digitalizing processes and using IT tools effectively

SAFEMed played a vital role in the health system's digital transformation by supporting the development and implementation of IT solutions that increased the efficiency of data collection and analysis, procurement management, logistics, and other major areas. This involved creating and deploying technological tools as well

as assisting partners to develop necessary digital skills and competencies. This supports the sustainable use of new technologies and ensures their integration into everyday workflows, which follows the principles of local capacity strengthening and long-term sustainability and streamlines performance and helps to monitor it.

> *…when we partnered with SAFEMed, we finally understood how to move forward. We finally agreed on a solution that was acceptable to the MOH as well as on the overall ecosystem, and SAFEMed financed all four [digital] modules.*
>
> *Thanks to MedData, we can track the specifics, like stock levels and vaccine usage. We flag any issues, like when a certain batch has expired but is still being used as if it had a longer shelf life, and we provide advice [to health care facilities]. We're happy with it.*

By supporting capacity strengthening that helps counterparts achieve their strategic vision and by developing digital skills and facilitating dialogue among different actors, SAFEMed not only addressed immediate challenges but also built the base for ongoing sustainable development of the healthcare system. Acting as an independent mentor and facilitator, SAFEMed unified the efforts of stakeholders to continue constructive dialogue and implement effective solutions that serve the interests of all participants.

Categorizing LCS Activities

In addition, researchers further analyzed the comprehensive list of over 150 different capacity-strengthening activities that the project undertook and compiled them into five distinct categories or types of support. The categorization helped to further characterize the types of strategies the project used. These categories include *training* (including study visits), *building infrastructural capacity*, and hosting *public and private events* focused on sector-specific dialogue. Additional support areas include access to *data and analysis* of specific stakeholder objectives, expert assistance in strategy and *policy development*, and the *preparation of documents* such as laws, orders, and other regulatory acts.

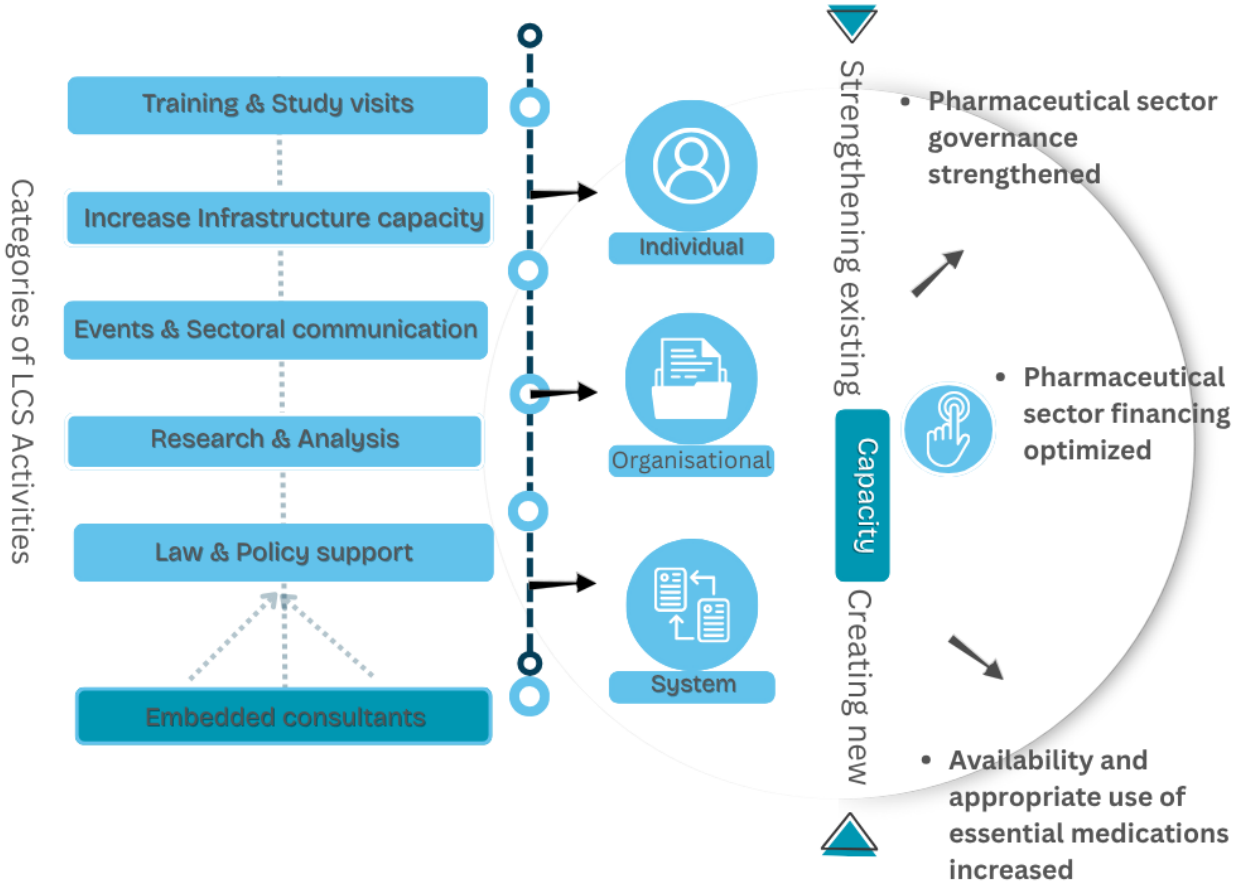

Figure **8***. Depiction of SAFEMed approach to LCS and its link to project objectives*

The last category is the use of *embedded consultants* which was a modality for various purposes; typically, these are professional experts who became part of the stakeholder's team for the duration of specific tasks. This involves filling capacity gaps within the organization, which is especially valuable during the creation of new functions or departments. Consultants were able to establish internal procedures and conduct analyses that are difficult to perform from outside the organization, thereby enhancing overall effectiveness. Using such consultants allowed for the resolution of several of the tasks outlined earlier. For instance, these consultants played multiple roles in the establishment of MPU as core staff members. As MPU grew, many of these consultants transferred to permanent agency staff paid by MPU. The new consultants' functions changed as needs evolved. The percentage of staff members to consultants increased dramatically over time. Additionally, embedded consultants in later project years addressed highly specific and sensitive

issues, such as the development of complex digital solutions. IT consultants became part of stakeholder teams and supported the development and implementation of these solutions while ensuring confidentiality for sensitive regulations and maintaining continuity.

With MPU as well as other organizations, we observed several examples whereby consultants, over time, transitioned to working directly within the organization, supported by its resources. As consultants, they gained knowledge and experience and documented their work, which they formalized through subsequent permanent roles within the organization.

Effect of LCS Approach at Individual, Organization, and System Levels

The five practices and five categories of activities were utilized at individual, organizational, and systemic levels to strengthen the potential of local partners. These practices and different activities could function independently or in different combinations, depending on the specific goal. The selection of nature of support was guided by the intended outcome. For example, the same activity can serve different purposes and be applied at various stages; expert consultations and research, for instance, may be used at the beginning of change processes to help set organizational goals, or they may be used later to support the adaptation of existing systems or to evaluate how a single type of practice contributes to developing individuals, organizations, and the system as a whole. The choice of LCS practice or activity often depends on whether the goal is to support existing capacities of local actors or to create new ones. The development of individual capacities produces professionals who can function as ambassadors for system strengthening and generate long-term effects. Importantly, the MSH LCS conceptual framework highlights this as a key aspect of local development, and our experience validates it. Nevertheless, the most effective impact was achieved through a comprehensive approach using all available practices and types of activities to maximize results.

Based on the description of outcomes from the different types of support, the assessment results demonstrated a strong synergistic effect in strengthening the

overall health system. Although different LCS activities may simultaneously influence the individual, organizational, and system, the outcomes supported each other and even generated additional synergies, creating a multiplier effect. This process aims to enhance the capacity of local actors, organizations, and institutions by assisting in strategic planning, goal achievement, supporting existing functions and creating new functions. It operates both as a process and as a practice for system strengthening with the goal of increasing local actors' capabilities and standard of performance, which are crucial for the health system's overall development that ultimately impacts patients.

This theme was a consistent thread throughout the qualitative research: participants repeatedly discussed outcomes, which illustrated not only direct links between activities and outcomes, but also more complex relationships such as activity + activity = outcome + activity = impact[6].

[6] For a more detailed analysis of activities and outcomes, please refer directly to the qualitative research report added as Annex 4.

Discussion

The following discussion section presents an analytical reflection on key themes, insights, and strategic considerations that emerged during the assessment process. While these themes are grounded in the detailed findings of the assessment, they also incorporate SAFEMed's broader reflections on systemic challenges, opportunities, and lessons learned throughout the project's implementation. This section aims to synthesize assessment results with expert perspectives, providing deeper insights into enabling factors for sustainability, identifying areas for future focus, and translating findings into practical recommendations for ongoing and future health system reforms.

Balancing Breadth and Depth in Stakeholder Engagement

SAFEMed's broad engagement approach has fostered inclusive reforms in Ukraine's healthcare system. Involving a wide range of stakeholders from government officials to the private sector ensured diverse perspectives and greater reform ownership. However, this wide scope posed challenges in catering to different knowledge levels and priorities. Targeted communication and participatory practices helped address these differences. Stakeholder groups like regulatory bodies and healthcare providers were especially valuable for their direct influence on policy and service delivery. Deepening engagement with these groups through ongoing dialogue, feedback mechanisms, and joint planning could further enhance impact; in addition, our role in fostering continuous collaboration and capacity strengthening can help deepen these relationships, making reforms more effective and sustainable across all levels.

Global Standards vs. Ukrainian Realities

Aligning Ukraine's pharmaceutical system with global standards has been a central focus of the project's efforts. While this alignment promotes higher health product quality and safety, it also presents challenges and trade-offs. In some cases, strict adherence to global standards may conflict with Ukraine's specific needs, local capacities, and the realities of ongoing war and resource limitations. For example, enhancing regulatory requirements to match those designed for well-resourced countries may be difficult for Ukrainian institutions to implement quickly or fully, potentially delaying access to medicines. Additionally, existing infrastructure or technical expertise in areas like bioequivalence and

health technology assessment may not yet meet world benchmarks, thereby creating a gap between aspiration and feasibility.

Striking a balance involves prioritizing reforms that align with best practices while considering Ukraine's context. SAFEMed's role in facilitating phased implementation, providing specific technical assistance, and adapting standards to local capacities helps achieve this balance. This approach ensures that Ukraine progresses toward benchmarks without compromising the system's functionality or responsiveness to national challenges.

The Importance of Local Expertise

SAFEMed hires and integrates consultants to develop and support new IT systems, tasks considered beyond the capacity of Ukrainian public institutions to manage independently. The need for external expertise, often from within Ukraine, reflects the complexity and specialization required for cutting-edge digital systems, which may not yet be widely available in public sector entities. Our approach aims to strengthen public sector local capacity over time by transferring knowledge and skills through these collaborations. In the short term, engaging experts fills critical gaps and accelerates system development, but a sustainable goal remains strengthening local skills to reduce external dependency. This reliance underscores the need for capacity-strengthening programs to develop specialized skills within Ukraine's healthcare workforce to ensure that national institutions can eventually independently maintain and expand these systems. This process is essential for long-term sustainability and local ownership of system improvements.

Adaptability in Crisis

SAFEMed's ability to quickly pivot capacity-strengthening activities to prioritize essential support during emergencies such as the COVID-19 pandemic and the war highlighted the project's flexibility and ongoing relevance. When traditional activities were disrupted, SAFEMed quickly developed and deployed new solutions such as the Humanitarian Aid Tracking Module in MedData that enabled real-time data collection, demand forecasting, and supply chain monitoring. These tools promoted continuous procurement, distribution, and service delivery under crisis conditions. This rapid response demonstrated SAFEMed's capacity to address urgent public health needs by ensuring that lifesaving medicines and vaccines reached populations even during upheaval. The project's flexibility in shifting focus and leveraging digital innovations underscores its vital position in strengthening Ukraine's health system resilience by allowing it to better withstand and respond to unforeseen challenges now and in the future.

Prioritizing Integration

SAFEMed's approach has emphasized the importance of not only strengthening individual components of Ukraine's supply chain but also creating a cohesive and well-coordinated whole. By connecting procurement, logistics, digital tools, and legal reforms, the project has helped create a pharmaceutical sector ecosystem where data flows seamlessly, transparency is enhanced, and decision making is data driven. This integration ensures that each part of the supply chain supports the others effectively, reducing redundancies and gaps. For example, digital platforms like MedData and eStock link procurement and inventory management that provide decision makers at multiple levels with accurate and timely information on stock levels, demand forecasts, and supply chain performance. System-wide integration increases efficiency and resilience and creates a unified health supply network better equipped to meet national needs and respond to crises.

Data-driven Decision Making

Increased access to high quality data empowers authorities to make better decisions, optimize resource allocation, forecast more accurately, and streamline service delivery. With a clearer picture of system performance through real-time monitoring, Ukraine's health systems can respond more effectively to ongoing needs and crises so that medicines and services reach the populations that need them. Overall, digital tools such as eStock, MPU's ERP, and dashboards have become foundational to fostering a culture of data-driven decision making that enhances accountability and system efficiency. Overall, organizations are increasingly using digital solutions, which is in line with the direction of state development and supported by local capacity-strengthening modalities.

Conclusions

This assessment confirmed that SAFEMed's capacity-strengthening activities have been comprehensive and impactful over the project's eight years. Our diverse activities, such as training, stakeholder dialogue, legal reforms, development of digital tools, expert secondments, and others addressed major needs within Ukraine's pharmaceutical and supply chain management institutions. These efforts built technical skills, institutional frameworks, and systemic resilience across multiple areas, including evidence-based policy setting, product quality assurance, procurement, reimbursement, supply chain optimization, and digitalization.

The extent of our activities' influence on sustainable performance improvements is evident in several areas. For example, institutionalization of the national HTA process, improvements in local regulatory practices, and the design of a strategic

procurement and distribution system have made systems more transparent, efficient, and accountable.

Digitalization has emerged as a particularly significant factor in sustainable institutional strengthening. The deployment of digital tools and platforms has helped standardize processes and improve transparency and has enabled real-time monitoring and data-driven decision-making across the health system. SAFEMed's support to MPU and development of digital tools such as MedData, eStock, and the SAP-based ERP have improved real-time data management, demand forecasting, and procurement processes that have translated into substantial cost savings of over UAH 9,258 billion (USD 264.7 million) through central procurement and UAH 5,695 billion (USD 165.5 million) through regional procurement with eCatalog; moreover, the tools improved medicine access including during emergencies like COVID-19 and the war. These innovations have reinforced institutional capacity by facilitating continuous learning, increasing operational efficiency, and strengthening crisis-response mechanisms. Digital modules have laid the foundation for a data-driven culture, building expertise and initial developments that will require less effort for future system improvements and sustainability. Moreover, digital solutions such as dashboards and automated demand estimation form the basis for ongoing system improvements and long-term sustainability.

In summary, SAFEMed's activities have led to tangible, sustainable improvements in Ukraine's pharmaceutical system. Moving forward, further deepening stakeholder engagement, expanding digital integration, and aligning reforms with local contexts will be essential to sustain and build on these achievements.

Recommendations

The following set of recommendations emerged during the KII and FGDs and are based on our identification of successful LCS practices and activity categories, reflecting core insights and lessons learned from the assessment to guide future efforts in strengthening Ukraine's health systems.

For Ukrainian Government Authorities

- Support the continued development and formalization of frameworks such as the HTA process and the essential medicines list by building the capacities of relevant institutions to effectively implement and manage these functions. Strengthening legal and regulatory reforms to embed these practices into formal systems, enhancing the institutional ability to sustain and adapt these processes independently beyond SAFEMed support.
- Proceed with the phased approach to founding the SCA. Prioritize establishing a comprehensive legal framework and enhancing the capacity of local institutions to effectively implement and sustain the SCA by leveraging SAFEMed's ongoing support and lessons learned.
- Expand the use of digital tools like MedData, eStock, ERP, and dashboards by strengthening the technical capacity of local personnel and institutions to further improve transparency, real-time demand forecasting, and decision making; invest in cybersecurity infrastructure to safeguard digital systems and data integrity and foster a resilient and transparent pharmaceutical system.
- Formalize platforms for ongoing dialogue among government agencies, private sector, and international partners by strengthening local institutions' capacity to facilitate inclusive planning, joint reforms, and better alignment across the pharmaceutical ecosystem.
- Continue training, mentorship, and institutional development to grow local expertise especially in digital systems, regulatory practices, and systemic reforms. Aim to reduce dependency on external consultants by strengthening internal capacities for long-term sustainability.
- Prioritize meeting international standards and best practices in a phased manner while considering Ukraine's current capacities and context by balancing high-quality standards with operational feasibility to enable timely reform.

For External Technical Assistance Providers

- Support the formal incorporation of reforms such as evidence-based policy procedures, legal frameworks, and digital systems. Continue to build and strengthen the capacity of local institutions and stakeholders to focus on strengthening local ownership and capacity to ensure these reforms are sustainable without ongoing external assistance.
- Scale up the development and institutionalization of digital tools, ensuring their integration into routine government processes with emphasis on long-term maintenance, regular updates, and cybersecurity measures; promote the institutional use of real-time data and analytical tools for procurement, supply chain management, and policy formulation to support capacity building for data analysis and usage.
- Strengthen collaboration with government institutions, the private sector, and international partners and emphasize participatory approaches in policy reform, digital innovation, and capacity strengthening to foster shared ownership and institutional resilience.
- Continue involvement in systemic reforms like the transition to the SCA and innovative solutions such as mobile pharmacy units by emphasizing phased implementation, legal reforms, and capacity strengthening.
- Maintain capacity for rapidly responding to emergencies by refining digital tools and logistics systems, thereby developing adaptable systems that can sustain services during crisis.
- Prioritize building local expertise through training, mentorship, and knowledge transfer to develop cadres of specialists in digital systems, procurement, and regulation; furthermore, facilitate continuous learning platforms, peer exchanges, and review sessions to institutionalize successful practices, lessons learned, and standards that can guide ongoing reforms and innovations. Finally, supporting the education and continuous professional development of future specialists by facilitating study visits and courses that highlight international best practices will reinforce knowledge transfer, broaden perspectives, and prepare the next generation of experts to sustain and advance reforms.

ANNEX I. Guides and Research Protocol.

SAFEMed Local Capacity Strengthening Interview Guide

Understanding Partners' Experience of SAFEMed Capacity Strengthening Activities

Hello, my name is XXX,. I am the data collection consultant for the Safe, Affordable, and Effective Medicines for Ukrainians project, which I will refer to as the SAFEMed project. I want to thank this group for taking the time to speak with me about your experience of working with SAFEMed to strengthen the capacity of your organization within the pharmaceutical and supply chain systems of Ukraine.

SAFEMed has collaborated with a variety of Ukrainian institutions and government and private sector personnel with the goal to provide improved pharmaceutical and PSCM services to the people of Ukraine. These activities have focused on establishing new government institutions, developing national curricula and training programs, seconding staff to work side-by-side with institutional employees, mentoring/coaching, study exchanges, and more.

We have prepared questions to guide our discussion of any capacity strengthening activities you all have participated in and whether you feel that the capacity of your institution to manage its role within the pharmaceutical and supply chain system has increased through your collaboration with SAFEMed. We expect this conversation will take 45-60 minutes.

Your names and contact information will not be included in any report or any presentation of results. The main risk of participating is breach of confidentiality. This risk is minimal due to strict rules and ethical principles that team members have agreed to abide by. SAFEMed complies with Ukrainian legislation on the protection of personal information and will take all necessary measures to protect your identity. All transcripts will be destroyed 6 months after the study is completed.

Do you have any questions?

Do you all agree to participate in the study? Yes _ No_ Verbal consent will be acknowledged on the survey form. (Verbal consent is recorded). (Ensure each FGD group member provides verbal consent.)

Do you mind if I record this conversation for note-taking purposes?

May we begin recording? (Interviewer repeats question on recording and states that "verbal consent has been obtained.")

Introduction

To start our conversation, can one of you please briefly describe your institution's role in the health system. [Ask if anyone else has more to add.]

In just a few words, how are you involved with SAFEMed activities?

Section 1: Activities

The first dimension of capacity strengthening that we will discuss today is related to the activities you and/or your team has participated in that were supported by SAFEMed**.** Capacity strengthening can range from institutional development of structures, systems, and roles to personal capacity in specific knowledge and skills. Activities can be formal or informal. For example, formal activities might include training workshops to strengthen skills and knowledge in key government programs such as the health technology assessment (HTA) or the Affordable Medicines Program (AMP)or use of a computer application, and institutional development workshops might focus on design of specific institutional systems or procedures. Informal activities might include structured mentoring or coaching, co-development of programs over time through ongoing partnership where the program is institutionalized, or on-the-job training through shared completion of tasks.

1. Can you describe the activities that you participated in supported by SAFEMed in which you feel that you learned new information or developed a new way to do something?

Probing questions:

1a) Please describe the SAFEMed-supported activities that you participated in.

1b) What was the aim of these activities?

1c) How, if at all, were you involved in the design and development of the activities?

1d) How long was the activity or how many times were you assisted by SAFEMed to strengthen that knowledge, ability, process, system, or structure?

1e) How did you feel about the SAFEMed interventions? Did they meet your needs? Why or why not?

Section 2: Outputs

Next, we will talk about the result of SAFEMed capacity strengthening activities you described above.

2. Did you feel you or your organization's capacity was improved by the SAFEMed activities in which you participated?

Probing questions:

2a) [IF KNOWLEDGE/SKILL BUILDING] Was the knowledge or skill presented to you in a way allowed you to effectively learn about the topic?

[IF INSTITUTION BUILDING] Was the system, process, or structure developed in a way that is feasibly and successfully sustained by those who are responsible for its management? Why or why not?

2b) Was the content/purpose of the capacity strengthening activity directly relevant to your needs? Why or why not?

2c) Upon completion of the SAFEMed interventions, did you feel ready to put your new knowledge, skill, process, or system into practice? Why or why not? If yes, please provide an example.

Section 3: Behavior Change

I'd like to ask you about how your daily work or behavior has changed as a result of the SAFEMed activities.

3. What would you say are the most significant changes to your ongoing work as a team or organization due to SAFEMed activities?

Probing questions:

3a) Can you explain any work that your organization performs in a different way after participating in SAFEMed activities?

3b) Are there any components of the activities that have particularly affected you and/or your organization in your role – your workload, efficiency, or productivity?

Section 4: Outcomes

The ultimate objective of capacity strengthening is in the outcomes of changed behavior or practices. In building skills or improving processes, systems, and structures, we look for increased ability to reach desired measurable results.

4. How have SAFEMed supported activities contributed to any changes in outcomes at the individual, team, or organizational levels?

Probing questions:

4a) Have the capacity strengthening activities led to individual or institutional changes in results? If yes, please provide an example.

4b) Have you been able to measure any positive or negative changes in pharmaceutical and supply chain systems or more broadly in the health system based on SAFEMed capacity development interventions? If yes, what measurable changes were identified? If yes, can you share these data with us?

Section 5: Conclusion

5. Is there anything else you would like to tell us about your experience with SAFEMed?

Thank you for taking the time to speak with us today. We appreciate the knowledge and insights you have shared with us.

[Stop Recording]

6. Is there anyone else we should speak with to better understand the experience of participating in SAFMed's capacity-strengthening activities?

Thank you again for your time!

ANNEX 2. Participant Status by Stakeholder Group

Table A1. Participant status — State Enterprise "Medical Procurement of Ukraine"

№	Position level	Position	KII/FGD	Participation status
1	Specialist (non-managerial position)	Lead Market Research Analyst, 2 years of experience	FGD	Participated in FGD
2	Specialist (non-managerial position)	Lead Market Research Analyst, 2 years of experience	FGD	Participated in FGD
3	Specialist (non-managerial position)	Lead Logistician, 2 2 years of experience	FGD	Participated in FGD
4	Specialist (non-managerial position)	Chief Specialist in Public Procurement	FGD	Did not participate in FGD
5	Specialist/middle manager	Head of Logistics Department	FGD	Participated in FGD
6	Specialist/middle manager	Head of Inventory Management Department, 3 years of experience	FGD	Participated in FGD
7	Specialist (non-managerial position)	Lead Market Research Analyst, 2 years of experience	FGD	Participated in FGD
8	Head of International Projects Coordination	Head of International Cooperation Department, 2 years of experience	KII	Participated in KII
9	Head of Department	Head of Contract Support Department, 4 years of experience	KII	Participated in KII
10	Head of Department	Deputy General Director for Legal Affairs, 6 years of experience	KII	Participated in KII
11	Head of Department	Head of Anti-Corruption and Compliance Department	KII	Was not sent an invitation
12	Head of Human Resources	Head of Human Capital Department, 6 years of experience	KII	Participated in KII

№	Position level	Position	KII/FGD	Participation status
13	Head of Strategy	Project and Program Manager in Material (Non-Material) Production, 4 years of experience	KII	Participated in KII
14	Head of Strategy	Acting General Director, 3 years of experience	KII	Participated in KII
15	Head of Strategy	Deputy Director for Customer Service Management and International Cooperation	KII	Was not sent an invitation
16	Head of Strategy	Head of the Medical Supply Branch of the State Enterprise "Medical Procurement of Ukraine"	KII	Participated in KII
17	N/A	Head of Information Technology Department, 6 years of experience	KII/FGD	Was not sent an invitation
18	N/A	Head of Commercial Department, 4 years of experience	KII/FGD	Was not sent an invitation
19	N/A	Employment Specialist (Headhunter)	KII/FGD	KII was cancelled (due to the suspension of SAFEMed activities)
20	N/A		KII	No response to the invitation
21	N/A	She left the organization, received a promotion	KII	Participated in KII
22	N/A		KII	Was not sent an invitation
23	N/A	Head of the IT Department at the MPU	KII	Participated in KII (after the resumption of the field stage)
24	N/A	Product Owner in MPU (over 4 years of experience)	KII	Participated in KII (after the resumption of the field stage)
25	N/A	Former head of the IT department at the MPU, worked since 2018	KII	Participated in KII (after the resumption of the field stage)

Table A2. Participant status — State Enterprise "State Expert Center," Ministry of Health of Ukraine

№	Position	KII/FGD	Participation status
1	Head of the SE “State Expert Center of the Ministry of Health of Ukraine”	FGD	Refusal to participate due to personal circumstances, offered a replacement respondent
2	Deputy Director of the SE “State Expert Center of the Ministry of Health of Ukraine”	FGD	Replacement respondent. No response to the invitation
3	Head of the HTA Department of the SE “State Expert Center of the Ministry of Health of Ukraine”	KII	Participated in KII
4	Head of the Department of Healthcare Standards of the SE “State Expert Center of the Ministry of Health of Ukraine”	KII	Participated in KII
5	Deputy Director of the Department - Head of the HTA Division of the HTA Department of the SE “State Expert Center of the Ministry of Health of Ukraine”	FGD	Participated in FGD
6	Expert of the Department of Economic Evaluation of Medical Technologies of the HTA Department of the SE “State Expert Center of the Ministry of Health of Ukraine”	FGD	Participated in FGD
7	Deputy Head of the Department for Evaluation of the Economic Feasibility of Medical Technologies, Evaluation of Medical Technologies of the HTA Department of the SE “State Expert Center of the Ministry of Health of Ukraine”	FGD	Participated in FGD
8	Head of the Economic Evaluation Division of the HTA Department of the SE “State Expert Center of the Ministry of Health of Ukraine”	FGD	Participated in FGD
9	Deputy Head of the Division for Evaluation of Clinical Effectiveness and Safety of Medical Technologies of the HTA Department of the SE “State Expert Center of the Ministry of Health of Ukraine”	FGD	Participated in FGD
10	Expert of the Division for Evaluation of Clinical Effectiveness and Safety of Medical Technologies of the HTA	FGD	Participated in FGD

№	Position	KII/FGD	Participation status
	Department of the SE "State Expert Center of the Ministry of Health of Ukraine"		
11	Head of the Reimbursement Department of the National Health Service of Ukraine	N/A	No response to the invitation
12	Acting Head of the Pharmaceutical Department of the Ministry of Health of Ukraine	N/A	No response to the invitation
13	Acting Director of the Department of Medical Services of the Ministry of Health of Ukraine, Head of the Policy Formation Department for the Medical Guarantees and Medical Assistance Program	N/A	No response to the invitation
14	PhD in Pharmacy, Associate Professor of the Department of Organization and Economics of Pharmacy, O.O. Bogomolets National Medical University	KII	Participated in KII
15	Endovascular surgeon at the Department of Radiological Endovascular Treatment of Congenital and Acquired Heart Defects, State Institution "M.M. Amosov National Institute of Cardiovascular Surgery" of the National Academy of Medical Sciences of Ukraine	KII	Participated in KII
16	Technical Advisor, Family Health International in Ukraine, Chair of the Expert Committee on HTA	KII	No response to the invitation
17	Director of the CPH	KII	Participated in KII (after the resumption of the field stage).

Table A3. Participant status — Key informants on establishment of the State Control Body

№	Position	Organization	KII/FGD	Participation status
1	Deputy Minister of Health for European Integration	MOH	KII	Participated in KII
2	Acting Head of the Pharmaceutical Department of the Ministry of Health of Ukraine	MOH	KII	Duplicate
3	Director	SEC	KII	Duplicate

№	Position	Organization	KII/FGD	Participation status
4	Deputy Director for Legal Affairs	SEC	KII	No response to the invitation
5	Head	State Medicines and Drug Service	KII	No response to the invitation
6	Director of the Department for Quality Control of Medicines and Blood	State Medicines and Drug Service	KII	No response to the invitation
7	Advisor to the Deputy Minister of Health, project consultant	MOH/SAFEMed	KII	Participated in KII
8	Advisor to the Deputy Minister of Health, project consultant	MOH/SAFEMed	KII	Participated in KII, inconclusive respondent
9	Co-Chair of the House Health Committee, CMS	AmCham	KII	Participated in KII
10	Manager of the Health Committee	EBA	KII	Participated in KII
11	CEO	SMD	KII	Participated in KII

Table A4. Participant status — Regional coordinators

№	Oblast	KII/FGD	Participation status
1	Vinnytsia	FGD	Participated in FGD
2	Zhytomyr	FGD	Participated in FGD
3	Kyiv	FGD	Participated in FGD
4	Lviv	FGD	Participated in FGD
5	Rivne	FGD	Participated in FGD
6	Ternopil'	FGD	Participated in FGD
7	Cherkasy	FGD	Participated in FGD
8	Chernihiv	FGD	Refusal to participate due to personal circumstances

ANNEX 3. Recruitment Results

Specification	Number
Total number of contacts of key informants provided by the client	**61***
Of these, number of contacts who Info Sapiens recruiters contacted	54**
Key informants who participated in the KIIs/FGDs	40
Of these, the key informants who provided inconclusive KIIs	1

Key informants who did not respond to the KIIs/FGDs participation invitation	9
Key informants who refused to participate in the KIIs/FGDs	2
Key informants whose KIIs were canceled due to the temporary suspension of SAFEMed Project activities	1
Key informants who participated in the KIIs/FGDs, TA "State Enterprise "Medical Procurement of Ukraine""	17
Key informants who participated in the KIIs/FGDs, TA "State Enterprise "State Expert Center of the Ministry of Health of Ukraine""	11
Key informants who participated in the KIIs/FGDs, TA "Key informants in the area of formation of the future State Control Body"	5
Key informants who participated in the KIIs/FGDs, TA "Regional coordinators"	7
* *2 contacts of key informants provided by the client were duplicates.* ** *1 key informant was contacted using the snowball method of sampling (replacing a respondent due to the refusal of another).*	

ANNEX 4. The Qualitative Research Report

Analytical Report