

Learning Question 2: *What conditions or factors successfully facilitate the institutionalization and/or implementation at scale of good practices that improve health system outcomes, and why? What are lessons learned regarding planning for sustainability and achieving results at scale?*

# Auditable Pharmaceutical Transactions and Services (APTS)—Systems Approach for Sustainably Improving Pharmaceutical Management in Ethiopia

Hailu Tadeg, Gabriel Swinth

Medicines, Technologies, and Pharmaceutical Services (MTaPS) Program



## HEALTH SYSTEMS STRENGTHENING ACCELERATOR

### Context

- Describe the context in which the activity takes place. What is the health problem that you are trying to solve? What health system challenges contribute to this problem? How was the approach that you decided to institutionalize/scale up originally implemented? Why did you decide to institutionalize/scale it up?
- In the two decades prior to 2010, Ethiopia improved its primary health care service delivery, particularly in the areas of MNCH, HIV, and tuberculosis. However, pharmaceutical services—a crucial point of care for patients and one of the country's single largest health care expenses—remained inadequate.
    - Essential medicines were often unavailable or expired, and patients were dissatisfied with the poor quality of services they received. On average 8% of medicines in health facilities expired, leading to significant wastage.
    - On average stockouts lasted 99 days per year in public health facilities and regional drug stores (27% of the year) nationally.
    - The antibiotic prescribing rate was 58%, which is indicative of overprescribing.
    - Traceability of pharmaceutical transactions at health facilities was difficult and accountability was poorly defined. The absence of appropriate tools and systems for tracking products and financial information made auditing transactions and services almost impossible. The lack of transparency and accountability in managing medicines and financial transactions made the system vulnerable to theft and misappropriations.
  - The initial idea for APTS emerged out of a recognition from staff at Debre Markos Hospital in Ethiopia's Amhara region that the hospital's poor management of pharmaceutical services prevented the whole hospital from achieving the goals set forth in Ethiopia's Hospital Reform Implementation Guidelines. In response to the request by the hospital for technical support in addressing their pharmaceutical services, the USAID funded Systems for Improved Access to Pharmaceuticals and Services (SIAPS) program developed APTS, which encompasses a package of interventions that addresses accountability and transparency; access to information for decision-making; efficient use of medicines budgets and human resources; and quality of pharmacy services—all of which affect the performance of hospitals in the public sector, and piloted it at Debre Markos Hospital.
  - The success of the pilot program created significant demand from other regions and health facilities for APTS. As a result, SIAPS collaborated with key regional and federal government stakeholders to pilot and scale up APTS to more than 75 hospitals in 10 regions and at the federal level.

### Activity Description

Describe in detail the process you used to scale up or institutionalize this approach. What government agencies or other stakeholders did you work with and how did you engage them? How did you build government/stakeholder ownership or buy-in? How was the scale-up or institutionalization funded? How did you ensure sustainability?

- APTS implementation involves multiple processes, each with a collection of interventions. These processes are managed at multiple levels of the health system and may be implemented concurrently:
  - Developing and enacting regulation (regional/federal)
  - Design and printing of APTS tools (regional/federal)
  - Workforce adjustment and development (facility, regional/federal)
  - Infrastructure improvement and reorganization of pharmacy units (facility)
  - Baseline assessment (facility)
  - Inventory of all medicines and APTS launch (facility)
- While the health sector is the primary stakeholder, APTS interventions require involvement from multiple sectors including the Justice, Finance, and Civil Service Bureaus.
  - The Justice Bureau drafts APTS legislation and submits it for enactment, the Finance Bureau oversees financial and health product management tools in health institutions, and the Civil Service Bureau manages the health workforce
- From the start, building ownership and buy-in from the stakeholders was identified as an important tool both to scale up the intervention beyond the pilot hospital and to ensure that APTS is sustained after the end of SIAPS. To this end, relevant stakeholders were engaged in various forms:
  - Prior to implementation of reforms, regional government authorities participated in the design/drafting of required tools and discussed issues point-by-point and part-by-part until they internalized, understood, and owned the proposed changes.
  - After a successful pilot and rollout in the Amhara region, SIAPS facilitated various consensus-building processes through workshops, site visits and review meetings, to reinforce sharing experiences with others from the pioneer Amhara region and the pilot hospital.
  - Facility-level performance reviews, regional review meetings, and national events on APTS organized by the MOH helped to further advance the buy-in and national scale-up.
- The development and implementation of critical tools and processes, as part of APTS design, also helped in increasing understanding and garnering interest among stakeholders:
  - An implementation guide was developed as a tool to provide managers at regional health bureaus (RHB) and facilities with instructions and steps required for planning and implementing APTS interventions, including building stakeholder buy-in, developing tools, building capacity, and conducting baseline assessments.
  - Having both baseline and interim data proved effective in inspiring change among staff, particularly when the data was "translated" to personal, patient-centered stories
  - The financial data generated from facilities was also compelling evidence to showcase the monumental savings that APTS can help achieve—those having seen the concrete changes became champions for APTS expansion in their respective regions and health facilities.
  - The change in design of workflow and associated infrastructure improvements resulted in a visible outcome in terms of improving patient convenience and reducing waiting time—leading to a complete change in attitude on the part of all stakeholders as to how patients should be served.
- While SIAPS contributed to organizing consensus building and experience sharing events, the resources for tool development/printing, infrastructure improvement, workforce recruitment, etc. were covered by health facilities, RHBs, and the MOH.
- Once a decision was made to scale it up to a national level, supported by a national legislation, APTS became one of the flagship programs of the MOH and it is considered in the annual budgeting at all levels (national, regional, and facility). On many occasions, the MOH and RHBs allocated substantial budget dedicated to supporting printing of key document and infrastructure improvements at health facilities.
- Progressively, all initiatives that supported APTS implementation including workforce recruitment, printing of financial tools, etc., became part of the routine budget of hospitals.

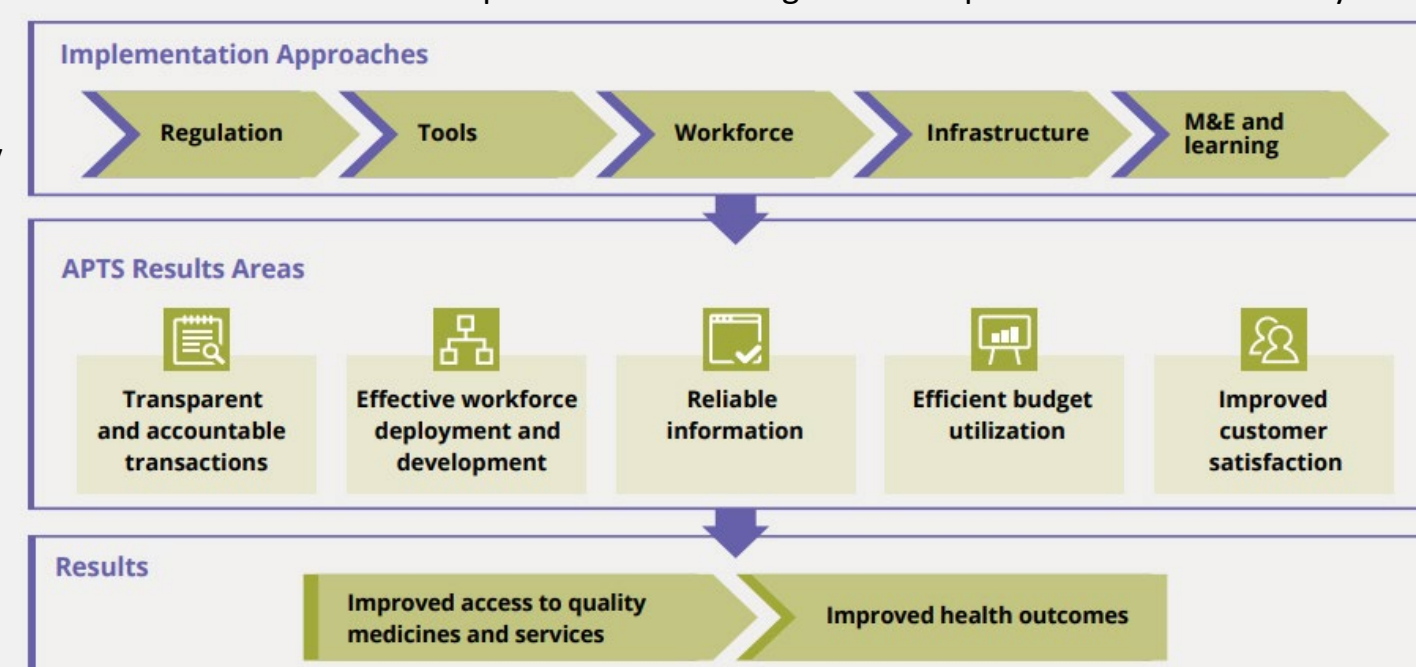


Figure 1. APTS results areas and implementation approaches

### Activity Impact

How did this activity strengthen the health system? Which components of the health system did you act on (for example, did you support improvements in financing, cross-sectoral coordination, governance, local ownership, information, human resources, behavior of health system actors, service delivery, or medical products, vaccines, or technologies)? How did the pieces of your activity come together to impact equity, quality, and/or resource optimization in the health system? How did these improvements in equity, quality, and/or resource optimization lead to better health outcomes? How does this activity contribute to health system resiliency and/or sustainability?

- APTS interventions fall under five result areas which correspond to the five system strengthening building blocks:
  - Transparency and accountability in managing medicine transactions (governance)
  - Effective workforce deployment and development (human resources)
  - Reliable information (information)
  - Efficient budget utilization (financing)
  - Improved customer satisfaction (service delivery)
- The comprehensive nature of the APTS approach provided the opportunity to tackle the challenges from different angles which helped to effectively address the problem:
  - The change in pharmacy layout improved patient convenience by streamlining services and facilitating patient-pharmacist interactions.
  - Improvements in medicines budget management led to optimized use of resources and more consistent availability of medicines at affordable prices.
  - The improved product tracking and reporting led to a decline in medicine wastage due to expiry and pilferage, which lead to huge savings for the facilities.
  - APTS helped facilities determine their human resource needs, which facilitated pharmacy workforce hiring, leading to optimized pharmacist-to-patient ratios.
  - The introduction of new personnel, such as pharmacy accountants and cashiers, increased access to financial information on medicine sales, reduced leakage, and contributed to a substantial reduction in waiting time and greater patient convenience.
  - The improved quality of service, medicine availability, and patient convenience substantially increased patient satisfaction of services.
- In summary, APTS systemic approach improves the overall performance of hospitals, resulting in improved infrastructure, reduced medicine expiration and wastage, improved budget management and efficient utilization, and a larger and more diverse mix of staff for pharmacy management, which, as a whole, improves health outcomes. Moreover, APTS is supported through legislations making its implementation mandatory, ensuring sustainability, which contributes to the overall health system resilience.

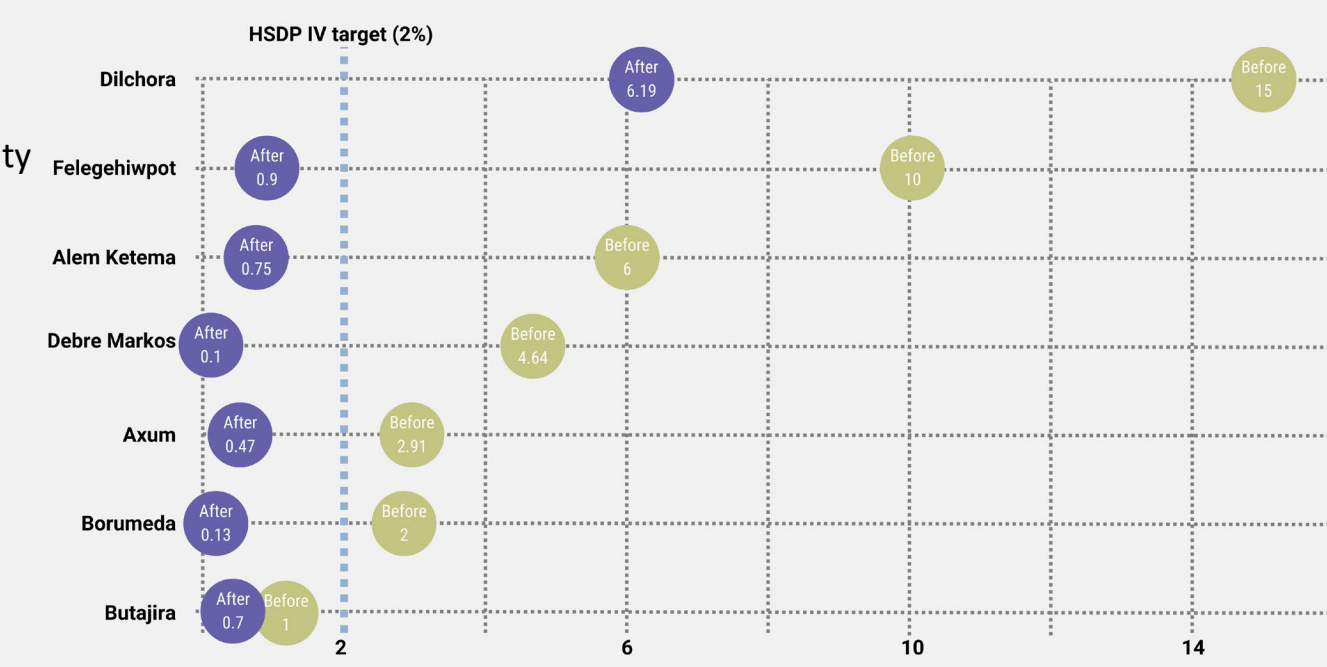
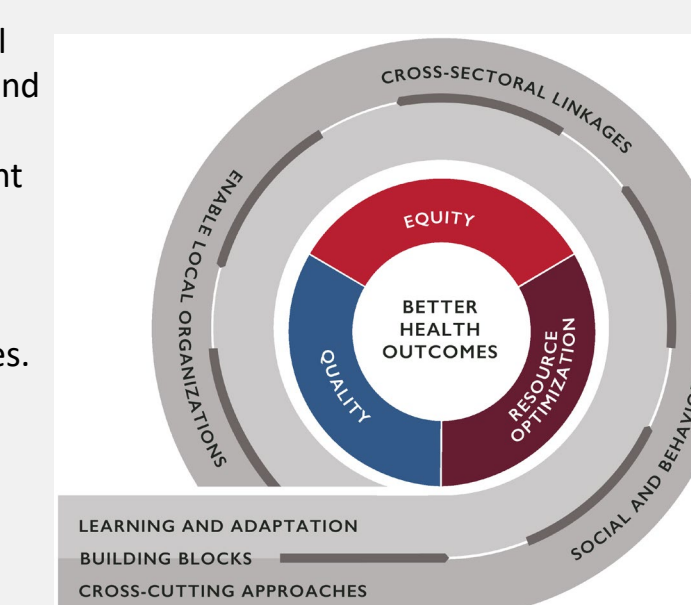


Figure 2. Reduction of medicines wastage rate (%) in some hospitals before and after APTS (Dec 2014)



### Evidence

What evidence do you have that the scale-up or institutionalization of this approach was successful? How can you best show what your activity accomplished? How do you know that you met your goals? Is the evidence able to be measured? Graphs or charts may be useful here to show this evidence.

- By the end of 2016, the federal government and 10 of the 11 RHBs had institutionalized APTS through regulations enacted to enforce the implementation of APTS. At this time, a total of 77 health facilities across the country implemented APTS, including 70 hospitals and 7 health centers. These facilities have experienced marked progress in service quality, demonstrated through reductions in waiting times at pharmacies and increases in patients' knowledge of the medicines dispensed to them, resulting in an overall increase in patient satisfaction.
  - Availability of essential medicines increased from 65% to more than 95%. Just shy of the national health sector development goal of 100%.
  - By the end of 2015, nearly 73% of APTS-implementing facilities regularly conducted financial/product audits, tracked medicine sales daily, and generated reports—a practice that did not exist before APTS.
  - Data from 48 APTS-implementing facilities indicated significant workforce improvements by recruiting new cadres (96 accountants and 313 cashiers) and increasing pharmacy personnel (from fewer than 600 to 1,202).
  - Expiration wastage decreased from 8.24% to less than 2% in most facilities.
  - APTS has been so successfully institutionalized, that since 2015, it has been included as a flagship program in both iterations of the five-year Health Sector Transformation Plan (HSTPI and II).
- Additionally, many recent studies reported on the continued institutionalization and impact of APTS on improving medicines availability, quality of services, and patient satisfaction.<sup>1,2,3</sup>
  - Recent studies conducted at APTS sites (after 2020) consistently reported high satisfaction level of patients on pharmacy services (90% and above), with one study noting that APTS-implementing hospitals attained 92.3% patient satisfaction on the overall pharmacy services, compared with 47.5% for non-APTS hospitals.<sup>1,2,3</sup>
- In contrast to the results found in the facilities fully implementing APTS, facilities that only partially implemented APTS achieved lower-than-expected results. For example, one facility implemented APTS tools and trainings, but did not support them with legislation. This limited the ability of the hospital CEO to allocate funding to fully support APTS.

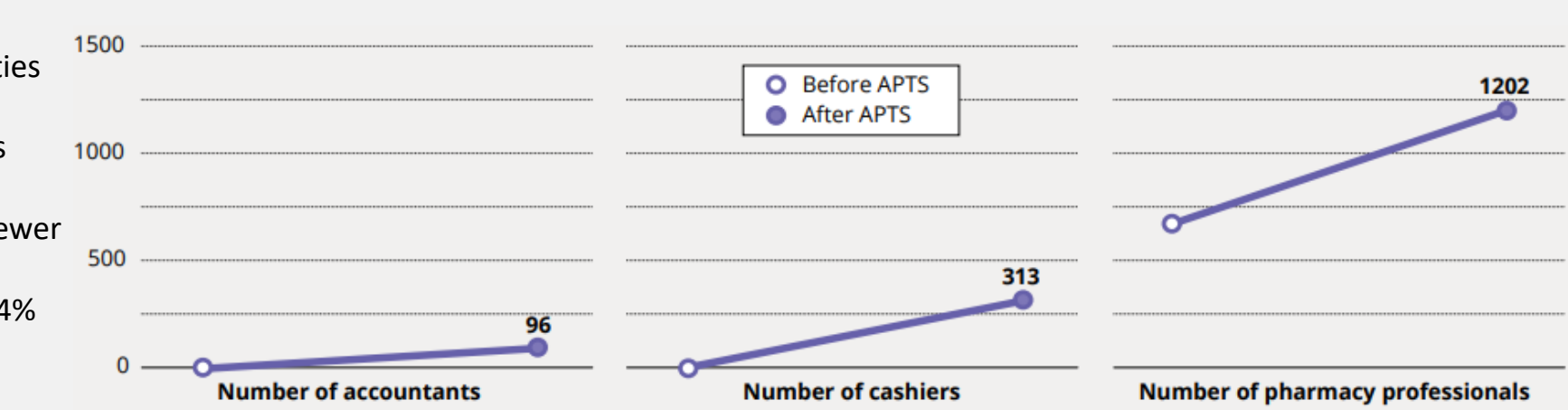


Figure 3. Selected workforce improvements from 48 APTS-implementing facilities

### Facilitators

What aspects of the health system, context, or external partner support helped make this successful? For example, were there existing working groups in place that enabled efficient coordination between stakeholders on this activity? Did you use a tool or knowledge resource from a global partner like WHO or UNICEF to help inform your activity?

- Political ownership:**
    - The strong political commitment of the MOH has been paramount through the development and adoption of APTS regulations at the federal and regional (RHB) levels.
    - The support of political champions at the regional level has also created widespread awareness of the APTS interventions' impact and success.
  - Stakeholder engagement:**
    - Collectively, the active participation of these diverse partners contributed to making APTS an ideal intervention that serves multiple interests.
  - Program adaptation:**
    - APTS adaptation has been driven by qualitative and quantitative data obtained from health facilities implementing the package of interventions. For example, facilities' workflow design and dimensions of new infrastructure improved over time based on practical experiences.
    - The content of APTS regulations also changed over time, with the most recent APTS regulations incorporating a wider range of pharmaceutical services, including clinical pharmacy, pharmacovigilance reporting, and drug information services
- APTS' approach, in combination with its major achievements**, particularly adoption of federal and regional legislation, created an enabling environment for both the scale-up and sustainability of its interventions.

### Challenges

What were some problems or challenges that you faced during your activity implementation? Did you expect these challenges or were they unanticipated? How did you respond to these challenges?

- Several factors challenged the implementation and rollout of APTS nationwide, most of which were anticipated:
  - Lack of adequate personnel to coordinate the scale-up process at federal, regional, and lower administrative levels
  - High turnover of current trained staff
  - Shortage of pharmacists and accountants to fill the newly opened positions
  - Insufficient resources for improvement of premises and training were also observed as challenges threatening scalability of the intervention.
  - Resistance to change from staff, particularly those benefiting from the old system
  - Absence of computerized solutions to reduce the burden of manual data capturing, aggregation, and reporting
- Different strategies and interventions were implemented to address some of those challenges. For example:
  - The MOH worked with universities to increase the intake of pharmacy students every year, with similar efforts made by RHBs to increase training of lower-level pharmacy personnel (druggists/pharmacy technicians) at regional colleges.
  - Creating champions at the facility level and actively engaging facility leadership reduced staff resistance.
  - Funds allocated through the MOH and RHBs helped address the immediate need for financial resources to cover costs for infrastructure improvements.
  - Continued in-service training on APTS helped address staff turnover.

### Lessons Learned

What lessons have you learned while you implemented this activity? How will this impact future activities or approaches? What advice would you give to other implementers and health systems actors in other countries that might want to adopt your approach?

- Cultivating participation, consensus, and champions are vital to the success of APTS and similar programs.
- Aligning technical assistance activities with government goals to create a shared vision and priorities can help generate trust and secure political support.
- Designing a combination of interventions that target multiple health system building blocks yields better results in addressing gaps in access to medicines and quality of services.
- Embedding reforms in legislation helps to institutionalize and sustain initiatives
- Sharing successes inspired participation—although APTS is a long, labor-intensive process fast and dramatic results from a well-coordinated pilot inspired buy-in.
- Promoting the success of APTS to media and government authorities and encouraging them to communicate the program's effectiveness helped to widely popularize the intervention, which in turn created demand and motivated people to adopt it.

APTS before and after photos from Felege Hiwot Referral Hospital

Before APTS – inconvenient, a lack of privacy for proper counseling, and time consuming and unsafe practices, especially for mothers and children



After APTS – improved premises, convenient workflow, decreased waiting time, better privacy, and overall improved services



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<sup>1</sup> Kassa DG, Xiang C, Hu S et al. Patients' perception of the outpatient pharmaceutical service quality in hospital pharmacies with auditable pharmaceutical transactions and services in Ethiopia: a cross-sectional study. *BMJ Open* 2021;11:e042853. doi:10.1136/bmjopen-2020-042853  
<sup>2</sup> Deginet B, Habtamu A, and Gizachew T. Effect of Auditable Pharmaceutical Services and Transaction System on Pharmaceutical Service Outcomes in Public Hospitals of SNNPR, Ethiopia. *Integrated Pharmacy Research and Practice* 2020(9):185–194.  
<sup>3</sup> Ayalew A, Mamo F, Berhanu T et al. Assessment of patient satisfaction towards auditable pharmaceutical transactions and services implemented in outpatient hospital pharmacy in Ethiopia. *of Pharm Policy and Pract* (2021) 14:83. <https://doi.org/10.1186/s40545-021-00372-1>  
<sup>4</sup> Melissa Thumm, Tanya Malpica-Llanos, Hailu Tadeg, Edmealem Ejigu, Ayalew Adnew, and Rebecca Bennett. "Transforming The Delivery of Pharmaceutical Services in Ethiopia: The Auditable Pharmaceutical Transactions and Services Approach." *Management Sciences for Health*, January 2018.