Pilot Implementation Final Report

September 2014

Task Order 6 - Deliverable 7

Dr S. Kimatta (Country Representative - MSH) providing Opening Remarks at the SDSI Dissemination meeting in Arusha.

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1.0 Introduction

1.1 Background

The Bill & Melinda Gates Foundation supported Management Sciences for Health (MSH) with a three-year grant to continue its efforts to involve private drug sellers in enhancing access to essential medicines in Africa. The Sustainable Drug Seller Initiatives (SDSI) program builds on MSH's Strategies for Enhancing Access to Medicines and East African Drug Seller Initiatives programs. Those programs focused on creating and implementing public-private partnerships, using government accreditation to increase access to quality pharmaceutical products and services in underserved areas of Tanzania and Uganda. The new program's goal is to ensure the maintenance and sustainability of these public-private drug seller initiatives in Tanzania and Uganda and to introduce and roll out the initiative in Liberia. Through our work in these three countries, we expect to expand access to medicines and treatment in additional geographical areas, and to solidify the global view that initiatives to strengthen the quality of pharmaceutical products and services provided by private sector drug sellers are feasible, effective, and sustainable in multiple settings.

In Tanzania, one of the SDSI objectives is to enhance the Accredited Drug Dispensing Outlets (ADDOs) long-term sustainability, contributions to community-based access to medicines and care, and ability to adapt to changing health needs and health system context. With nationwide scale-up, and over 9,000 ADDOs now in Tanzania, the Pharmacy Council (PC) wanted to develop a comprehensive database to organize information about ADDO and pharmacy facilities and personnel. Additionally, PC wanted to improve its communication, reporting, and fee collection systems. SDSI has commissioned the Invention and Technological Ideas Development Organization (ITIDO) to develop an ADDO and pharmacy database and mobile technology applications to suit PC's needs.

ITIDO, in partnership with MSH and PC, developed a web-based database to store data on private sector drug outlets' facilities and personnel, including information on facility registration, personnel qualifications and certifications, inspections, and personnel and premise fee payment. The database can be used with tools such as Google Earth for basic geospatial analysis. However, ITIDO also developed mobile technology applications compatible with basic mobile phones. The applications mesh with the database and include a mobile payment component for facility and personnel fees, an SMS-based ADDO and pharmacy indicator reporting feature, and an SMS-based information request and response feature for ADDO and pharmacy personnel, which allows personnel to send and receive information on premise requirements. ITIDO also helped MSH to pilot the technology in two regions of Tanzania by installing the technology and training PC, pharmacy, and ADDO staff on how to use the applications.

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1.2 Assignment Objectives

The overall objective of the assignment was to pilot the PC database and mobile applications to determine if the technology is user friendly and if it he improves regulatory capacity and enhances the quality of pharmaceutical products and service delivery.

Below are the planned activities to achieve the objectives:

1. Finalize pilot preparations:
   - Finalize monitoring and evaluation (M&E) framework for pilot implementation.

   - Lead a review of database and mobile technology with PC to ensure their satisfaction and to identify any remaining bugs in the system. Fix system according to the client's feedback.

   - Ensure that existing data on pilot regions (Pwani and Dar es Salaam) are imported into the database.

   - With PC and MSH, determine which information from the database will be made publicly available on PC's website.

   - Develop criteria to ensure system is secure and test system security in conjunction with MSH.

   - Install technology equipment at PC and activate database and mobile technology.

   - Activate Vodacom connection for mobile money component and simulate a payment to test the system.

   - Finalize system programming, which will allow the database to automatically generate reports.

   - Finalize training materials, including a user manual and posters to be hung in ADDOs and pharmacies.

   - Finish linking the database with Google Earth to enable the database's GIS capabilities.

2. Train PC, ADDO, and Pharmacy database and mobile technology users in the Pwani and Dar es Salaam regions.
   - Conduct one-day trainings on mobile technology for ADDO and pharmacy owners and dispensers in each district of the Pwani region (total of seven trainings).

   - Conduct an in-house training for PC on how to use the database modules.

- Assist MSH in implementing an advertising campaign to make Dar es Salaam pharmacy owners aware of the new mobile money option for paying renewal fees.

3. Monitor and support database and mobile technology users throughout the pilot phase.
   - Solicit feedback from users on a regular basis and fix any problems that arise.

   - Conduct a supervision and monitoring visit at least once monthly during the duration of the pilot.

   - Document pilot progress (in accordance with defined process indicators), successes, and challenges.

4. Document and assess defined process indicators, administer qualitative surveys to pilot participants, and consider findings from qualitative interviews to assess the technology's utility, operability, and user acceptance.

5. Refine technology based on the evaluation findings and user concerns and suggestions.

6. Disseminate information on pilot and pilot evaluation in preparation for national scale-up of the technology.
   - Document the pilot in a video.

   - Write up a final report on the pilot, including successes, challenges, revisions made to the technology based on user feedback, and suggested revisions for the implementation model based on pilot experience.

   - Collaborate with MSH/SDSI and PC to organize a meeting with key stakeholders on results of the pilot and plan for a national roll-out of the technology.

   - Present the pilot and evaluation findings at the SDSI end-of-project meeting.

1.3 About this Report

This report provides information on the pilot implementation, including the successes, challenges, revisions made to the technology based on user feedback, and suggested revisions for the implementation model based on pilot experience.

2.0 Assessing Needs and Agreeing on General Technology Package

2.1 PC Process Capturing and Data Elements

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ITIDO worked in collaboration with MSH and the Pharmacy Council (PC) to understand the PC workflow, process, and operation of different services (per regulatory requirements) done by PC to serve clients (premise owners and pharmaceutical personnel). As part of a business analysis and needs assessment, this activity helped develop and build a database and mobile services that will meet the client's needs and priorities. During this activity, we also identified and listed information and data elements to be captured for each stage and all of the processes and workflow designed based on PC daily operations and experience. More details of the prepared process and captured information can be found on ***ITIDO-MSH Summary Report of Meeting with PC on Technology Interventions (2013),*** which was prepared and submitted as a deliverable.

2.2 Conceptualization of PCT Database and Mobile Package

ITIDO worked in collaboration with MSH and Pharmacy Council (PC) to conceptualize the PCT Database and Mobile Package/Services that need to be developed in order to strengthen PC operations and communication to their clients. Below are the diagrams providing the overview and summary of the system concept.
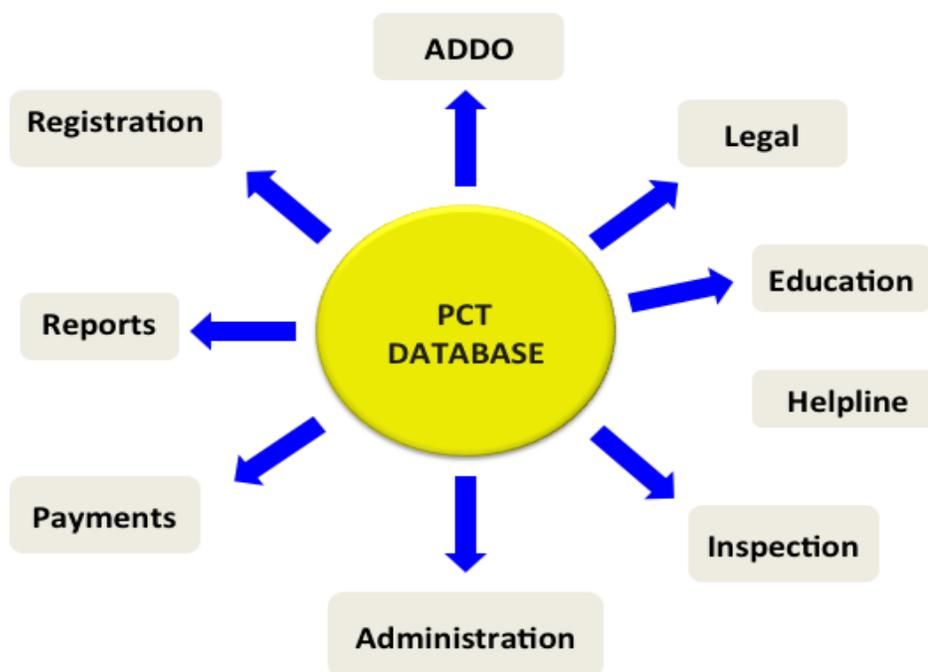

Figure 1. PCT Database Conceptualization

Figure 2. Mobile Package/Services

3.0 Technology Development Process

3.1 Engagement to Test Developed Database and Mobile Services

The development team created the database in a number of iterations known as sprints. After a number of sprints, the team released a new version of the PCT database. The latest version was uploaded to ITIDO's server, and selected members from MSH and the Pharmacy Council tested the database.

Occasionally ITIDO and MSH had meetings to thoroughly demonstrate, test, and assess the PCT Database for comments and improvement. The team had a total of three major meetings that involved the PC, MSH, and ITIDO teams. The first meeting took place at the Kibaha conference hall, the second meeting took place at Mbezi Garden with the Pharmacy Council board members, and the team had a meeting with the Pharmacy Council staff at the Mbezi Garden conference hall.

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Meeting with Pharmacy Council Board members

Meeting with Pharmacy Council Staff members

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These meetings helped the development team to prioritize features and get feedback from Pharmacy Council and MSH on the on-going development work.

3.2 Database, Mobile Technology, and PC Website Development

The database, mobile technology, and website development was done in collaboration between MSH, PC, and ITIDO through a participatory approach, which includes a series of meetings with expected end users at the Pharmacy Council, premises owners, and pharmaceutical personnel. We captured and documented the Pharmacy Council processes and workflow, conceptualized the PCT database and mobile package/services, the website sitemap, and content structure preparation, then developed and refined the system based on information gathered, needs, and agreed upon priorities to strengthen PC operations and regulatory services.

3.2.1 PCT Database

After the initial meetings to finalize the agreed modules and process diagrams, the development team immediately started developing the application. Development was done in a modular and iterative approach using Agile & Scrum Methodology. Each module was implemented from the process diagrams captured. After coding of each process, the ITIDO team met with the Pharmacy Council and MSH to demonstrate, test, and assess the PCT Database. The team gathered comments from these meetings, which helped them further understand the business process and improve the database.

The development team had review meetings to plan and prioritize comments (i.e., new features, enhancements, and bugs) for upcoming releases of the database. The cycle of meeting with stakeholders (i.e., PC and MSH) and refinement of the database continued until the pilot period ended.

### 3.2.2 Mobile Services Development

Mobile Package Development

Mobile service development began by reviewing user requirements, which were documented as per discussion with the PC of Tanzania and in the stakeholders' workshop held in Tanga in September 2012. Based on user requirements, four features were identified as the main components of the mobile service/package:

- Data Collection and Reporting/Service Utilization Report (SUR), which allows ADDOs and pharmacy owners to report on their service usage based on agreed indicators;

- Value Added Services (VAS), which allows pull and push messages;

- Helpline, which allows user to compose messages with a key word [*Masada* (Help)] and send it to the system; and

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- Mobile Payment, which allows PC to send payment alerts and reminders to premise owners and personnel, and allows premise owners and personnel to send payments via mobile money (m-Pesa). PC processes the payments electronically and the payer receives an electronic receipt.
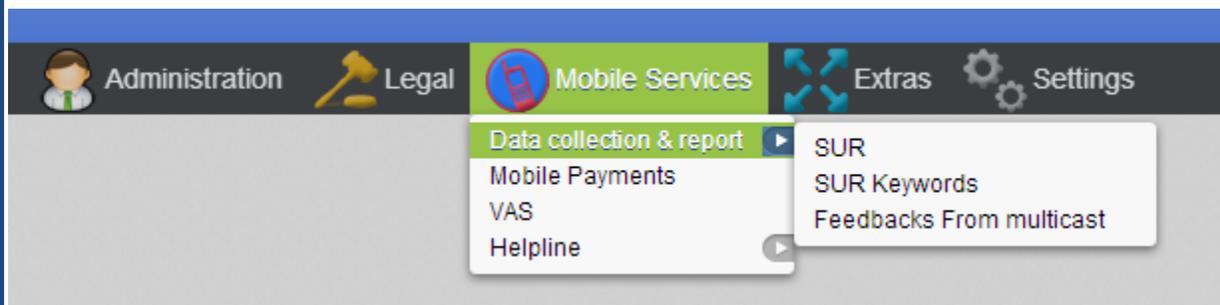
The development was based on Agile and Scrum methodology to assist in breaking the identified components down into a list of user stories (Product backlog), requirement, and feature specifications, from which the product owner prioritized the features to be developed within a certain time frame.

Mobile Money (M-Pesa) Integration

The PCT Database was developed with the ability to import payment transactions that where made using M-Pesa. Once the transactions were imported into the database, the system sent a receipt via SMS for each received and reconciled transaction.

The integration between the PCT Database and Vodacom servers is still ongoing, which means uploading payment data must be done manually using an excel format. We do expect that, once integration is done, it will allow transactions to be captured and uploaded automatically using an agreed-upon format other than Excel. Once the integration process is complete, the PCT Database will receive transactions directly from Vodacom Servers.

SMS Provider (PUSH Mobile) Integration

During the initial stages of testing and training, ITIDO was using GSM modem to send an SMS to PC clients. The GSM modem was challenged by latency (i.e., a delay in the responding message back to recipient) for forwarding bulk messages. The solution was to integrate the PCT Database with SMS Integrate and service provider to increase performance. MSH contracted PUSH mobile to work with ITIDO to integrate the PCT Database and PUSH mobile SMS integrator servers. After obtaining an Application Programming Interface (API) from PUSH Mobile, the ITIDO team made the necessary changes to the PCT Database, which has expedited PCT's communication with pharmacies and ADDO users.

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Internet Services Provider (SimbaNet)

SimbaNet provides internet services and a block of public IP addresses to be used on the servers hosting the PCT Database. The public IP address is designated to allow users from anywhere in the world to access the database.

3.2.3 Electronic Inspection Tools Development

The ITIDO team customized and configured a data collection table application (PCT DCT), which was installed in tablets to facilitate electronic data collection from the ADDOs. The forms were downloaded and used by data collectors in the field. The forms fed into a web-based aggregation server (MSH Aggregator), which stored data from the field, and aggregated them so as they can be easily viewed and downloaded in Excel and CVS formats for further analysis and reporting.
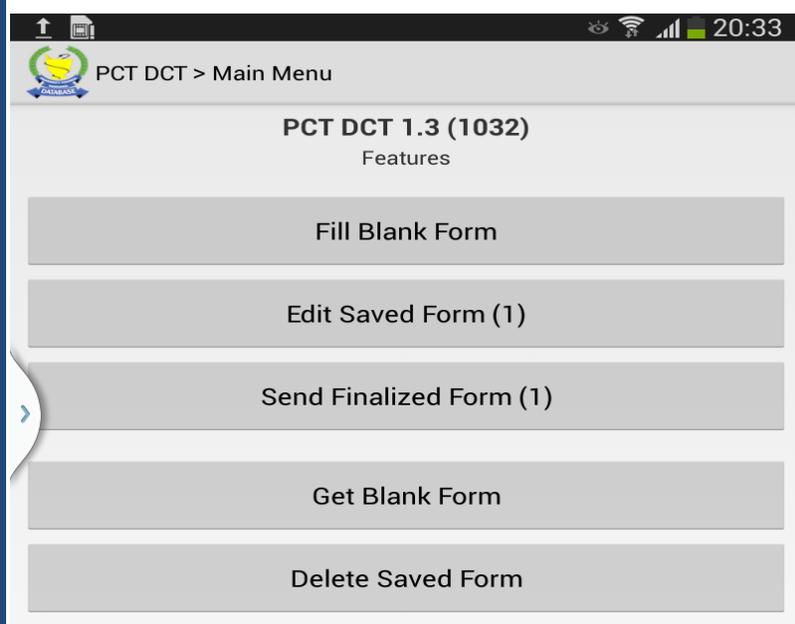
The form was developed after customization and configuration. We first drafted the question workflow and algorithm to simplify the process. The inspection forms developed electronically are:

- ADDO Preliminary/Final Inspection
- ADDO Routine Inspection
- Premise Routine Inspection
- Premise Preliminary Inspection
- Fees Zonal Collection Report

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- ADDO Daily Inspection Summary Report

- ADDO Inventory Form

- Confiscation Form

- Inspection Summary Report

- Approval of Location

ITIDO trained the data collectors on using the electronic inspection forms by first presenting them as a word document and reviewing them with users in order to help them internalize the question work flow and make amendments. After the presentation, ITIDO team adjusted the electronic form according to user comments and then loaded the forms onto the data collectors' tablets for testing and cross checking. This process continued until the team approved the forms.

3.2.4 PC Website Development

ITIDO worked with the PC team to refine and improve the Pharmacy Council website. We started by agreeing on the website sitemap and structure, and then ITIDO developed the content catalog word document to assist the PC team in gathering and collecting information to be uploaded to the website. ITIDO also formed the information system technical working group (IS TWG) to facilitate website development and content gathering. Later the IS TWG will maintain the website. After agreement on the sitemap, the ITIDO team worked on the PC website homepage, and graphic design linked it with a word-press content management system (CMS) for managing and uploading content.

ITIDO and PC then uploaded the content onto the CMS website. A large part of the sitemap remained without content due to challenges raised at the PC level. PC also worked on website domain hosting and registration (www.pctz.or.tz and hosted at the University Computing Center Limited). ITIDO then uploaded the website to the hosting space and oriented the IT personnel at PC on how to manage and maintain the website. Below is a screenshot of the Pharmacy Council website. ITIDO is leading discussions on which information from the database can be shared with the public website.

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4.0 Introduction of PC database

4.1 Installing and Preparing the PC Database for Use

4.1.1 Procurement, Logistics, and Communication with District Officials

ITIDO provided assistance to MSH during procurement of ICT equipment and supplier engagement. MSH procured the equipment and ITIDO and PC installed it at the PC's server room. Once the ICT infrastructure was installed, ITIDO could install the PCT database and mobile services. ITIDO then prepared to train PC staff on how to use and manage the database and mobile applications.

ITIDO installed the ICT equipment purchased by MSH. Our team installed two servers (production and back server) and the UPS as backup system in case there is a power outage.

4.1.2 PCT Database and Mobile Services Installation

Before installing the PCT database on the servers at the Pharmacy Council, a number of configurations and installation of supporting applications had to be done.

First, an operating system had to be installed for the production and backup server, a public IP address had to be configured, a MySQL server for storing personnel and premises data records had to be installed and configured, and the Apache webserver for managing and supporting PCT web application on servers had to be installed. This was done with the help of a certified Linux professional.

The PCT database was then deployed on the production server, followed by the installation and configuration of an SMS gateway that was used to bridge the PCT database and a GSM modem. The GSM modem was used to send and receive messages to end-users.

4.1.3 Data Clean Up, Entry, and Upload

Before the PCT database and Mobile Package application, ITIDO had to import existing ADDO, pharmacy personnel, and premises data into the database. The PC had the data stored in Excel and Microsoft Word.

This activity was done by ITIDO in collaboration with the Pharmacy Council and MSH. PC gave ITIDO a list of all pharmaceutical personnel, ADDO premises, and pharmacy premises. The existing records that were on paper were entered into an Excel template by a data entry team. Standardized dummy data was input into empty required fields, such as mobile number and region.

The team formatted and transferred the data obtained from the Pharmacy Council into the Excel templates with assistance from MSH. After re-arranging and formatting the data, the ITIDO team proceeded with importing /uploading the data into the PCT database.

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4.1.4 Assigning PINs and FINs

After all premises and personnel were entered into the Excel template designed by ITIDO, MSH, and PC, the ITIDO team assigned a personnel identification number (PIN) for all personnel and a facility identification number (FIN) for premises according to the agreed format and syntax. The list of personnel with PINs and premises with FINs was shared with PC and MSH for review, and approved by PC for upload into the PCT database.

Assigning PINs for full registered pharmacists was different, as this had to follow the previous license number provided. Other categories of personnel were assigned serially, regardless of when the personnel registered.

Before the assignment of FIN to ADDO and pharmacy premises, the ITIDO team had to replace the addresses (region, district, ward, and village) of each premise with National Bureau of Statistics codes so that the premise are assigned FINs per the new format (<Region code><district Code><premise category><digit range> e.g., 06010400001 where 06 = Pwani region, 01= Bagamoyo district, 04 = Retail ADDO, 00001 = last five digits.)

4.2 Training PC Staff on the Database

4.2.1 Training Schedule Preparation

Before starting the training of PC staff, ITIDO prepared the training schedule based on PCT database modules. The training was conducted at the Pharmacy Council's meeting room in the following phases:

Phase I: Orientation on the ADDO Module

This session focused on orienting two users from PC's ADDO and accounts section on the following modules: ADDO registration, ADDO inspection, ADDO dispensers, ADDO owners, ADDO payment, and ADDO renewal/re-accreditation.

Phase II: Orientation on the Registration Module

This session focused on orienting three users from PC's registration and accounts section on the following modules: premise and personnel registration, premise inspection, premise owners, premise and personnel payment, and premise and personnel renewal and retention.

Phase III: Orientation on the Education Module

This session focused on orienting three users from PC's education and accounts section on the following modules: training institution, CPD provider and intern registration, training institution and CPD provider

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inspection, training institution and CPD owner, premise and training institution, CPD and intern payment and training institution and CPD provider renewal.

Phase IV: Orientation on the Legal Module

This session focused on orienting two users from PC's legal and administration section on the following modules: legal module functionally and report generation.

Phase V: Orientation on the Administration Module

This session focused on orienting two users from PC's administration section on the use of the administration module functionalities, including disbursement, report generation, and access to information needed for the decision-making process.

Phase VI: Orientation on the Helpline and VAS Modules

This session focused on orienting three users from different PC sections that form the PC information system committee on the use of the Helpline and VAS modules and how to handle and respond to requests from users. We also oriented them on how to oversee and maintain the system during and after the pilot.

4.2.2 PC Training Sessions

The PC training was conducted in four hour sessions from 9:00 hours to 14:00 hours. Each session was divided into two sub-sessions, which were:

- A training/ orientation sub-session for two hours.

- A practical session for entering data for one hour.

- A system administrator orientation session for one hour.

4.2.3 Training Venues and Dates

The training was conducted at the Pharmacy Council's meeting room from March 4, 2014.

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Table 1. The planned number of days for each module

Module Name	Number of Days
Registration	3
Education	4
Legal	2
Administration	2
Payments	4
ADDO	2
Inspection	3
Helpline and VAS	2

4.2.4 PC Staff and Council Member Orientation

ITIDO, in collaboration with MSH, prepared two sessions to orient PC staff and board members on the database and mobile technology. The council board orientation on the implementation of database and mobile technology was held on February 28, 2014 at the Mbezi garden conference hall. The next session was held on March 1, 2014, which oriented the secretariat staff on the database implementation and mobile technology, and to share the work schedules ITIDO had prepared for training PC staff before commencing the pilot to Pwani and Dar es Salaam Regions.

Comments about how the system can be improved were gathered throughout the trainings and were systematically captured and documented. More details on the feedback provided can be found in the submitted report, *PC Staff and Council Members Orientation Report (2014)*.

5.0 Mobile Technology Pilot

PC, in collaboration with MSH and ITIDO, planned to pilot the newly developed mobile package and database in the Pwani and Dar es Salaam regions with aim of testing and identifying the gaps and areas for improvement based on pilot findings and releasing a refined version to implement nationally. The pilot, planned to cover all ADDOs, ADDO owners, and ADDO dispensers in six districts of the Pwani region, was for use of developed mobile package (Mobile Money Payment, Reporting, Helpline, and VAS). The pilot also aimed to involve all pharmaceutical personnel and pharmacy premises in the Dar es Salaam regions to use part of the mobile package (Mobile Money Payment, Helpline, and VAS). The pilot also aimed at implementing and supporting use of a mobile package and database at the Pharmacy Council of Tanzania. The pilot was to be implemented for a period of six months.

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In order to make sure that all stakeholders understand the PC initiatives and know how to use the database and mobile technology, ITIDO, in collaboration with MSH and the Pharmacy Council, conducted a training for PC staff, council members, ADDO owners, dispensers, pharmacy owners, and pharmaceutical professionals on the use of mobile technology services in the Pwani and Dar es salaam regions as a part of pilot implementation.

5.1 Manual and Posters Preparation

ITIDO prepared the database and mobile package user manual, which will assist users during training, orientation, and when using the system. A manual was prepared for each database module and an overall system manual was compiled out of these module manuals (PCT Database User Manual 2014).

For mobile application users, ITIDO prepared instructive posters for each mobile service (fee payment, helpline, VAS, and reporting), which were used during personnel trainings and were distributed to ADDO premises to keep in their shops as reference materials. Also, ITIDO, in collaboration with MSH and PC, compiled and prepared an end user manual for mobile packages/services users "*KITINI CHA JINSI YA KUTUMIA MFUMO WA SIMU YA KIGANJANI KATI YA BARAZA LA FAMASI NA WAMILIKI WA MADUKA NA WATAALAMU WA DAWA (2014)*".

5.2 Training PC Staff on Mobile Technology

ITIDO, in collaboration with MSH, held a session to test the database and mobile package component before commencing the pilot phase with ADDO owners, dispensers, and pharmaceutical personnel from the Pwani and Dar es Salaam regions. The participants also reviewed the training materials, including the SOPs and training posters ("*KITINI CHA JINSI YA KUTUMIA MFUMO WA SIMU YA KIGANJANI KATI YA BARAZA LA FAMASI NA WAMILIKI WA MADUKA NA WATAALAMU WA DAWA (2014*).) They also reviewed and finalized the training schedules, which would be used during the pilot implementation in the Pwani and Dar es Salaam regions.

5.3 Training ADDO Owners and Dispensers

The training aimed to sensitize and train ADDO and pharmacy personnel on the use of mobile services, which will be provided by the Pharmacy Council to facilitate communication with ADDOs, pharmacies, and other key stakeholders. These services include the Helpline, value added services, service utilization reports, and paying renewal fees using mobile phones through the M-PESA account.

To ensure good attendance of the training, ITIDO, MSH, and PC worked with district pharmacists for logistical issues, such as venue preparation and communication with ADDO owners and dispensers for invitations to attend the training and orientation sessions.

ITIDO organized the topics based on the services offered by mobile services technology, starting with Helpline, VAS, SUR, and the renewal fee payment through mobile money platform (M-Pesa).

At the start of each mobile service application session, ITIDO, MSH, and PC distributed manuals and posters to each trainee. Using interactive approaches, each service was explained and participants were given practice time..

At the end of each training session, ADDO owners were given drug registers so that they could immediately begin recording relevant service data for the service utilization report. ADDO personnel were instructed to send this information every 15 days.

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ITIDO also gathered comments at the end of each session as part of the evaluation of the training. More details of the training and comments gathered can be found in the **ADDO Owners and Dispensers Training Report (2014)**. Examples of the comments gathered are below:

"In fact, your services are extremely good. In short, I loved the training session; Please, consider conducting the training often times so that even those who have missed the training today, get it."- By Gachama DLDM owner from Kibaha **Premises Owners Training & Orientation on Mobile Services/Package.**

Following the trainings conducted in the Pwani and Dar es Salaam regions, ITIDO, in collaboration with MSH and PC, has successfully trained a total number of 79 ADDO owners, 123 dispensers, and 235 pharmaceutical personnel from all categories.

Some of the strategies used to engage targeted participants include scheduling the training for ADDO owners and dispensers separately from pharmacy owners and pharmaceutical professionals, inviting the participants to the training through media (radio) or personalized messages through the mobile package component, and ensuring close collaboration with district medical officers and district pharmacist when inviting participants.

Training participants were of different ages, sex, levels of education, and professional and social status. Hence, facilitators had to make use of pedagogical approach; that is, a combination of hands-on-training, coaching, mentorship, lectures, group work, case studies, presentations, and discussions to attain maximum understanding of the modules.

The table below depicts a summary of the total number of participants trained in each district in the Pwani region. These participants have been categorized based on their profession and responsibilities.

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Table 2. Summary of the total number of participants trained in each district in the Pwani region

DISTRICT	OWNERS	DISPENSERS	OWNER/ DISPENSER	F/PHARMACIST	P/TECHNICIAN	P/ASISTANT	D.M.O	TOTAL/ DISTRICT
Kibaha	23	35	12	2	1	-	-	73
Kisarawe	9	4	3	2	-	-	-	18
Rufiji	23	33	3	1	1	1	1	63
Mkuranga	17	18	6	1	2	-	-	44
Mafia	7	10	-	2	-	1	1	21
Bagamoyo	29	33	3	1	-	-	-	70
TOTAL/ REGION	**79**	**99**	**24**	**8**	**5**	**2**	**2**	**289**

5.4 Training Pharmacy Owners and Pharmaceutical Personnel

5.4.1 Pharmacy Owners Training and Orientation on Mobile Services/Package

The aim of this training was to orient and sensitize all pharmacy owners from the Dar es salaam region on the use of the developed mobile services so that they could immediately use the system to pay their renewal fee via M-PESA and use Helpline and VAS. Before the start of the training, each premise owner was given a new Facility Identification Number for his/her premise. They were also given manuals and posters to assist during the orientation of those services.

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The trainer guided the participants on the use of the Helpline service by demonstrating simple steps as described in the posters. The participants then had time to practice and were given a chance to ask questions before the facilitator proceeded to the next topic. ITIDO collected comments from all participants on the training and what needed to be improved.

5.4.2 Pharmaceutical Personnel Training and Orientation on Mobile Services/Package

A training for pharmacy personnel was conducted on July 19, 2014 at Karemjee hall. A total of 218 pharmaceutical personnel were trained and oriented on the use of the developed mobile services to pay renewal fees, accessing information using VAS from the PCT database, and using the helpline feature to communicate with PC.

The invitations to attend the training and orientation of mobile services and PCT database were sent using personalized message via multicast features incorporated in the mobile package, media (radio, TV), and communicating with district pharmacists.

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Personnel reading a mobile package manual during practice of Renewal fee payment

ITIDO prepared the posters and manuals for each pharmaceutical personnel. Each pharmacy owner who attended the training was given the document bag with all necessary training materials as well as a new Personnel Identification Number (PIN). The topics covered included Helpline, VAS, and retention fee payments. At the end of the every topic, participants had time to practice and ask questions or provide suggestions.

6.0 Results

6.1 Mobile Technology Pilot Results

6.1.1 Mobile Communication Results

Total Number of SMS sent out as Reminder messages sent to Personnel & Premise Owners, Acknowledgement messages sent as a result of the application receiving helpline messages, submission of Service Utilization Reports,Automated System Response, to assist system users in the submission of Service Utilization Reports in the correct format ,Response to helpline messages,Support messages to users to as to assist them in the submission of reports, making of renewal payments using M-pesa.	13,082
SMS enquiries received at PC via help line to enquire on different issues (availability of dispenser training, allowed medicines in ADDO, renewal fees, how to make payments etc)	223

Figure 3. A summary of the results achieved through the mobile communication platform that were generated between May and August of 2014

6.1.2 SMS Reporting on Services Provided by ADDOs to PC

The SMS reporting feature has shown good results for the period between May and July of 2014. Approximate 75% of premises in the Pwani region sent the report continuously for six reporting periods. Below are the number of reports sent, summarized in a tabular presentation.

A=# clients attended	57,528
B=# U5 attended	17,082
C=# U5 with Malaria	9,138
G=# U5 with Pneumonia	3,786
F=# U5 with diarrhoea	3,792
D=# U5 referred	1,356
E=# Clients received FP pills	7,464

Figure 4. Number of Clients Reported per Indictors from ADDO (May – July 2014)

# sms reports for period one	131
# sms reports for period two	130
# sms reports for period three	129
# sms reports for period four	121
# sms reports for period five	127
# sms reports for period six	123

Figure 5. Number of ADDOs that Reported for all Six Reporting Periods (May – July 2014, out of 141 ADDOs Expected to Report)

6.1.3 Payment of Renewal Fees

ADDO owners, dispensers, and pharmaceutical personnel were mentored to perform a trial of mobile payment (M-Pesa) to understand the process and steps. A Vodacom simcard and voucher credits were registered to all participants to access the M-Pesa platform, which each participant used for the trial payment exercise

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After the training, PC encouraged and instructed premise owners and pharmaceutical personnel to pay their renewal fees and retention fees using M-Pesa.

Table 3. The payment received using M-Pesa (May – July 2014, During the Training and Trial Period)

Category	Total Amount -TSH	Number of senders (payer)
Pharmaceutical Personnel	7,150	27
ADDOs Premise	40,800	159
Retail Premises (Pharmacy)	6,350	18
Wholesale Premises (Pharmacy)	0	0
Total	54,300/=	204

Table 4. Payment Received During the Pilot May – August 2014)

Category	Total Amount TSH	Number of Payers
Pharmacy Personnel	1,501,000	4
ADDOs	3,021,500	98
Retail Premises (Pharmacy)	7,701,000	27
Wholesale Premises (Pharmacy)	0	0
Total	12,223,500/=	129

Not everyone paid their renewal fess during the pilot because the PC allows payers to use other methods, such as cash, bank transfer, and check, depend on what is a convenient method for them. The fees payment period began before the training, so ADDO owners and pharmacy personnel may have already paid their fees before learning that m-Pesa was an option.

6.1.4 PCT Database and Mobile Services Reporting Dashboard

PCT database and mobile services has built in a Reporting Dashboard that provides statistics in tabular and graphical presentations sent as SMS by different ADDO owners or dispensers. The Dashboard is divided into three categories: General Report, Specific Report, and SMS Format Statistics.

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6.1.5 General Report Statistics

This category gives statistics for facilities that have submitted their reports and those that have not in various reporting periods and provides reported and unreported facilities in percentage. This category provides an overall interpretation, i.e., it provides the statistics of all ADDOs that have participated. It shows different indicators that have been submitted by these facilities and gives a summary that provides the average value of the indicators submitted (in number and percentage) in the given range of reporting periods.
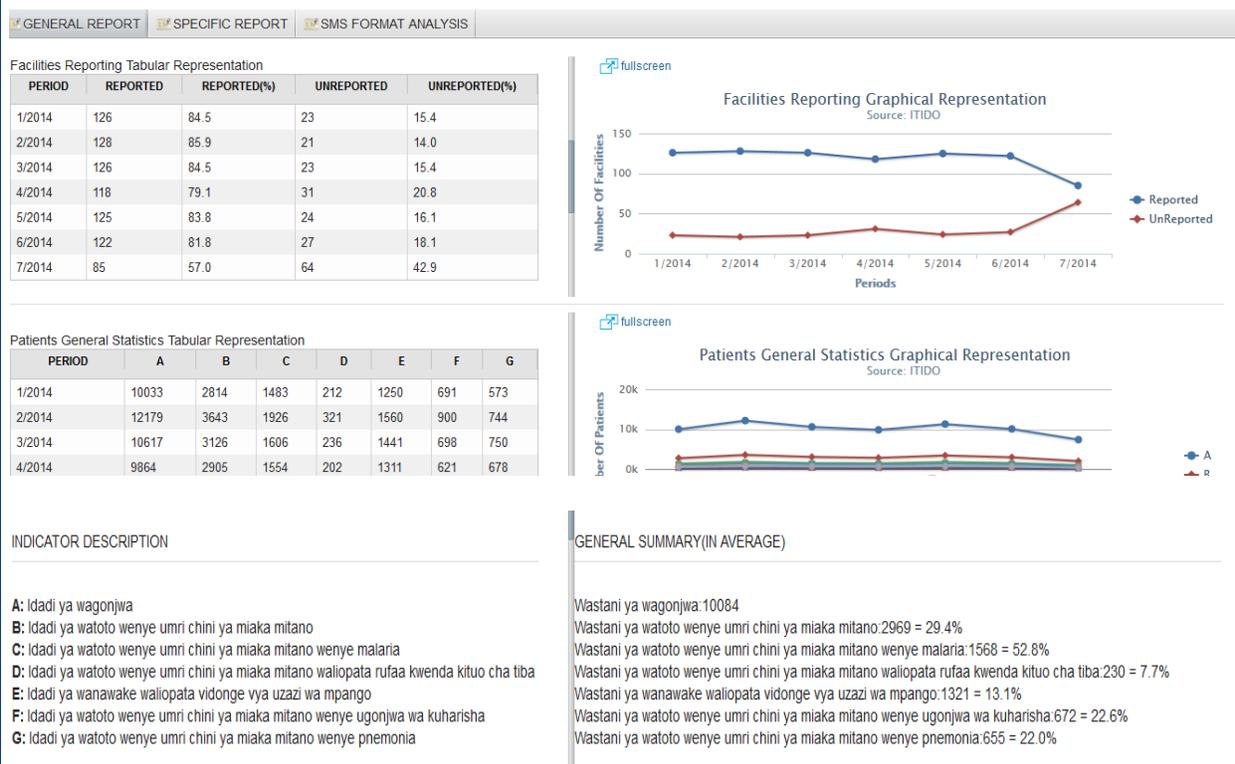

Facilities Reporting Tabular Representation

PERIOD	REPORTED	REPORTED(%)	UNREPORTED	UNREPORTED(%)
1/2014	126	84.5	23	15.4
2/2014	128	85.9	21	14.0
3/2014	126	84.5	23	15.4
4/2014	118	79.1	31	20.8
5/2014	125	83.8	24	16.1
6/2014	122	81.8	27	18.1
7/2014	85	57.0	64	42.9

Patients General Statistics Tabular Representation

PERIOD	A	B	C	D	E	F	G
1/2014	10033	2814	1483	212	1250	691	573
2/2014	12179	3643	1926	321	1560	900	744
3/2014	10617	3126	1606	236	1441	698	750
4/2014	9864	2905	1554	202	1311	621	678

INDICATOR DESCRIPTION

A: Idadi ya wagonjwa
B: Idadi ya watoto wenye umri chini ya miaka mitano
C: Idadi ya watoto wenye umri chini ya miaka mitano wenye malaria
D: Idadi ya watoto wenye umri chini ya miaka mitano waliopata rufaa kwenda kituo cha tiba
E: Idadi ya wanawake waliopata vidonge vya uzazi wa mpango
F: Idadi ya watoto wenye umri chini ya miaka mitano wenye ugonjwa wa kuharisha
G: Idadi ya watoto wenye umri chini ya miaka mitano wenye pnemonia

GENERAL SUMMARY(IN AVERAGE)

Wastani ya wagonjwa:10084
Wastani ya watoto wenye umri chini ya miaka mitano:2969 = 29.4%
Wastani ya watoto wenye umri chini ya miaka mitano wenye malaria:1568 = 52.8%
Wastani ya watoto wenye umri chini ya miaka mitano waliopata rufaa kwenda kituo cha tiba:230 = 7.7%
Wastani ya wanawake waliopata vidonge vya uzazi wa mpango:1321 = 13.1%
Wastani ya watoto wenye umri chini ya miaka mitano wenye ugonjwa wa kuharisha:672 = 22.6%
Wastani ya watoto wenye umri chini ya miaka mitano wenye pnemonia:655 = 22.0%

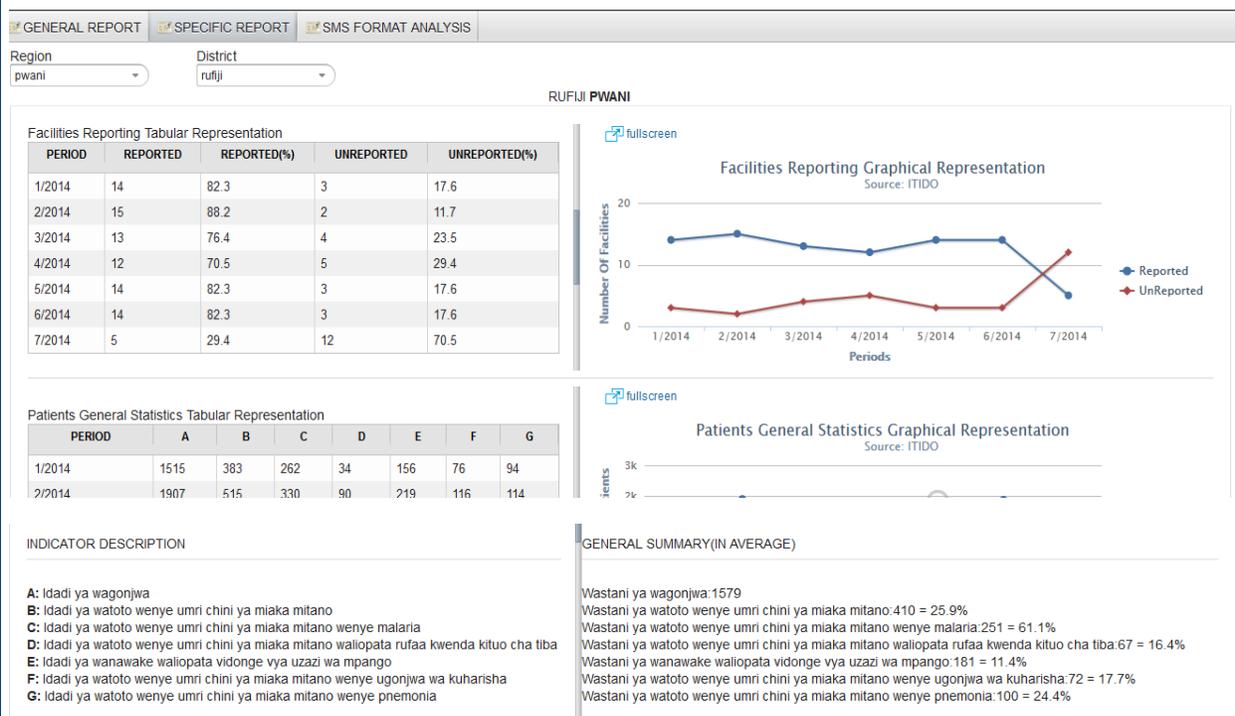**Figure 6. A Snapshot of the General Statistics Report at Pwani Regional Level**
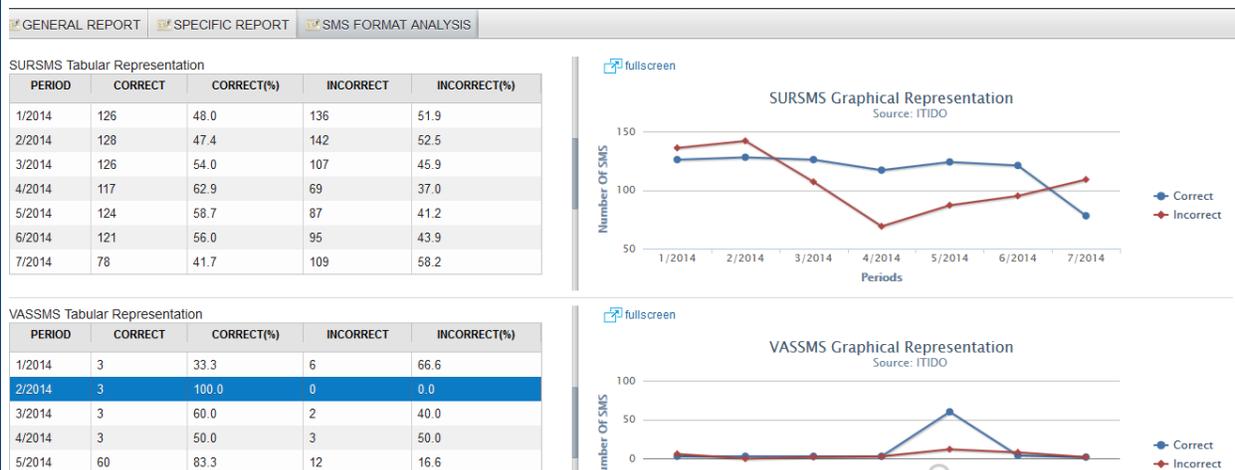
Figure 7. A Snapshot of Specific Report Statistics at Rufiji District Level

6.1.6 SMS Format Analysis Statistics

This category provides statistics about the correct and incorrect format of SMS sent by ADDO owners or dispensers. The statistics presentation is in tabular form and displays the amount of correct and incorrect SMS received in a given reporting period (in percentage). It also shows these results in graphical presentation. This category is further subdivided into three tiers: SUR (Service Utilization Report), VAS (Value Added Service), and HELPLINE SMS statistics. Each of these subcategories offers both a tabular and graphical presentation of correct and incorrect SMS

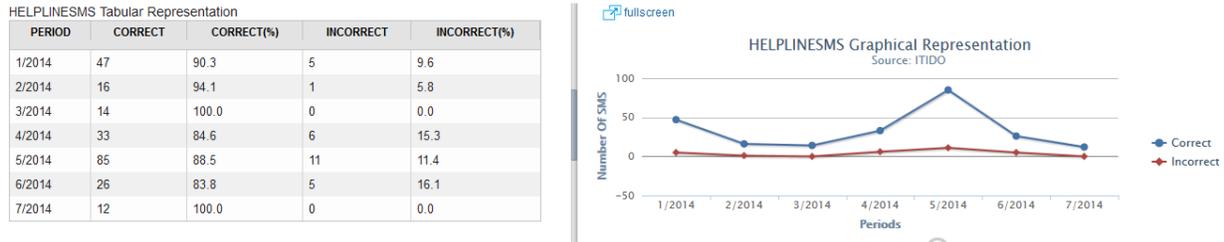| HELPLINESMS Tabular Representation				
PERIOD	CORRECT	CORRECT(%)	INCORRECT	INCORRECT(%)
1/2014	47	90.3	5	9.6
2/2014	16	94.1	1	5.8
3/2014	14	100.0	0	0.0
4/2014	33	84.6	6	15.3
5/2014	85	88.5	11	11.4
6/2014	26	83.8	5	16.1
7/2014	12	100.0	0	0.0

Figure 8. A Snapshot of SMS Format Statistics

6.2 Utilization of Electronic Inspection Tools

After the development of the electronic mobile inspection tools, ITIDO oriented MSH and PC on how to use them. MSH and PC, at different times, used the mobile inspection tools to conduct an inspection and inventory of ADDOs. It is imperative to note that teams also collected geocodes of approximately 5,000 ADDOs nationally with the assistance of PSI Tanzania.

MSH and the PC carried out preliminary/final inspections in new ADDO premises in 14 districts of the Pwani and Mtwara regions, and routine inspections were carried out in ADDO premises in 14 districts of the Pwani and Mtwara regions using developed electronic inspection tools installed in tablets. The inspectors collected data, which were sent to the online server using a GPRS Internet (3G/4G internet or mobile internet access). The supervisor was able to see all premises inspected and for follow-up and verification of collected data. The supervisor could easily access the data on the online dashboard and follow up on any issues.

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7.0 Monitoring and Support Provided during the Pilot Implementation Period

7.1 Monitoring and Supportive Supervision

ITIDO, PC, and MSH provided supportive supervision to address the challenges faced by Accredited Drug Dispensing Outlets (ADDO) and the Pharmacy Council of Tanzania (PCT) on the use of the mobile system for payment, data collection and reporting, Value Added Services (VAS), and Helpline, which allows premises and personnel to send and receive information.

Supervision was conducted by interviews and direct observation of data reported from ADDOs to the PC. The interview questions included issues on the process of filling a drug register and questions on whether ADDOs faces challenges while filling them. Systems users were asked questions such us 'How do you feel about it," "what are the difficulties in calculating the indicators," and "are you actually filling all patients?"   Our team also selected some reports submitted by system users and performed a data quality assessment (i.e., appropriate, accurate, complete, and reliable) to be sure that what they reported in the mobile system is what was actually recorded.

We had two categories of supportive supervision interviews. The first category was conducting via mobile phone to all ADDOs in Kibaha, Bagamoyo, Kisarawe, Mkuranga, Rufiji, and Mafia, and was done

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in three phases. The first phase was from June 26-30 2014, the second phase was from July 30-31 2014, and the third phase was from August 19-20, 2014.

The second category was a face-to-face interview to 30 selected ADDOs from the three districts of Kibaha, Bagamoyo, and Kisarawe.

Supervisor from Pharmacy Council showing dispenser how to send a report

All interviews lasted on average 20 to 30 minutes and took place either at the shop of the dispenser/owner being interviewed or via the mobile number of the dispenser/owner being interviewed. Interviews were conducted in the Swahili language, and extensive notes were taken.

Out of the ADDOs selected for a face-to-face interview, 20 ADDOs (equivalent to 66.7%) had not sent any report at the time of supervision. A large percentage of ADDOs were selected to find out the reasons they failed to send a single report. We wanted to understand if they faced challenges in filling the register books and/or compiling a summary report for sending via mobile phone as coded SMS to the PCT Database. Also, the supervision team tried to explore and understand how ADDO owners and dispensers feel about mobile services, especially for sending reports, and if there is any immediate improvement needed.

The supervision team found that there were no major challenges on sending reports, except that some were making typos on coded SMS syntax. Also, users determined that there were challenges with filling register books and compiling a daily summary that contributes to the overall summary on a specific reporting period. The supervision team oriented ADDOs on how to compile a daily summary, prepare a coded SMS, and send the report with correct syntax.

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The team requested ADDO dispensers to show the register book. The team also conducted direct observations of reports sent from ADDOs via mobile phone to be sure that what they reported in the mobile system is what they actually recorded in the register book.

During supportive supervision, we encouraged ADDO owners/dispenser to send a report each reporting period as they were directed during the training sessions and also to pay their premise renewal fees using M-Pesa.

Facilities Reporting Tabular Representation

PERIOD	REPORTED	REPORTED(%)	UNREPORTED	UNREPORTED(%)
1/2014	126	84.5	23	15.4
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Patients General Statistics Tabular Representation

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3/2014	10617	3126	1606	236	1441	698	750
4/2014	9864	2905	1554	202	1311	621	678

Figure 9. A Snapshot of SMS Format Statistics

7.1.1 Helpline, Reporting, and Payment Mobile End User Support

PC, with assistance from ITIDO, used the Helpline feature to receive and respond to different kinds of questions (including the challenges faced in sending reports) asked by mobile end users via SMS and phone calls. PC, MSH, and ITIDO worked in collaboration to find the right response to a particular question from mobile end users, and then responded back to the requester through both a phone call and SMS. Responses were recorded into the database for future reference.

The ITIDO support team also provided continuous support to ADDO dispensers and owners who were sending reports to ensure that they send them on time and in the correct format. The ITIDO support team was calling ADDO dispensers and owners who were making typos and instructing them in how to prepare and send coded SMS reports in the correct syntax and acceptable format.

After the launch of the revised format through mobile money (M-Pesa), ITIDO received messages and calls from the end users who were facing difficulties in following the steps to send money for renewal fees through M-PESA. PC, MSH, and ITIDO provided direct assistance to ADDOs through SMS and telephone calls.

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PCT Database End User Support

ITIDO provided continuous support to PCT database end users through email and mobile phone. ITIDO actually setup a support email (support@itido.or.tz) and a hotline number (+255762459746) which were used for reporting bugs and asking questions.

System Administrator Support

ITIDO managed to provide regular technical support to the system administrator support, based at the Pharmacy Council. The form of support given was mainly related to the environment in which the PCT database was deployed on (i.e., servers, network devices, and maintaining third party applications).

Maintenance & Refinement of PCT Database and Mobile Services/Package

Through continuous monitoring of PCT database and mobile services usage, ITIDO noticed that there were some features that needed to be enhanced. All proposed enhancements were recorded in an issue tracker and later included in the maintenance sprints for the development team to code.

Other feature requests came from database users themselves. These requests were recorded, prioritized, and included in the maintenance sprints for the development team to work on.

Reminders & Notification Handling

ITIDO, in collaboration with PC and MSH, prepared reminders and notifications to be sent to pharmaceutical and premise personnel, including report and renewal payment reminders. ITIDO took the lead in drafting the message, which it then shared with MSH and PC for review. Once both parties agreed on the content and format of the reminder and notifications, ITIDO, in collaboration with PC, sent the SMS using the PCT database and mobile services multicast feature.

8 Documentation and Dissemination

8.1 Documentation

8.1.1 Activity Progress Reports

ADDO owners /dispensers were instructed to send reports after every two weeks, making a total of six reporting periods for three months. The team produced progress reports in the same interval. These reports summarize the mobile communication results (i.e., reports, Helpline requests, and VAS), and any activity that took place within the reporting period. Progress reports were sent to MSH and Pharmacy Council for review to ascertain system performance.

Moreover, ITIDO prepared the Mid-Pilot Report and submitted it to PC and MSH to provide information on the pilot implementation, especially on the use of mobile phone services and comments provided to improve the system.

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8.1.2 Pilot Implementation Video Documentary

ITIDO has prepared a short documentary and some of the pictures captured through the pilot implementation. The aim of this documentary is to capture some best practices and testimonies from end users who are using the PCT database and mobile users from the regulatory level to the ADDO premise level.

The video documentary story is organized as follows:

Introduction

The introduction shows the outlook of the Pharmacy Council (PC) building and fades in to show one of the PC staff communicating with clients through the new technology. It then fades in to video clips showing a pharmacist receiving a message from the PC.

PHARMACIST: "I have to make payment."

(Cut to MSH)

This is followed by video clips showing MSHs staff, which then fades into the clips showing the MSH officials speaking on 'inversion of new communication technology for PC services and other important messages.

PART II

This part starts with a shot of the ITIDO office and dissolves to ITIDO staff working, then shows the ITIDO officials saying "what is ITIDO (in short), its participation in inversion of new communication Technology for PC, and demonstration of Mobile Technology system (How the system work)".

PART III

Part three starts with a Pharmacy Council official saying "the overview of the institute (in short), historical background of the media used by the council before introduction of new way of communication through Mobile Phone system and how the PC made the new ways of communication system useful (*Still pictures, Videos, graphics from training are used in this part).*"

PART IV

This part features challenges, opinions, and the way forward from all officials (PC, MSH, ITIDO, and pharmacists.)

Fading into credits.

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8.1.3 Pictures and E-Album

ITIDO also captured a number of pictures of different activities performed throughout the pilot implementation. The pictures captured were shared to MSH, and some were uploaded to Facebook (https://www.facebook.com/ITIDOTZ?ref=br_rs).

8.2 Dissemination

8.2.1 SDSI Stakeholders Meeting

ITIDO presented the outcomes of the mobile technology intervention to strengthen Pharmacy Council operations and regulatory issues to the SDSI dissemination meeting that took place in the Arusha Hotel on August 5-6, 2014. The ITIDO team travelled to Arusha August 3, 2014 to attend, present, and demonstrate how the pilot phase on the use of mobile technology was executed to strengthen Pharmacy Council operations in the Pwani and Dar es Salaam regions.

The meeting had the following objectives:

- To inform stakeholders on efforts to scale up the ADDO program nationwide from 2003 to 2013.

- To share results on interventions to ensure ADDO maintenance and sustainability.

- To share results from operational research to evaluate medicines access and use in districts served by the ADDO program.

- Agree on way to maintain and sustain the ADDO Program in Tanzania.

The key role of ITIDO in this meeting was to present and demonstrate the pilot work in the Pwani region on the use of mobile technology to strengthen Pharmacy Council operations. This report aims at providing a brief summary of the meeting, especially ITIDO involvement.

Participants were very positive about the technology intervention and congratulated PC, MSH, and ITIDO for being innovative. Some of the cited recommendations were:

- The system need to be scaled up and used by ADDO and other premises in Tanzania.

- The initiative should be replicated in other countries, such as Uganda and Liberia, where they are currently implementing similar program (ADS and AMS, respectively).

- Advocate and link partners who have an interest in data on malaria, diarrhea, pneumonia, family planning, etc.

- The Technology integration (database, GIS, mobile) portion of the ADDO program was mentioned as requiring maintenance and sustainability efforts from the PC.

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8.2.2 Tanzania mHealth Community of Practice Meeting

ITIDO is member of the Secretariat of Tanzania mHealth Community of Practice, led by the Ministry of Health and Social Welfare through the M&E section. The Tanzania mHealth Community of Practice often organized meetings for partners and stakeholders interested in implementing mHealth initiatives. In July of 2014, ITIDO invited MSH Tanzania to the quarterly meeting of the Tanzania mHealth Community of Practice to present on the use of mobile technology to strengthen Pharmacy Council operations. The meeting was organized in collaboration with GSMA. After the presentation, both ITIDO and MSH received positive feedback from participants, especially on the reporting of different indicators of ADDO services (which is regarded as a private entity).

Tanzania mHealth Community of Practice Meeting

8.2.3 Pharmacy Council Stakeholders Meeting

In July of 2014, the Pharmacy Council organized the 'potential partners and stakeholders meeting' with the aim of creating awareness of PC operations and strategic plans that need support. In this meeting, ITIDO was invited to present on the use of mobile technology to strengthen Pharmacy Council operations and on the strategy for creating partnerships in data/information sharing through SMS reporting and strengthening revenue collection through mobile money (M-Pesa).

9.0 Challenges

Despite the mentioned successes, ITIDO faced some challenges:

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- The management of mobile users' inquires and responses through Helpline was a challenge. The plan was that the PC team was to take charge of receiving, processing, and responding to the Helpline inquiries through the system, but this did not occur during the pilot implementation due to competing priorities at PC. ITIDO had to take the lead in order to encourage users to keep sending reports.

- During the pilot implementation of mobile package/services, users faced some challenges on compiling and sending reports in the correct format. Consequently, most users received a feedback message from the system indicating that they have submitted an incorrect message format. The ITIDO team had to establish a support team (call center desk) to call and assist mobile users to fix the message syntax and encourage them to re-send reports.

- A report of pharmaceutical personnel and premises paid using mobile money was delayed due to problems with the linkage/integration between the Vodacom M-Pesa platform and PCT database, which led to difficulties with the automatic payment acknowledgement and electronic receipt processing.

- The PCT database was not used comprehensively by all PC departments and sections due to poor LAN infrastructure at the PC.

- There were repeated changes to the workflow and business process implemented into the PCT database and mobile package due to the disorganization of the multiple stakeholders' system changes in the legal, training, and education sections. Also, some processes, such as the disbursement process, were fully finalized and agreed upon at the end of the pilot, which resulted in ITIDO team implementing the old process adopted from TFDA.

- Delays in adopting the PCT database and mobile package/services was inevitable, for there was some reshuffling at PC. It was difficult to obtain consistently and drive from the top management team.

- Despite the work done in the development of system (PCT database and mobile package), use of the system was not as good as expected.

- There were some delays in the preparation and printing of drug registers and posters, which affected the distribution logistics during the training sessions. As a remedy, the ITIDO and MSH team distributed registers and posters to the respective ADDO owners and dispensers in the Pwani Region immediately after the training.

- Some of the district pharmacists did not fully accept the initiative, despite attending and participating in the training and orientation sessions of ADDO owners and dispensers. This resulted in confusion, especially during when using mobile money (M-Pesa).

10.0 Next Steps

10.1 Evaluation

10.1.1 System Security Evaluation

The PCT database and mobile package developed by ITIDO for the Pharmacy Council will be evaluated by an external consultant in order to identify gaps and security threats in the system. MSH engaged and contracted the consultant to evaluate the system's security. ITIDO, as the technology contractor, provided input and assistance on the process of selecting the consultant. ITIDO, MSH, and PC will work on the recommendations of the system security consultant.

10.1.2 Evaluation of the Pilot Implementation

An external consultant will be contracted by MSH to perform a qualitative evaluation of the pilot implementation of the PCT database. Findings from the evaluation team will be incorporated to improve the database.

10.2 Maintenance and Scale-up Plan

ITIDO worked in collaboration with the Pharmacy Council staff to prepare a post-pilot plan that will guide the Pharmacy Council of Tanzania to roll out a national database and mobile application. This report aims at describing activities that need to be implemented during the scale up of the PCT database and mobile package component. The planned activities have been collaboratively discussed and categorized into the following main activities: preparation and logistics, training and orientation, application maintenance and refinement, reporting and documentation, data entry and upload, system evaluation, establishment of ICT instrument, deployment of other Information Management Systems (IMS) and resource mobilization (Annex- Post Pilot/Rollout Strategy Report).

10.3 Scale-up Plan Activities

10.3.1 Preparation and Logistics

During the post-pilot phase, the application manual and mobile package manual will need to be reviewed and customized per the type of end user (ADDO owners, personnel, PC staff, or IT unit staff) and pilot experience before final printing. Once the manuals have been reviewed and designed, the printing will be done according to the number of end users. Based on the current statistics, Tanzania has 5,000 ADDO premises, 2,500 personnel from all categories (full registered, pharmaceutical technician, and pharmaceutical assistants), and an IT unit staff of eight people. Unlike the application manual, all personnel and ADDO owners will need the mobile package manual. 7,500 copies of the mobile package manual will be printed.

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Apart from printing the user manuals, the team will also prepare posters to be used during the training sessions and as reference materials by ADDO dispensers and owners. Since the mobile package component has only four services (VAS, Mobile Payment, Helpline, and SUR), a total of 20,000 posters are needed for approximately 5,000 users.

Printed registers will be used by ADDO owners and dispensers to collect, compile, and send report to the PC based on the list of indicators. Based on the pilot phase, the current register will need to be reviewed to add a column to summarize daily records for use in compiling a report. The team will also need to prepare the training schedules as part of the rollout plan, which delineates the starting date, end date, location, content, and delivery style.

10.3.2 Training and Orientation

This activity involves training of facilitators/training of trainers (TOT) who shall, during the scale up phase, cascade the trainings in all regions. Additional PC IT staff will be trained and will be responsible for the system maintenance and operation of the PCT database and mobile package. Finally, a plan for convectional trainings to all end users, grouped regionally, will be established to allow the rolling out of the trainings.

10.3.3 Application Maintenance and Refinement

This activity involves continuing development and enhancement of some features in all seven modules (registration, ADDO, payment, inspection, administration, education, and legal) as well as mobile package features. The development of new features shall be based on the comments gathered and process flow amendments captured during the training and pilot period. Also, maintaining the PCT database and mobile package component will be hand-in-hand with fixing bugs to ensure the smooth operation of the application and exchange of information with third parties.

10.3.4 Reporting and Documentation

This activity involves preparing reports as per the agreed upon period and frequency. These reports will describe how the PCT database and mobile package component have been used and rolled out. The report will also track and monitor the lesson learnt, best practices, successes, and challenges faced and the actions necessary to ensure a successful national rollout.

10.3.5 Data Entry and Upload

This activity deals with entering new data from additional regions into the application as well as cleaning and importing personnel data from all categories, ADDO premises, pharmacies, training institutions, and premise owners from the excel files and in the aggregated server into the database.

10.3.6 Monitoring and Evaluation

This activity will be focusing on monitoring and evaluation of the project and system progress in terms of its performance, efficiency, and compliance to functional and nonfunctional requirements. This will be performed by ITIDO and the PC in collaboration with MSH

10.3.7 Establishment of PC ICT Guidelines and Tools

During the pilot phase, ITIDO discovered that the Pharmacy Council is missing some key ICT instruments for sustainable scale-up of the developed database and mobile package. These ICT instruments include an ICT strategy and guidelines on user access and security. During the post-pilot period, the PC needs to establish these instruments as the guiding documents and tools for sustaining and maintaining the developed database and mobile package.

10.3.8 Resource Mobilization

The PC will need to have a resource mobilization strategy and focal persons to secure resources that will enable the smooth implementation of the post-pilot plan. This will involve writing a concept note and proposal preparations and submission to potential partner and donors who have interest in the developed database system. In order to show the importance of the PCT database, the resource mobilization team will be compiling data and reports from the PCT database and will share them with potential partners.

10.3.9 Data Sharing/Dissemination

ITIDO will work with MSH and the PC to see how to share the reports with the Ministry of Health and Social Welfare (MoHSW). ITIDO, in collaboration with MSH and PC, will share data gathered through mobile packages, in particular data collected in workshops, meetings, and demonstrations, to MoHSW and other potential partners.

10.3.10 Deployment of Additional MIS to Support Deployed PCT Database

The Pharmacy Council still needs to automate activities such as accounting, procurement, inventory, human resources, budgeting, superintendent tracking, drug sales tracking, and document workflow tracking. To address this need, ITIDO can implement other modules that can work easily with the PCT database and mobile services, such as:

- human resources and payroll modules, which tracks the number of employees and their pay;

- accounting module, which automates PC accounting-related activities;

- budgeting module, which automates the PC budget-related activities and processes;

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- procurement and inventory, which automate Pharmacy Council procurement and inventory related activities;

- the superintendent tracking module, which will track if the pharmacist has attended the premises that they supervise and will eliminate the chance of having a pharmacy without a pharmacist, as is the current situation;

- drug sales tracking module, for wholesale to track where the drug stores purchase medicines and to make sure drug are sold to the registered premises;

- document workflow and tracking module, for tracking all incoming and outgoing documents from the PC ; and

- data exchange adaptor, to exchange information with other systems, such as DHIS2, BRELLA, TRA, NACTE, etc.

10.4 Tentative Proposed Budget

Based on the post-activities planned, ITIDO, in collaboration with PC, have prepared the tentative budget for a countrywide scale-up of the PCT database and mobile package/services. The details of the activities and their respective budgets can be found in the *ITIDO-MSH Post Pilot Planning Report (2014),* which was prepared and submitted as a deliverable. However, this budget is subject to change at the time the post-pilot activities are implemented**.**

11.0 Recommendations

11.1 Recommended Steps for a Successful Pilot Implementation

Based on experience from the implementation phase of the pilot study, ITIDO would like to recommend approaches and steps that should be taken for a successful pilot implementation, in the event that partners plan to replicate or pilot the developed database and mobile services/package.

- A pilot period of at least 12 months (one year).

- Linkage and integration with mobile operators for the mobile money component should be done three months before pilot kick off.

- Linkage and integration with SMS integrators for sending SMS from the system to the mobile services end users should be done two months before pilot kick off.

- Procurement activities, setup, and installation of required of ICT equipment and infrastructure, such as servers, UPS, backup power, LAN, internet, and computers, should be done two months before the pilot kick off.

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- Engage contractor(s) and prepare contractual logistics two months before pilot kick off.

- Hire qualified and experienced IT personnel to support the system and infrastructure.

- Finalization of the database and mobile package, as per the needs assessment findings, should be done six months before the pilot kick off.

- Create awareness and advocacy activities for key stakeholders or implementing agencies to allow time to accept the intervention.

- Preparation of and printing the registers, manuals, and posters for training and orientation should be done two months before the pilot kick off.

- Refine and improve the pilot ME indicators to be more SMART.

- Agree on and prioritize the system needs for database and mobile services/package implementation.

- Properly demonstrate the database, mobile implementation, and follow-up action plan.

- Proper handling of government bureaucracy may affect pilot implementation or the scale up plan.

- Set up a dedicated development and support unit to assure proper system running, maintenance, and support.

11.2 Recommended Strategic Actions

Based on the operational experience and challenges of implementing this pilot, ITIDO recommends the following strategic actions:

- PC should take a leading role in the management of inquires through Helpline from mobile users and in handling responses. PC should activate and maintain the information system technical group to have a regular schedule of going through the helpline requests, finding the right responses, and responding to the requester/mobile user on time.

- PC, whenever possible, should continue working closely with ITIDO's technical team and jointly establish a support team to call and assist mobile users who are sending reports with an incorrect format in order to rectify the message syntax. Also, PC should start working on a sustainable plan to support all mobile end users when the ITIDO team exits.

- PC, with the assistance of ITIDO, should finalize the linkage/integration between the Vodacom M-Pesa platform and the PCT database for acknowledgement of automatic payments and for sending electronic receipt processing before the coming renewal payment period.

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- PC should strengthen the LAN infrastructure immediately to enable the PCT database to be used comprehensively by all PC departments and sections.

- PC has to finalize the fund disbursement workflow and business process for ITIDO to reflect the changes to the PCT database and mobile services.

- PC should have the key project people adopt and use the PCT database and mobile package/services with a push from upper management.

- During the scale-up phase, the preparation and printing of drug registers and posters should be done as early as possible to allow for the timely distribution of them during training and orientation.

- PC should create awareness and buy-in at the district level to assure a high chance of success, especially for the renewal and retention fees paid through mobile money.

- The PCT database should integrate with other mobile operators, apart from Vodacom (M-Pesa), such as TIGO and Airtel.

- The drug registers could be improved by the "add column" at the bottom or the "back to assist ADDO dispenser" to call out the daily total of key indicators that will be tracked and reported at the end of each reporting period.

- Since ADDOs seems to play a key role in community health care, there is a need to harmonize reporting issues for all partners. This will ease the burden of reporting on ADDO, for they will report once and let partners used the data through the PCT database reporting dashboard.

- PC should work closely with ITIDO, MSH, and other partners to mobilize financial resources for a national scale-up. This can be done immediately by establishing a resource mobilization and advocacy team.

- Partners who are interested in data on malaria, diarrhea, pneumonia, and family planning, etc., should be linked.

- The PCT database should be integrating ADDO association details and self-regulation issues. ITIDO, in collaboration with PC, MSH, and MediaNet, should integrate a mobile-based self-regulation module into the database that is based on the self-regulation workflow that was developed by MediaNet.

- PC should strengthen the ICT unit by employing highly qualified and experienced ICT personnel to support and oversee the PCT database and mobile package.

- In collaboration with ITIDO and partner organizations, PC should perform regular Data Quality Assessment (DQA) with the objectives of:

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- ✓ verifying the quality of reported data for key indicators at selected sites and the ability of the data-management systems to collect, manage, and report quality data;

- ✓ implementing corrective measures with action plans for strengthening the data management and reporting system and improving data quality; and

- ✓ monitoring capacity improvements and the performance of the data management and reporting system.

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12.0 Annexes

ITIDO –A CATALYST FOR INNOVATION

ITIDO

A CATALYST FOR INNOVATION