Myanmar

Lessons from Dedayae: Automating the Reproductive Health Commodity Logistics System

The Dedayae pilot tested both mobile and computer platforms to automate the collection, transmission, and aggregation of data in the Reproductive Health Commodity Logistics System (RHC-LS)

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Background

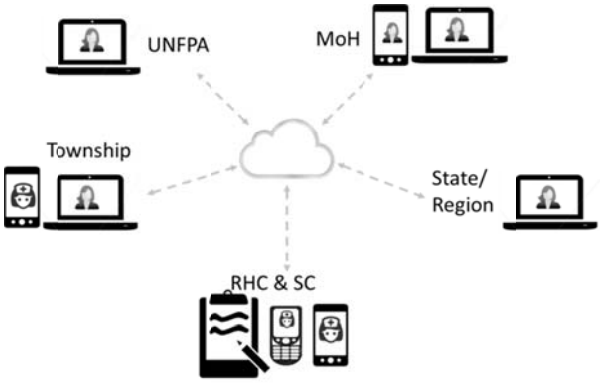
To achieve the goal of providing high-quality, equitable sexual and reproductive health (SRH) information and services in Myanmar requires a well-designed, well-operated and well-maintained supply chain management system – one that ensures an adequate supply of reproductive health (RH) commodities is available to the clients when and where they are needed. Since April 2013 the Ministry of Health (MOH), in coordination with United Nations Population Fund (UNFPA) and with technical support from John Snow, Incorporated (JSI) and Relief International (RI), has worked to design and implement a reproductive health commodity logistics system (RHC-LS); These activities culminated in a 6-month pilot in 12 Townships in 4 States and Regions from September 2014 – February 2015.

An important component of the RHC-LS pilot was automation of logistics information, implemented with 3MDG support by RI and JSI in Dedayae Township. The team worked with Logistimo, an Indian technology firm, to build an automated system to capture data from the lowest level of the RHC-LS supply chain. In February/March 2015, the entire pilot, including Dedayae automation activities, was evaluated to determine the areas of the logistics system that worked well and those that needed refinement. The findings of the final evaluation of the Dedayae pilot are presented in this report.

Overview of Automation in the RHC-LS and Dedayae

The underlying principle for automation in the RHC-LS is for staff to use whatever technology is available to transfer and collect data into a central, cloud-based database developed by Logistimo, including paper reports, phones, or computers, as illustrated in Figure 1. A central database was developed, and beginning in October 2014, data from paper reports has been entered by each of the State/Regional Health Officials in the 4 participating regions for all of their facilities, including Rural Health Centers (RHC), sub-centers (SC), Station Hospitals (SH), Maternal Child Health (MCH) units, and Township hospitals.

Figure 1: Automation in the RHC-LS



Myanmar's telecommunication infrastructure is changing and expanding on a daily basis. When the RHC-LS was designed in August 2013, stakeholders agreed electricity, internet, and available data entry staff were not routinely available at every Township in Myanmar, and thus computers/automation should be at the Regional/Central level, and paper reports coming from health facilities to be entered by staff at this level. However, the Dedayae pilot presented an opportunity to answer the question: Would it be feasible for Township level staff to enter logistics data into the automated system? The second question that the pilot answered was whether it would be possible to have some users report logistics information from their mobile phones?

To answer these questions, the Dedayae pilot involved having 8 facilities (2 RHCs plus six SCS) under this township report via mobile phone, with the paper reports from remaining health facilities being entered into a computer directly at the Township Medical Office. This involved both customizing the automated database and then training staff at Dedayae Township on how to enter and view reports and data in the automated system, as well as well as teaching 10 BHS how to enter information using their mobile devices (as shown in picture 1). Once all data is entered (whether through mobile phone or paper) into the database, township level staff are able to view it on their customized dashboard, and make critical logistics decisions (e.g. How much product to resupply to health facilities? Where is logistics supervision required?). These data are also automatically viewable at the Regional and Central level, providing managers with real-time visibility into logistics activities in Dedayae Township for the first time. Meanwhile, the paper *Facility Stock Reports* from the 11 other Townships were sent directly to the State/Regional level for entry into the automated system.

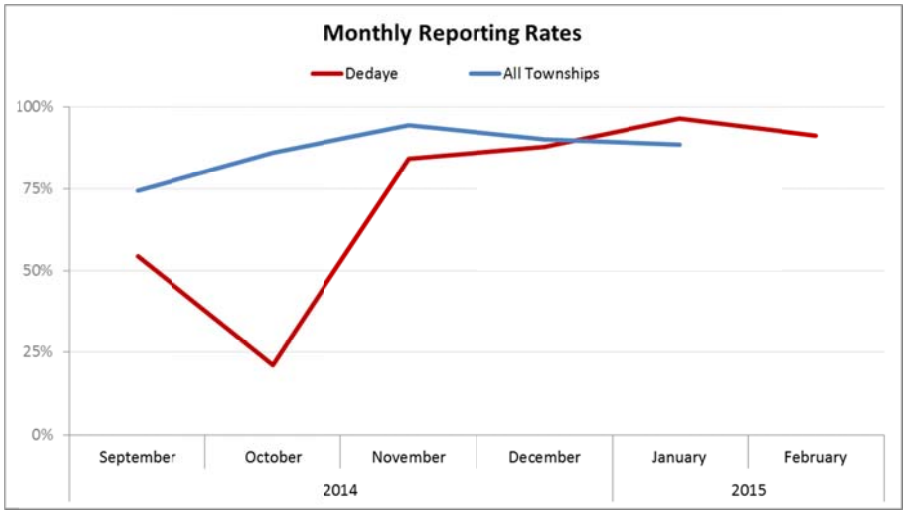
Picture 1: BHS trained to send logistics transactions via mobile

Evaluation Methodology

The pilot evaluation took place February 25 – March 11, 2015. It employed both qualitative evaluation methods as well as quantitative data analysis. Qualitative data collection included interviews with Township, including the new Township Medical Officer (TMO), and Health Facility Staff, as well as staff from all 8 facilities which have been using the mobile automated system at the RHC/SC level. Visits included not only interviewing staff using the questionnaire, but also a physical inspection of the storage space and review of RHC-LS LMIS forms and reports. The evaluation also included a quantitative analysis of data available in the Logistimo database, to understand reporting and product availability trends. Some of these data were shared during the interviews to validate this data and understand patterns and trends.

Impact of the RHC-LS in Dedayae Township

The hallmark of a strong supply chain is the availability of high quality data flowing through the system and available to users for decision-making. High levels of logistics reporting from service delivery points in the chain are key to achieving data visibility.



The number of facilities submitting their Facility Stock Reports, the main reporting form of the system, was higher than most other pilot Townships in the last 3 months of the pilot. Reporting rates were as high as 96% in Dedayae in January 2015. This may be attributable to having data entry for the automated system happen at the Township level. Specifically, if Dedayae Township staff do not have the FSR for a particular health facility on hand to enter into the computer, they can easily follow-up with these facilities for their report; However, if missing reports are found at the State/Regional level, it takes more time to follow-up on missing reports. Not only was reporting high, but data was of high quality. Township also staff observed that the quality of reports submitted by BHS improved during the pilot period. This is confirmed by review of the error rate in the reports in Logistimo, which revealed only a 6% error rate on average for the calculation of consumption (over a 4 month period).

Success in automation informs RHC-LS and national system

The Dedayae experience not only informed how automation should be included in the RHC-LS, but also provides important lessons in including automation in the national logistics system.

Moving the database to the Township level, results in higher rates of data entry

While the rate of paper reporting was high across all Townships, based on reports counted at the Township level – 86% on average across the first 5 months of the pilot – there is a significantly lower rate of paper reports being entered into the automated database at the Regional level, with only 55% entered on average during the same period. There is also a lag of 1-2 months on average between when reports are submitted and when they are entered into the database. This can be attributed to the time required for reports to be submitted to the Township, compiled, and sent to the States/Regions.

> The Dedayae pilot shows that moving data entry to the Township level can increase the availability of information in the automated system. In January 2015, 96% of reports were entered into the database in Dedayae Township.

In the one Township – Dedayae – entering reports at the Township Medical Office during the pilot, the rates of data entry of reports was significantly higher than those entered at the Regional/State level – 96% entered in January 2015. The Dedayae pilot suggests that moving data entry to the Township level, not only improve rates of data entry in the automated RHC-LS, but transferring this role to the Townships may also result in greater ownership and use of data.

Using mobile phones improves quality, timeliness, and availability of logistics data

Reporting from the 8 mobile users in Dedayae Township also contributed to greater quality, timeliness, and availability of reported data. Despite connectivity challenges, due to limited mobile network in Dedayae Township, the mobile users in Dedayae sent 3 times the number of transactions as non-mobile users (32 transactions/month for mobile users, versus 10 transactions per month for non-mobile users), and drastically improved the lag time in reporting since their data would be sent within 12 days of the transaction occurring rather than 36 days with paper report. To overcome connectivity challenges, users would update at the RHC/SC regularly (and save the data locally to their phone) and then would update when they were at Dedayae Township for the monthly meeting (see picture 2); when it was not possible for them to upload the data, they informed township staff, who were then able to enter data from their paper FSRs at township computer.

Picture 2: BHS travel distances to find network to send mobile transactions

Interviews from users revealed that including mobile in the system also reduces the burden on staff at the Township level. Specifically, Township staff indicated that having 8 mobile users send their data directly to the system, reduced the data entry burden at the Township level. These results illustrate the true benefit of a mobile system, which is its ability to provide more information in real time and reduce administrative burden on health

staff. Currently, mobile users in Dedayae must report logistics data using both paper reports *and* via mobile transactions. Therefore following the pilot, in order to fully reduce the burden on staff, one preferred mode (either paper or mobile) should be selected so that health staff only have to report once.

Areas for further system improvements

The Dedayae pilot was implemented using a learning approach that allowed the team to understand what went well, why, and how it can be expanded (and conversely what went wrong, why, and how it can be addressed). Two formal assessments, the mid-line and end-line were complemented by on-going monitoring, and in the model of continuous improvement, have allowed system implementers to make on-going enhancements to the system to improve performance.

Processes for resupply can be improved, especially to leverage automated system

There were some challenges in the timely resupply of health facilities observed in Dedayae. This was also observed in the other pilot Townships. One challenge has to do with the volume of transactions required at this time –Township staff must review FSRs for all health facilities in the Township, and then issue products. All of this must be done during the course of only one or two days when BHS are in the Township for their monthly meeting. This can be time-consuming as there are 57 reporting facilities in Dedayae Township. As a result only some facilities are able to receive their commodities while they are in Dedayae for the staff meeting; others have to wait, and either depart late or are not able to bring back their commodities with them from the meeting. As the BHS have to come to township on the 5th of the month to receive EPI products, those who did not receive their products during the monthly meeting can receive them at that time.

Because of the limited time when BHS are in the Township for the monthly meeting, and the need to check their FSRs and prepare commodities to issue, Township staff are not able to enter and upload the data from the paper reports into the Logistimo system, and use Logistimo as a tool to support this process. In addition, the internet connection in the township medical office is weak, and thus oftentimes Township staff go to the RI office to upload data. One recommendation to lessen the burden on Township staff would be to officially stagger the issuing of commodities between the end of the month meeting and when staff come to pick up their EPI commodities the next month. Therefore, some staff would pick up RH commodities at the end of the month, and the rest of the staff would pick up both RH and EPI commodities at the beginning of the following month. A specific schedule by facility could be drawn up indicating when BHS should expect to receive their commodities according to this schedule.

Another challenge has to do with roles relating the store room. The Township Health Nurse (THN) is not able to open the general store room without the storekeeper being present, resulting in

further delays. This is not specific to Dedayae Township, and requires empowering different members of the Township team and reassigning roles and responsibilities. For all Townships, this will require analyzing and addressing specific bottlenecks on a Township-by-Township basis. In the short-term the TMO in Dedayae has agreed to a separate store room for RH commodities, to which the RHC-LS focal person would have access.

User-centric approach identified several improvements to functionality of automated system

Because the team is using a user-centric approach to developing the automated system, the final evaluation surfaced several potential improvements to the system. Simply implementing an information system and having health facilties report does not in itself improve supply chain performance and product availability, staff in the system have to use the information to guide logistics decisions. There has also been some use of the data for logistics decision-making, for example in using data to resupply facilities in Dedayae. In order to achieve even greater use of data for logistics decisionmaking, a key improvement would be the enhancement of reports available from Logistimo, which are currently being developed based on feedback. Staff also indicated that they would need training to know how to access reports and use them effectively; this would build on earlier training that Township staff received in inputing data into the Logistimo system.

On the mobile platform, users have become more accustomed to using the technology, such that they can now request additional features to improve their workflow. Building additional features on the application to support these facility staff, including adding functionality to know their consumption, allowing them to send orders, and save transactions on a daily basis will not only improve users' ability to use the application but their understanding of the logistics situation at any one time.

Next steps

The results of this pilot have informed both the way that automation in the RHC-LS will be implemented in other Townships as well as the design of the national logistics system. Dedayae is a model township, testing new innovations to improve supply chain management, which can then be applied more broadly. In 2015, the team will continue implement improvements to enhance the performance of the supply chain, and address some of the additional opportunities for improvements. In addition, Dedayae will continue to be a model and will be the first Township to test new supply chain supervision tools, to inform not only the RHC-LS, but also national logistics system improvements.

For further details on the assessment, please refer to: "Myanmar: Final Evaluation of the Reproductive Health Commodity Logistics System (RHC-LS) Pilot." February/March 2015.