ABSTRACT

Background:

While the utilization of electronic HIS has reported successful cases, it is still challenging in where infrastructure is not well developed and resources are limited. Myanmar has launched the policy to expand advanced TB examination such as GeneXpert test and DST for the countermeasure of the increasing MDR-TB patients, and it requires many exchanges of information and specimens among clinics and referral laboratories. However, the current paper-based operation has faced its difficulty in accurately tracing information because of its complexity. Therefore, we developed the electronic TB laboratory information system which intends to reduce the workload and improve patient traceability among the facilities by using QR code for data sharing. Since April 2017, we introduced the system as pilot operation at the seven TB clinics and laboratories in Yangon.

Objectives:

To assess the feasibility of introducing the electronic HIS into TB clinics and laboratories in Myanmar in terms of staffs' perception, workflow and workload, and data accuracy, and to clarify its facilitating and hindering factors.

Methods:

The study was descriptive operational research with both qualitative and quantitative data analysis. We conducted semi-structured interviews to who in charge of the system operation in July 2017 and January 2018, workflow observations to describe the change of workflow and evaluate the workload at the five facilities in July 2018, and evaluation of the data accuracy to assess the completion of data entry by comparing the numbers of the reported patient between paper-based and system-based reports.

Results:

The perception of the staff for the system introduction was positive for the improvement of work efficiency, mainly brought by the QR code operation while the operation was still depended on the paper-based. The parallel data registration with the paper-based and the system-based has become challenging in terms of its workload. However, data sharing by QR code at the OPD and the laboratories was implemented without changing workflows and additional HR. The evaluation of data accuracy showed that the three out of four facilities reported the number of patients accurately in the paper-based report and almost correctly in the system-based report. The one facility misclassified a large number of patients in both the paper and the system-based report. The cause of the misclassification was the individual misunderstanding but not directly associated with the system operation.

Conclusions:

We showed the feasibility for the introduction of electronic HIS intended to align with the current paper-based format adopting QR code operation in TB clinics and laboratories in Myanmar. The operability with user-friendliness not requiring specific training and additional HR would be the crucial facilitating factors for the system introduction in the resource-limited situation. The workload required additional HR of the parallel data registration remains as challenges; however, it would be expected to overcome as the system expanded with QR code and the interoperability with other HIS. Further operational research is required to explicitly show the expected outcomes, such as the improvement of timeliness and completeness of reporting and patient traceability.