Health Economics and Epidemiology Research Office
HE²RO
Wits Health Consortium
University of the Witwatersrand

HE²RO Policy Brief

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PHARMACY AUTOMATION FOR HIV TREATMENT: STAFF EXPERIENCES

Background

Pharmacy practice models differ from country to country, but globally there is innovation in drug supply management and in expanding the role of pharmacy staff. In some resource limited settings burdened by HIV, for example, the complexity of HIV-related medication, the increased life span of HIV-positive patients due to access to antiretroviral drugs (ARVs), and the comorbidity of HIV/AIDS with other diseases has broadened the role of pharmacists.

One example of pharmacy innovation, an automated dispensing system (ADS), includes a storage compartment, mechanical arm and an accompanying computer system that allows pharmacies to store, count, and dispense medications automatically or with minimal human involvement. In October 2012, a ROWA-brand ADS was installed in the pharmacy in an outpatient HIV care and treatment site set within a public hospital in Johannesburg, South Africa. Before introduction of the ADS, the site was burdened with delivery of ARVs to more than 300 patients per day. The Health Economics and Epidemiology Research Office (HE²RO) evaluated the introduction of the ADS in this facility. In this policy brief, we report on staff experiences. (See Policy Brief No. 10 for our cost evaluation of the ADS.)

Methods

We conducted a retrospective evaluation from August-September 2014. Pharmacy staff were eligible for participation in semi-structured interviews if they were:

- A trained pharmacist, pharmacy assistant, or pharmacy clerk;
- A full or part time employee at the time of the assessment;
- Able to communicate in English; and
- Willing and able to provide informed consent.

Interviews included questions regarding systems and processes in the pharmacy and questions about daily activities before and after introduction of the ADS. We conducted the interviews with standardized questionnaires and analyzed the data using thematic analysis.

Results

We interviewed seven (44%) of the 16 eligible staff (2 senior pharmacists, 5 pharmacy assistants) working in the pharmacy at the time of the evaluation.

Staffing: The number of staff increased after ADS introduction (from 15 to 17). However, this was not necessarily indicative of a greater need for staff. The study pharmacy is a training site for pharmacists, and the number of staff is controlled by the Department of Health – not pharmacy managers.

The ADS engendered differentiated roles and responsibilities for pharmacy assistants and clerks. Prior to the ADS these staff spent roughly six hours per day dispensing – in addition to other tasks, and many frequently worked late to manage the demand for services. Many reported a more positive work experience since the ADS. In contrast, automation was seen to have had minimal impact on pharmacists' roles in dispensing, in part because national regulations require a pharmacist's approval prior to dispensing medications.

Stock management: Most of the respondents indicated that stock management tasks were easier and less prone to error after the ADS and its computer system were put in place. However, there was some disagreement in this regard. At the time of the evaluation – due to space constraints – the ADS only accommodated ARV stock; non-ARVs were managed separately using traditional systems for "picking" and dispensing (See Figure 1). Bulk stock of ARVs and non-ARV medication were also stored in a separate storeroom. Manual systems were still maintained to track and dispense the bulk stock medications and as a back-up for if/when the ADS broke down.

Patient care: When a patient visits the study facility, s/he may see a doctor before collecting ARVs and other medication (if needed) in the pharmacy. Medical history and prescribed medications are entered into the ADS computer system, which can flag contraindicated medications, duplicate prescriptions, etc. The

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respondents felt that the computer system made it easier to identify patients who required extra attention or counseling. However, the staff reported that average counselling times had not changed. Generally, "extra" time was spent dispensing to other patients, not providing extra counselling. This was in part driven by an expectation from patients that they would get their medicines quickly. Overall, the respondents reported less "tension" in the pharmacy – that they and their patients were more relaxed due to reduced waiting times.

Dispensing errors are not formally tracked in the pharmacy (pre- or post-ADS); though, the staff reported having less concerns (justifiably or not) about the potential for dispensing errors. That said, they acknowledged that the ADS will "pick" the drug that is requested, and that human error is still a possibility.

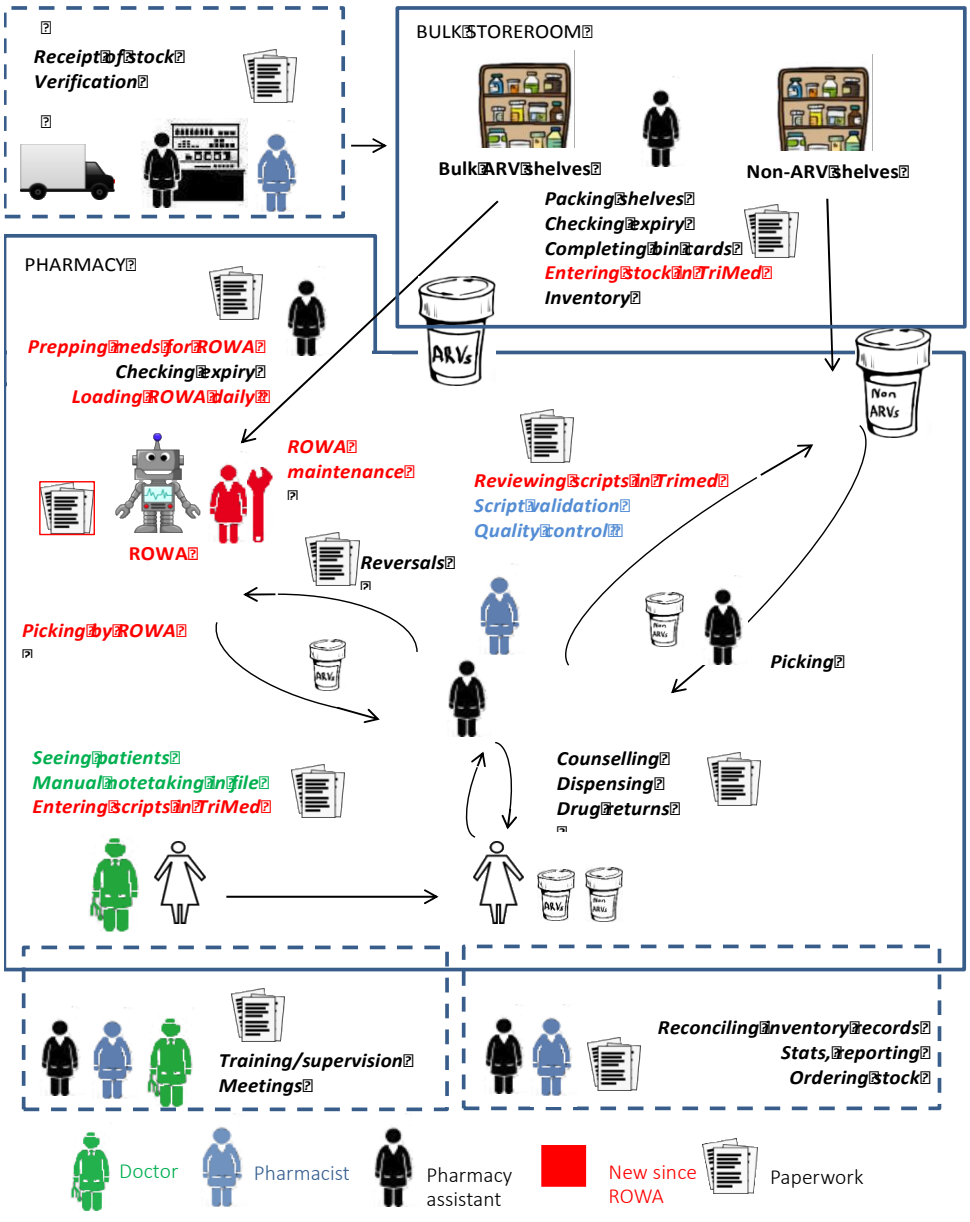
Policy relevance

Automation of any activity has the potential to reduce the need for staff conducting the activity. In some cases, individuals are no longer needed. It is important to understand the concerns and experiences of staff in order to prepare them for changes in the work environment.

It is also important to understand contextual restrictions such as local laws and policies, and how these might interact with planned changes. In the study facility, local policies did not allow for downsizing or changing the pharmacist's role.

Despite these restrictions, this evaluation does suggest the potential for improvements in the utilization of staff time and staff-patient interactions. Although the staff reported a less "tense" work environment and having more time to address patients' concerns, the "extra" time was not always used for additional counselling.

Figure 1: ARV and non-ARV drug flow in the ROWA automated pharmacy



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The full report can be found at: www.heroza.org. For detailed results, contact Naomi Lince-Deroche nlince-deroche@heroza.org.

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