

Innovation to Solution: The RADU journey

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Background

There are currently various initiatives in the South African health sector aimed at increasing patient access to medication. The National Department of Health's (NDoH's) National Adherence Strategy is one such initiative, which provides alternative options for dispensing to and collection of medication by patients who have been prescribed chronic medication. This strategy ensures that healthcare resources at facilities are used more effectively in improving the quality of care and addressing the ever-increasing healthcare requirements at facilities.¹ In support of this "decanting" strategy, Right e-Pharmacy, together with its local and international partners, has piloted Remote Automated Dispensing Units (RADUs), also called Pharmacy Dispensing Units (PDUs), to provide medication to public sector patients in South Africa (Figures 1 and 2).

The pilot study includes 4 PDU sites in easily accessible community shopping centres located in the City of Johannesburg, Gauteng: Alexandra Plaza, Ndofaya Mall, Bara Mall and Bambanani Mall. These sites provide the convenience of accessibility, flexibility of extended operating hours, direct dispensing and the ability to deliver pharmaceutical care either on-site or through tele-pharmacy enabled through PDU audio-vision linking.² Currently this technology is only approved for use in the public sector as set out by the South African Pharmacy Council's Minimum Standards for RADUs.³ Rule 1.11 includes this statement: "Pharmacies in the public sector may use the Remote Automated Dispensing Unit (RADU) for purposes of dispensing medicine and devices for long term therapy (Chronic) in order to improve access to medicines and to alleviate the patient burden on public facilities." This is the key definition: "Remote Automated Dispensing Unit (RADU) - refers to an automated dispensing unit that is remotely operated from a pharmacy to dispense medicines and medical devices for long term therapy (chronic medicine)." By contrast, a previous Rule (1.9) allows the use of automated dispensing units (ADUs) in community pharmacies, institutional pharmacies, dispensaries in primary health care clinics and in the medicine rooms of licensed dispensers.⁴ ADUs, also known as automated dispensing cabinets (ADCs), automated dispensing devices (ADDs), automated dispensing machines (ADM), automated pharmacy systems (APS), or unit-based cabinets (UBC), have been widely applied in hospital pharmacies in developed countries.

Process and progress

Patients who are considered stable on their chronic medication are eligible to use this technology. The clinician evaluates and refers patients

to the sites where they are registered and trained to use the PDU. PDUs are robotic devices that link patients to a Call Centre pharmacy where consultation and prescription approval happens. Instructions are then sent to the PDU robotics to pick, label and dispense the medication to the patient.² Patients can collect two months' supply of medication at a time, in line with the current adherence strategy. Every six months patients return to their referral clinic for evaluation and a new chronic prescription.

The Alexandra Plaza site was the first to be deployed and has been operational since May 2017. This site has 4 PDU machines serving patients from 7 referral clinics. All of the sites are open for extended hours and compared to a primary health care facility, this equates to an average of 80 additional hours per month.

The two Soweto sites have been operational from January 2018 with the fourth site expecting to start operations in June 2018. For the period May 2017 to March 2018, 23 222 scripts were dispensed at all PDU sites. It takes patients an average of 3 minutes to collect their medication from a PDU.

A very low collection rate was initially observed at the sites. This could mainly be attributed to the new process put in place for patients. Patients were reluctant to change their routine and many patients returned to their clinic rather than risk a new process that they did not yet trust. This challenge was addressed through the placement of site agents at clinics where they engaged with patients in informational sessions and facilitated the recruitment process. This intervention resulted in a rapid increase of the collection rate from 64% in September 2017 to 95% in December 2018.

The majority of patients who utilize the PDUs are females (64%) of working age (36 – 45 years). This might be an indication that PDU technology can be of specific benefit in urban or peri urban settings, where the convenience of the solution can be beneficial to patients who work. However, analysis of the collection trends of patients at the Alexandra plaza PDU site shows that patients still traditionally tend to collect their medication on weekdays in the mornings. Patients are not yet taking advantage of the flexibility that the PDU offers in terms of operating hours. The most popular day for collection is Tuesday with collection peaking between 9:00 and 10:00 (Figure 3).

Patient awareness of the additional operating hours is being increased through the site agents, staff at the PDU sites and social media. This intervention has only seen a marginal increase of weekend utilization of PDUs and patients are now actively being advised through SMSs to come and collect their medication during the additional hours provided.

Lessons learned

For an innovative solution like the PDU to thrive, it is critical that the necessary support structures are available. This includes network, IT infrastructure and electricity supply. Even though the sites are situated in urban or peri urban settings, these critical requirements were not initially in place and had to be planned for in the project phase. These are critical building blocks without which the site cannot operate.

Building a new solution and process to support the Department of Health is a collaborative effort which must consider all district support partners, district teams, provincial teams, National DoH and the regulators. Ensuring that all parties involved share the same vision and expectation of the project goals and outcomes is essential.

One of the main lessons learned, concerns change management. This is an element often underestimated in projects of this magnitude. Change management does not only involve the employees and process being affected, but the patients as well. Even though planning was done to ensure patients were well informed and educated, it was still necessary to employ site agents to drive this process for the patients and ultimately guide them through the new procedure.

Next steps

After the pilot of PDU technology in Gauteng, an approach will be explored and negotiated with relevant parties to integrate the PDU into the provincial chronic medicine supply strategy. Since the PDU is

an innovative technology, there is room to optimize the technology and customize it for specific needs. This will greatly reduce the cost of implementation, opening up more possibilities for the application of PDUs in South Africa.

A third-party research partner was approached to evaluate the success and impact of this pilot in the districts where it is deployed. Results from this study will be made available to inform further development and deployment of PDUs in similar settings. PDUs can also be used to support extended health programmes, such as TB screening and condom dispensing.

In conclusion, PDU technology is one of the first steps for South Africa to embrace innovative solutions to benefit our patients and address some prominent challenges in the public healthcare system.

References:

1. National Department of Health. Adherence guidelines for HIV, TB and NCDs. National Department of Health, Pretoria, February 2016.
2. Right e-Pharmacy. Pharmacy Dispensing Units - PDU™ [Internet]. Pretoria: Right e-Pharmacy; 2017 [updated 2017; cited 2018 April 23]. Available from: <http://rightep-harmacy.co.za/pharmacy-dispensing-units-pdu/>
3. South African Pharmacy Council. Rules relating to Good Pharmacy Practice: Amendments. Insertion of Rule 1.11 Minimum standard for Institutional Public Pharmacies operating a Remote Automated Dispensing Unit. Board Notice No. 193 of 2016. Government Gazette No. 40522, 23 December 2016.
4. South African Pharmacy Council. Rules relating to Good Pharmacy Practice: Amendments. Insertion of Rule 1.9 Minimum standards relating to automated dispensing units for the purpose of dispensing medicines and medical devices. Board Notice No. 50 of 2015. Government Gazette No. 38511, 27 February 2015.



Figure 1: The Pharmacy Dispensing Unit: as viewed by the patient



Figure 2: The Pharmacy Dispensing Unit: robotic dispensing system

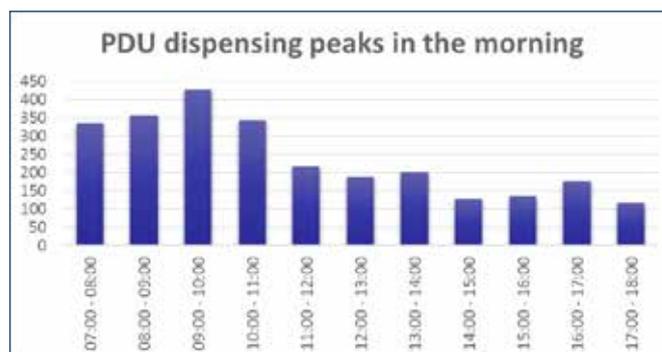


Figure 3: Alexandra Plaza dispensing analysis per hour (average over 3-month period)