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## Automation in pharmacy: the times they are a changin'

By Dr Brett McFarlane & Dr Monique Beedles.

The celebrated 19th century US author and poet Henry David Thoreau wrote that 'things do not change, we change'. Over the past few years a plethora of pharmacy commentators have written about change in the profession: some of their advice has been heeded, some not.

One change that appears to be gaining momentum of late is automation. While automation could indeed be one of the 'things' that changes, we propose that if the 'we' in Thoreau's maxim does not change in step with this new technology, then many of the potential benefits of automation will not be realised.

### Impact so far

Much of the data about the impact of pharmacy automation arises in the hospital setting. A recent study at a National Health Service hospital in Wales found that dispensing automation allowed an increase in workload statistics (items dispensed per staff member per hour) of around 43 per cent<sup>1</sup> (this was off a very low base compared with a regular day in community pharmacy in Australia – ie, it increased from nine scripts per hour to 13 scripts per hour).

The introduction of automation

### Learning objectives:

- Discuss the impact automation can have on pharmacy practice.
- Discuss how automation can affect staff and business.
- Determine a potential change management process for automation implementation.

was also associated with a statistically significant reduction in the number of dispensing errors made overall. Fewer drug errors were made, but labelling errors still occurred. Mistakes were associated with periods of high workload and after prolonged periods of moderate workload, which cause fatigue.

A proposed benefit of automation is the ability to rationalise staff roles as a result of workflow improvement. This, of course, means different things to different people. It could represent an opportunity to reduce professional staff hours in order to save the business money.

Unfortunately, in our experience, a desire to save money by reducing professional contact with customers rarely improves business outlook. A more entrepreneurial approach would see automation in the dispensary as an opportunity to move staff into roles

that add value to both customers and the business.

### The human/technology interface

Recently, Brett visited the Think Pharmacy at Kippa-Ring, just north of Brisbane. The pharmacy had recently installed a Rowa Vmax Automated Dispensary (Dose Innovations). The staff has nicknamed the robot 'Rosie'.

Interestingly, the robot is not prominently placed in full view to wow and soothe the minds of time-poor customers. It is instead hidden behind the schedules counter (Queensland pharmacies must store S2 and S3 medicines out of the reach of the public), which, in turn, takes the pre-eminent position in the pharmacy. Pharmacist and manager John Tawadrous said this was done purposefully in order to promote the primary care role of pharmacists in the business.

How can the human/technology interface be used to improve patient care? A comprehensive Dutch study found that automation led to an eight per cent increase in care-related activities at the counter by pharmacists. This primarily included an increase in the incidence of a brief consultation with the patient on their medicines by six per cent.

Remarkably, automation also caused a statistically significant



Think Pharmacy at Kippa-Ring, Queensland recently installed 'Rosie', a Rowa Vmax Automated Dispensary which is placed behind the schedules counter.

Kotter's eight steps	Application to pharmacy automation
Establish a sense of urgency (also known as the 'burning platform').	What is the business imperative for you to introduce automation? What will happen if you don't?
Create a guiding coalition.	Who will lead the change within your business? Ensure the team involved includes all the key people who will be responsible for the change.
Develop a vision for the change.	What will the benefits for your business be? What will it be like to work in your renewed pharmacy?
Communicate the vision.	Ensure that everyone who is going to have to work with the new technology clearly understands this vision.
Empower broad-based action.	It will take time to embed the change. Allow those staff who will be working closely with the technology to make appropriate changes to procedures and workflow as they come to understand what works best.
Generate short-term wins.	It may take a long time before all the benefits are realised. Ensure you have short-term as well as long-term goals and celebrate these to keep people motivated.
Never let up.	It's been a big investment, so don't let small setbacks cause you to lose sight of the original vision and the long-term benefits to be gained.
Embed changes in your business culture.	People are used to a certain way of working and are comfortable with this. While introducing a significant change, don't 'throw the baby out with the bathwater'. Ensure that some of the important aspects that people value about their work will be unchanged, or even enhanced, by the technology. For example, the cultural value of providing excellent customer service or helping people improve their health outcomes could both be important to your staff.

decrease of nine per cent in the incidence of dispensing without consultation with a patient<sup>2</sup>. Therefore, this study indicated that pharmacists took the opportunity of the additional time freed up by automation to increase discussion with patients about medicines.

The format used at Think Pharmacy Kippa-Ring allows the dispensary and the pharmacists to be placed in front of the schedules counter in direct contact with customers entering the store and patients presenting with prescriptions from the adjacent medical centre. For those businesses attracted to the theatre of the dispensing robot, customers can still watch what is going on behind the scenes via a video monitor.

One additional avenue of pharmacist/patient engagement that could be taken up with the time saved through automation is Pharmacy Practice Incentives (PPIs) utilising the associated GuildCare suite of software. Think Pharmacy Kippa-Ring is planning to expand its PPI service delivery by commencing 'Screening and Risk Assessment' for COPD by leveraging off increased pharmacist contact with target patients.

Just as automated dispensing systems are assets that should be valued, so too are the staff who operate them. The authors of the study above also examined the staff experience with automation and associated occupational stressors<sup>2</sup>. This small study found that automation reduced stress and improved workload allocation, leading to an overall improvement in work-life balance and a welcomed expansion of the professional role of the pharmacist.

On the other hand, technicians felt that automation devalued their skills. Another recent study, in Portugal, found that automation did not necessarily improve job satisfaction<sup>3</sup>. Perhaps these latter examples are instances where better change management

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techniques should have been employed to ease staff into the new paradigm.

**Embracing change**

Above all, the most important outcome measure for any change in your pharmacy should be patient focused. As discussed, there is ample evidence that supports a reduction in medication errors in automated pharmacies. However, this only considers the supply role of the pharmacist. Cavaco, et al, observed that while automation increased the 'free time' of the staff, it did not increase what was called 'patient encounter duration' – ie, automation saved the staff time that was not reinvested back into the customer experience<sup>4</sup>. Was this another case of a lost opportunity in change management?

A robust change management process must accompany any significant change in work practices. Walsh, et al, have discussed the importance of attention to change management and the development and implementation of policies and procedures associated with the move to automation in pharmacy<sup>4</sup>. They identified that while automation can reduce the time required to dispense an item, it could introduce a level of complexity.

Clear leadership is required to ensure that this additional complexity does not become a burden on the business. Therefore, while

automation represents a valuable tool to improve efficiency, the staff must be taken on the journey and their altered roles communicated clearly in order for practice change to occur.

John Kotter, a world renowned scholar of change management, in his seminal work *Leading Change*<sup>5</sup>, specifies eight steps for effective change management.

**Automation at the schedules counter**

Placement of the dispensing robot behind the schedules counter, as at the Kippa-Ring pharmacy, not only allows for greater integration of the pharmacist and technician into the dispensing process, it also integrates the pharmacist into the pharmacy proper: where the customers are and where the pharmacist can truly engage with them. Automation increases the opportunity for pharmacists to develop their primary care role, particularly their involvement in the recommendation of S2 and S3 medicines.

Results from the Guild's S2/S3 mystery shopper program reveal that scores increase when the pharmacist is directly involved in the interaction. Pharmacist involvement in primary care also increases the likelihood of a safe and effective therapeutic recommendation.

Another benefit of the technology is that over-the-counter medicines that are subject to misuse and pose a security risk to staff, including pseudoephedrine, are kept safely inside the robot. However, they are still easily accessible by the pharmacist, who can dispense them while continuing to counsel a patient on their use.

Direct contact between the customer and the pharmacist in relation to scheduled over-the-counter medicines also provides an opportunity for the pharmacist to invite customers to return for further discussion of their condition if follow-on is required.

To page 42

# Automation in pharmacy: times they are a changin'

From page 41

This helps to develop rapport and long-term customer relationships.

## Realising the benefits of new technology

New technologies, such as automated dispensing robots, require a significant investment of capital by pharmacy businesses. As with any significant investment, it's important to have a clear plan as to how the return on that investment will be realised. If the introduction of automation to your pharmacy is merely an 'add-on', you are unlikely to see these desirable returns.

Instead, the automation technology needs to be seen as an opportunity for fundamental change in the way you provide services to customers. This will include the way you manage staff, dispensary workflow, customer expectations and your range of service offerings. All of these provide opportunities for both business benefits to the pharmacy and clinical benefits for patients. If embraced effectively, this is a win-win for everyone. <sup>RP</sup>

This article has been written without commercial financial support. Other suppliers of pharmacy automation products in Australia include Willach and Gollmann.

## References

- <sup>1</sup> James, KL, et al. 'The impact of automation on workload and dispensing errors in hospital pharmacy'. *Int. J. Pharm. Pract.* (2013): 21(2): 92-104.
- <sup>2</sup> James, KL, et al. 'The impact of automation on pharmacy staff experience of workplace stressors'. *Int. J. Pharm. Pract.* (2013): 21(2): 105-16.
- <sup>3</sup> Cavaco, AM and Krookas, AA. 'Community pharmacies automation: any impact on counseling duration and job satisfaction?' *Int. J. Clin. Pharm.* (2013): Nov 20 [Epub ahead of print].
- <sup>4</sup> Walsh, KE, et al. 'Exploring the impact of an automated prescription filling device on community pharmacy technician workflow'. *J. Am. Pharm. Assoc.* (2011): 51(5):613-8.
- <sup>5</sup> Kotter, J.1996. *Leading Change*. Harvard Business School Press. Boston.

## Benefits of automated dispensary technologies

### Clinical benefits:

- Improved levels of pharmacist-patient interaction.
- Enhanced opportunities to offer patient education.
- Improved quality of S2/S3 service when the pharmacist is involved.
- Lower rates of dispensing errors in automated pharmacies.

### Business benefits:

- Reduced time spent on manual tasks frees staff for more value-added activities.
- More efficient workflow reduces customer waiting times.
- Improved clinical outcomes enhance patient satisfaction.
- An enhanced customer experience builds customer loyalty and repeat sales.



At Think Pharmacy technology is helping to promote the primary care role of the pharmacist.

## Q&A:

### Submitting Answers

This activity has been accredited for 1 Group 2 CPD Credits upon successful completion of the corresponding assessment for inclusion on an individual pharmacist's CPD record. Pharmacist competencies: 3.1, 3.2, 3.3, 3.4, 4.3, 6.2.



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**1. A Welsh study found that automation in the dispensary increased the number of scripts dispensed per hour by:**

- A. 50 per cent.
- B. 45 per cent.
- C. 95 per cent.
- D. 0 per cent.
- E. 55 per cent.

**2. A Dutch study examined how automation impacted the number of prescription interactions where there was no contact with the**

**pharmacist and found that this decreased by:**

- A. 90 per cent.
- B. 19 per cent.
- C. Nine per cent.
- D. 29 per cent.
- E. 39 per cent.

**3. The initial step in Kotter's eight-step method for change management is to:**

- A. Only deal with urgent changes.
- B. Establish a sense of urgency.
- C. Burn down the pharmacy.

- D. Communicate the final changes.
- E. Put everything else on the backburner.

**4. The clinical benefits of dispensary automation include:**

- A. More time for the pharmacist to interact with patients.
- B. A lower rate of dispensing errors.
- C. Improved quality of S2/S3 service when the pharmacist is involved.
- D. Enhanced opportunities to offer patient education.
- E. All of the above.

**5. The risks of automation include:**

- A. Pharmacists spending too much time with patients.
- B. Not introducing the necessary practice changes to achieve the desired return on capital invested.
- C. Freeing up personnel for less menial tasks.
- D. All of the above.
- E. None of the above.

To submit answers visit:  
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