



## EFFICIENCY BY DESIGN

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walk this way

North American pharmacists have been benefiting from dispensary automation for more than 30 years, yet there are still few pharmacists who understand how to properly install automation in their dispensaries.

It is easy to fall into the trap of locating new tools where the manual task that is being automated took place. In replacing manual counting with a 'counter-top' counting machine, the machine often takes the position of the tray and spatula on the work counter. 'Instant access' counting systems and robots that dispense high-volume pharmaceuticals are generally placed in the middle of the dispensary where they displace the shelves that held the products now housed by the machine. These are examples of improperly placed automation that result in suboptimal use of space and employees' time.

Universal tablet and capsule-counting machines are almost always placed on the main work counter where manual counts were performed. For every count, the technician must travel to the stock shelves, return with the stock bottle, perform the count, return the stock bottle to the shelves and finally return to the main work area to start the next prescription. In an average dispen-

sary layout the distance walked is easily three meters...one way. Multiply that by the four trips detailed above and you have technicians walking 12 meters to fill each prescription. Over the course of a day, a technician will walk 2½ kilometers in a 200-prescription/day pharmacy.

New tools should be positioned as close as possible to the stock to reduce the amount of walking required to fill prescriptions. If the machine is 0.6 meters from the average stock location, the distance traversed is reduced from 12 to 7.2 meters per prescription (3 meters to the product, 0.6 meters to the counting machine and back to the stock shelf, and 3 meters back to the main work area). The 4.8 meters saved on each prescription in our 200 Rx/day pharmacy extrapolates to 350 km over the course of a year — the distance from my office in Dorval, Quebec to the CPJ office in Ottawa, and back again! To further minimize walking distances, consider purchasing two machines and placing them properly.

What's the value of these 350 kilometers? At an average walking speed it's equivalent to 160 hours.<sup>1</sup> Given the average technician's wage, that's a value that would pay for the extra counting machine in about 24 months (while at the same time making better use of your staff's time).

Robots are usually placed in the middle of the dispensary where the high volume products should be — but not when they're in a robot. Robots pick vials, count product, place counted product in vials and

present the filled, labeled vials to staff for checking.<sup>2</sup> Robots should be placed to the side of a dispensary. Better yet, they should be placed in a secure room beside or behind the dispensary and deliver the filled vials to the staff by means of conveyors. The middle of the dispensary should always be reserved for the highest-volume products requiring manual operations.

Consider the work flow when a tablet and capsule counter is placed behind the computer. A technician enters four prescriptions and the machine immediately counts two of them. The technician retrieves the two counted products, places them in vials and passes them to a filling technician along with the two items that require manual filling. The efficiency of the filling technicians has been improved without taking away any of the core shelving — which means the two remaining products are still close at hand.

Any change that shortens the average distance traveled will improve efficiency and productivity, and by reducing fatigue, may reduce the potential for 'slips' and errors. For example, often-used products may be positioned closer to where they are filled, either above the filling counter or in bay-ends (in 'quick-pick' areas). Alternatively, all of the stock bottles may be arranged by frequency of use rather than alphabetically, a practice that has been shown to save time and reduce dispensing errors.<sup>3-5</sup>

When contemplating the addition of automation, consider its impact on your overall workflow and the potential benefits of a concurrent redesign.

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