

I've been **thinking**...



Pick-to-Light Carousels
October 2009

I've been thinking about dry cleaners, prophets, Goofy, and sushi.

In the majority of US hospitals, pharmacy personnel walk about hunting and gathering medications to fill patient cassettes and fulfill automated-dispensing cabinet (ADC) replenishment orders. Nearly 400 hospitals have handed over cassette-fill to fully automated bar-code-literate robotics.

Between all-hands-on-deck and hands-free paradigms, around 800 hospitals have brought in semi-automated carousels to assist technicians with ADC replenishment and, in some cases, with patient-cassette fill, if not first-dose picks.

The concept is similar to overhead conveyors dry cleaners have employed since I was a kid. Clerks enter claim-check numbers on simple keypads (mine scans their bar codes), then take payments and make change while pressed suits and starched shirts wind their way to the point of sale. One could argue its roots are religious: *If the prophet will not go to the mountain, the mountain must come to the prophet.*

Disney employs similar storage-and-retrieval technology for issuing tens of thousands of costume pieces each day to cast members at theme parks. Goofy boys and pretty girls clock-in by scanning their ID badges, which activates automated place-and-pick-to-light carousels that fetch floppy-eared dog heads and blue-and-white dresses—all while soon-to-be Goofy and Snow White are making their way to costume pickup windows at dressing facilities. These techno-gophers have saved the Mouse millions in labor costs.

Consider how carousels serve hospital pharmacies. Clerks scan bar-coded drug products as they arrive in the pharmacy, triggering carousel rotation. Software ensures that appropriate shelves appear, and lights direct technicians to the correct bins. Before drugs are actually placed, bar codes on bins are scanned for a match. For new formulary items, software automatically locates and assigns empty storage bins, remembering where the drugs are when they are needed.

When retrieving medications, operators scan bar codes on patient cassettes or automated-dispensing cabinet order sheets. The correct shelves arrive, and lights again direct operators to the right bins, preventing medication errors upstream before they reach patients. It's not as sophisticated as the diVinci robotics in OR, but it gets the job done more efficiently than sneaker-retrieval and less expensively than shoeless robots.

While carousels enable positive-product ID¹, they also result in positive-user experiences. Say good-bye to multiple-alphabet inventories scattered about mazes of shelving. Oh, darn. Staff members' feet and backs are spared for not having to endlessly gopher this and bend for that. Thank you. Oh, and while we are talking about feet, by using air rights in the pharmacy (carousels can extend 12 feet from ground up through ceiling tiles), the footprint required for drug inventory shrinks, making space for other activities. This is to say nothing of the money saved from auto-tracing and tracking products through the supply chain.

After tucking this *Thinking* to bed, I headed out to BLUE C SUSHI—"goodness in motion"—where sushi-to-me conveyors reduce the number of servers required, speed up table turns, and best of all, present a parade of options for immediate consumption. The supply-chain benefits are also impressive. Auto readers crunch the data residing in reprogrammable, dishwasher-safe RFID chips embedded in the passing plates. Computer screens prompt chefs to produce more California rolls, order more tuna, or remove mackerel that's been on the belt past "beyond use" time stamping—much like the inventory-management benefits medication carousels achieve with bar codes.

Though she said nothing of prophets or mountains, one pharmacy director who believed and implemented pick-to-light carousels said the transformation achieved in her pharmacy was a near-religious experience. Sort of like my sushi lunch.

What do you think?



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¹ <http://hospitalrx.com/PPID.html>