

TECHNOLOGY

Patient-centered model calls for intelligent work flow

JOHNSON CITY, N.Y. — With pharmacy embracing a patient-centered model, efficiency is more important than ever.

"You're looking at a redeployment of your existing resources," says Innovation executive vice president Doyle Jensen.

Instead of the traditional focus on counting pills and verifying scripts, pharmacists are incorporating new services — with new revenue streams — through such practices as medication therapy management, he says.

The shift calls for a whole process change behind the counter, he notes.

To envision that change and its implications, Innovation has launched its Pharmacy Intelligence modeling. Backed by professional services, the modeling reveals the most cost-effective, efficient route to an upgraded pharmacy practice.

Built on the platform of the super computer at Binghamton University — one of the largest on the East Coast — the software allows pharmacy operators to virtually plug in a new piece of technology or work flow change and see the what the return on investment would be.

Much of Pharmacy Intelligence's appeal lies in its capacity to do away with pilot projects, says Jensen. More than a consultative service, it's actually a look into the future. It shows how a decision will impact operations prior to the decision ever being made.

"Generally, chains will conduct a pilot," he says. "But we've found that pilots aren't the best way to see what kind of impact you're going to get on your operations."

The service can reveal the impact of a new work flow process, technology installation, staffing change, new product line, formulary expansion or even an entry into a new area such as specialty pharmacy. Using store data, Pharmacy In-

telligence eliminates the need to absorb a pilot's integration and implementation costs, Jensen emphasizes.

Also, the modeling can be reused year after year. "Any time an operator wants to look at how something might affect its pharmacies, it can take this asset, put in the new variable, model it and see the impact," says Jensen.

He also notes that the service is customizable to any scenario. It could, for example, assess the effect of a new mid-

To that end, Pharmacy Intelligence will factor in not just how many scripts per day various stores dispense, but also the availability of personnel and even state regulations on pharmacist to technician ratios.

Another key component of the service is its ability to model the human side of pharmacy practice. It can simulate how a change will affect pharmacists, technicians, clerks and customers. For personnel, the altered workload can be precisely forecasted. For customers, waiting

For another client the service revealed that an existing robot could not keep up with demand at particular times of the day. During those times, wait times rose to 90 minutes. A robot capable of faster throughput, the service revealed, would reduce wait times significantly.

Just as comprehensive as Pharmacy Intelligence's data analytics, Jensen stresses, are its visuals, which display counters and even animated patients approaching and leaving. "We're analyzing everything

He contrasts Pharmacy Intelligence to the offerings of other consulting firms that are not necessarily versed in pharmacy.

"This is all we do; it's 100% of our focus," Jensen says. "We're not drug wholesalers. We're focused on one aspect — pharmacy operations. That covers humans, machines, software, patient flow — in short, everything behind and in front of the counter."

Since its launch last year, the service has been deployed by Kaiser Permanente, Boston Medical Center and San Mateo Medical Center, as well as two top-10 drug chains.

Kaiser Permanente sought to boost the productivity of its central-fill operation in Colorado, which gets up to four times as busy as a retail pharmacy. Kaiser was considering installing two high-price pieces of equipment.

Through simulation, Pharmacy Intelligence revealed that the choke point in the operation could be cleared up with a \$200 sensor.

With retail customers, Innovation's goals are to look at process optimization and the effect on customer service, as well as whether their established technology is deployed appropriately or should be traded out, and what the impact would be.

Jensen says the super computer at Binghamton University's Watson Institute for Systems Excellence (WISE) has given Pharmacy Intelligence unparalleled capabilities. Noting that the platform has also been used by Samsung and IBM, he says: "We have access to some assets we would never have otherwise. I don't know of anyone in our industry that has that type of an asset. It allows us to run models in hours that would otherwise take weeks.

"Our relationship with WISE is a key differentiator for us, and we look forward to continuing this tremendous partnership."



Via its Pharmacy Intelligence modeling tool, Innovation is boosting the efficiency of Rx practices.

tier-volume robotic dispensing device on a labor model and patient waiting times, or gauge the impact of central fill. "It is technology-agnostic," Jensen remarks.

Pharmacy Intelligence can also be applied to both megachains and regional players. "It can benefit every size retailer. You don't need 7,000 stores; you could have seven. It's wherever you're looking for that operational improvement."

A large chain with a major robotic installation might learn how to deploy the automation more efficiently.

times can be pinpointed.

One of the first retailers that Innovation worked with had an average waiting time of 90 minutes. "Through Pharmacy Intelligence's human factor modeling we were able to get the wait time to an average of 19 minutes," Jensen says.

Another client, Boston Medical Center, has a pharmacy filling 1,500 to 2,000 scripts a day. By looking at process work flow, Pharmacy Intelligence was able to recommend changes to significantly bring down the operation's staffing level at certain times of the day.

about the pharmacy operation — not just the technology, but the human factors as well."

Pharmacy Intelligence grew out of Innovation's development of central-fill systems. As the company built more and more central fills with greater complexity and higher throughput, it started simulating the operations' automation and work flow, and eventually their human element and the interaction of the two.

"It's easy to say a car goes 150 mph," Jensen notes. "But can a human drive it that fast, and can the road handle it?"

Researchers aim to bolster drug interaction systems

TUCSON, Ariz. — A research team from the University of Arizona College of Pharmacy is spearheading a broad-based initiative to strengthen the drug warning systems used in pharmacies and hospitals across the country.

Working with experts from a wide range of fields, the researchers are looking for ways to address a widely recognized and potentially dangerous weakness of the systems that alert health care providers about dangerous drug interactions (DDIs).

"This is a potentially catastrophic situation for patients taking multiple medications,"

says Dan Malone, the University of Arizona professor leading the effort. "It is not an easy problem to solve. There are so many factors that go into designing, implementing and using these sophisticated systems.

"We needed to bring together everyone involved: leaders from academia, clinical practice, government agencies, industry and international organizations."

Soon to be used by thousands of physicians as well as almost every pharmacy and hospital in the country, DDI systems warn health care professionals of potentially dangerous inter-

actions between two or more drugs prescribed for the same patient.

Many note, however, that the systems are so sensitive that they often send alerts for drug combinations that have a very low probability of causing problems.

As a result, pharmacies are plagued by thousands of unnecessary alerts every week, slowing down their productivity and causing unneeded delays for patients.

In addition, the frequency of unnecessary alerts has led many prescribers and pharmacists to develop what Malone terms "alert fatigue"

and simply ignore the warnings. Studies have found up to a 90% override rate at some pharmacies.

In May Malone and his team began their quest to revamp DDI alert systems, hosting an invitational conference of experts in DDI clinical decision support systems at the United States Pharmacopeial Convention headquarters in Rockville, Md. The meeting was part of a broader industry-wide effort known as the Drug-Drug Interaction Clinical Decision Support Conference Series, which seeks to develop an ongoing, structured process to improve the quality of DDI alerting systems.

"Drug-drug interactions represent an important cause of harm, and because providers in the U.S. are rapidly adopting electronic health records, it will be much easier to prevent them," says David Bates, professor of medicine at Brigham and Women's Hospital and Harvard Medical School who participated in the May conference.

"It is critical that we get the settings right," Bates says. "Many organizations have displayed too many interactions, and the really serious ones often look the same as some that are not very important in today's systems."