

# Think Research's shareable order sets for best practices catching on

BY JERRY ZEIDENBERG

**T**ORONTO – When Ontario's Ministry of Health and Long-Term Care asked St. Joseph's Health System (SJHS), Hamilton to lead the Provincial Digital Quality Based Procedures (QBP) Order Sets Program, SJHS publicly procured Think Research to create and implement digital order sets for the program.

With a recruitment goal of 75 provincial hospitals, the program turned out to be more successful than planned – to date, 82 hospitals representing 107 sites have made use of the provincially funded program.

"We currently have 62 percent of all Ontario eligible hospitals participating in the program, which has exceeded our goal of 50 percent," commented Donna Kline, Executive Lead, Project Management Office at SJHS, who added that the program has been extended for another year.

Order sets enable clinicians to quickly and effectively implement the latest, evidence-based practices for a wide range of diseases and conditions. They have many benefits, including producing better outcomes for patients, and reducing the variability that's found across the healthcare system,

And although hospitals have been tinkering with order sets for years, most of them have been working in isolation.

"Historically, hospitals using order sets would develop them on their own," said Dr. Chris O'Connor, president and founder of Think Research, who is also an ICU physician. "They're trying to re-invent the wheel."

Others have tried to adapt American order sets to the Canadian healthcare system. However, this can be expensive, involves customization work and does not connect the hospital to the healthcare system it operates in, noted Dr. O'Connor.

"It is puzzling why hospitals would want



The Clinical R&D Team at Think Research are driving evidence-based innovation in the company's order sets.

to use order sets developed for the high-cost, billing-driven, American healthcare system as a starting point for their own order set development in Canada," he said.

"It's much easier to be part of a group, to share knowledge through an order sets network," he said. "We connect hospitals with experts and the rest of the healthcare system. There are companies that will sell you order sets, like encyclopedia salesmen, but they won't connect you to the Canadian healthcare system."

Members of the network are able to share best practices and influence the tools through regular user meetings and clinical workshops, where various subject matter is discussed and refined. "We've just held clinical review sessions on palliative care, thrombosis, diabetes, wound care, and dementia," observed Kirsten Lewis, RN, Vice President of Clinical R&D.

Dr. O'Connor said that medical knowl-

edge is growing at an ever-accelerating pace, and the regular meetings help keep clinicians and administrators in touch with the latest know-how. The peer-network, with support from Think Research, helps them incorporate the digitized order sets into their own systems and workflows.

"Not only is medical knowledge increasing, the medical system is becoming more complex as well. Care is now frequently delivered by large interprofessional teams across multiple institutions," said Dr. O'Connor. "Our advanced clinical systems integrate Canadian content into hospital information systems, regardless of what backend that might be."

There are currently over 800 different reference order sets for acute care hospitals in the Think Research network, along with others for long-term care. The most commonly used order sets reflect the patterns of care in hospitals, with high demand for best

practices in COPD and coronary care, musculoskeletal surgeries, and normal deliveries.

Think Research is an active partner in the network; it monitors the use of order sets and receives feedback about them. "The data helps us to understand usability issues and clinical impact. We use that feedback to build better order sets," commented Dr. O'Connor.

The system created by Think Research has evolved into an online platform that can be used for more than order sets. Work is under way in many new knowledge-based applications, including of e-referrals, virtual care, and med rec to name a few.

To support this, Think Research recently announced a partnership with IBM Canada to make use of IBM's cloud infrastructure. The plan is to migrate Canadian users of Think Research order sets to the cloud, to make implementation, utilization, and analytics, even easier and more cost-effective.

"In terms of privacy and security, the IBM cloud infrastructure is light-years ahead of others on the market," commented Saurabh Mukhi, CTO. "It provides the kind of scalable, 24/7 availability global healthcare facilities and systems demand."

For its part, Think Research technology is deployed in almost every province across Canada. Moreover, it has expanded into Ireland, implementing its solutions in five hospitals as part of a planned EU and UK expansion.

The company is also gearing up in the U.S. market, where it initially will be focusing on the long-term care and smaller acute care hospital sector.

Overall, the company is quickly growing, with about 200 employees and many new projects on the horizon. "We're using the most advanced technologies and creating very exciting solutions for clinicians across the province and around the world," said Dr. O'Connor.

## How to reduce SSIs in your operating rooms? A global expert weighs in

BY JERRY ZEIDENBERG

**T**ORONTO – Surgeons who operate buck naked would likely have lower rates of patient infection, as without clothes rubbing their skin and shedding cells, there would be less spread of possibly infectious matter in the OR.

Dr. Patch Dellinger, a general surgeon and world authority on surgical site infections, made this light-hearted remark at Health Quality Ontario's annual conference on surgical quality, held here last November.

The audience of some 300 surgeons and OR staff thoroughly enjoyed this and many other quips made by Dr. Dellinger during his one-hour keynote address. But Dr. Dellinger, who works at the University of Washington Medical Center, in Seattle, had a number of more serious recommendations on how to reduce surgical site infections (SSIs), and to improve quality, all of which were tied to evidence, studies and his own experience.

He had the following advice:

- Keep your patients warm. ORs can be cold places, especially in the early morning. But it's been found that warmer patients have higher oxygen levels, which is important for discouraging infections in surgical sites. In a multicenter study in Germany and Austria, colorectal surgery patients were randomly assigned to be kept warm or to be allowed to get cold. It turned out the patients who were cold experienced a much higher incidence of SSIs. "Use a warming blanket prior to the operation and when the patients are in the OR, to get them warm," said Dr. Dellinger.

In addition to the improvement in clinical outcomes, there's also higher patient satisfaction. "What do patients hate about surgery?" he asked. "Pain, nausea and shivering in the OR. Warming the patient can reduce the shivering, and improve patient-reported quality outcomes."

- Use lots of antibiotics just prior to surgery and during the operation, but stop right after. "When I was younger and more foolish, I used to tell people

not to use prophylaxis for clean operations [such as joints, as opposed to procedures on internal organs, like the intestines.] But in fact, there is consistent data that no matter what your underlying infection risk is, you do reduce it with prophylaxis. And it's independent of the type of operation."



Dr. Patch Dellinger

Dr. Dellinger said he is a strong supporter of antibiotic and antimicrobial stewardship, and he is aware of the costs of drugs. But it's clearly a case of being safe rather than sorry. "If you're going to do a hernia operation on me, and stick mesh in there, even though the underlying infection rate is low, I'd just as soon have one dose of prophylaxis."

- Sugar levels in surgical patients were a major topic of his discussion. He noted,

"There is a strong correlation between blood sugar and infection risk [in surgical sites], and said it's well-known that diabetics have a higher risk of infections. But he stressed that non-diabetics with high blood glucose levels also experience much higher rates of surgical site infections. "Hyperglycemia doubles the risk of SSI."

And while high blood glucose was at one time thought to be a risk only for cardiac surgeries, it has been established that the risk is there for all types of surgery. "White cells bathed in glucose do not ingest and kill bacteria efficiently. And most white cells probably don't know if they're in a laparotomy incision or a vascular incision," said Dr. Dellinger.

He cited a study of non-diabetics at the Cleveland Clinic who were in for colectomies and had high blood sugar counts in the OR or post-op (above 125). "They had increased mortality, increased sepsis, increased SSIs, increased re-operation. It was across the board in non-diabetics."

That's why it's important to monitor

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