

Big data brings big gains in surgical quality

September 30 2016



The sharing of data from and to participating hospitals allows MSQC to identify best practices and help individual surgeons understand how they can improve.

Credit: University of Michigan Health System

Once upon a time, Dr. [Darrell Campbell](#) would get Christmas cards from the patients whose lives he'd saved by transplanting a new kidney, liver or pancreas into them. He'd get hugs and high fives when they came in for appointments.

He got his satisfaction from every operation that went well, and from seeing young surgeons launch their careers after learning at his side in the University of Michigan hospital's operating rooms.

But the patients he takes care of these days don't call or write. They don't say hello in the hospital halls. They don't even know his name.

And yet, his work touches tens of thousands of them a year, making their operations safer, their surgical teams more prepared, and their recoveries smoother.

That's because Campbell has traded in his scalpel for Big Data. He leads one of the largest data-driven quality improvement efforts in all of surgery. Instead of operating on individual patients, he helps other surgical teams improve the way they care for their patients.

And just like any surgical team, it's not a one-man show.

In Campbell's case, he's at the helm of a team of 2,000 surgeons, nurses, data experts and others from [73 hospitals around Michigan](#). Together, they've created a massive cooperative effort with funding from the state's largest insurer, Blue Cross Blue Shield of Michigan, and based out of the U-M Institute for Healthcare Policy and Innovation. They collect 137 different types of data about 50,000 operations performed at participating hospitals each year, from the patient's weight to the exact drugs they got during the operation.

It's called the [Michigan Surgical Quality Collaborative](#), or MSQC. For the last decade, it has been the silent force behind a [dramatic shift in surgical safety](#) and better outcomes for patients across the state. The team's publications about their achievements are causing a ripple effect on patients nationwide.

For instance, they've [just published results](#) from their efforts to reduce the number of patients who develop a surgical site infection after a common colon operation – the colectomy, or removal of part of the bowel. Not only did infections drop further the more often teams followed a "bundle" of anti-infection protocols, but so did costs. And a new analysis shows that even though the rate of such infections dropped at hospitals nationwide during the time when MSQC was addressing them, the rate dropped faster in Michigan.

In [another new paper](#), they show how complications from surgery more than doubled the cost of a patient's care, and ate into a hospital's profit margin.

"In my surgical career, we could really see a tangible benefit from what we did in virtually every patient," Campbell explains. "But in population health efforts like MSQC, no one knows that you've helped them. They don't know that they were spared getting an infection in the hospital, or that their operation was performed in a way that's consistent with the same operation done on a patient a hundred miles away. But we're able to make a difference for hundreds or thousands of patients at a time."

Campbell started down the road of improving surgery through shared data when he was chief medical officer of the U-M Health System, beginning in the late 1990s. He saw what the hospitals that serve America's veterans were doing by looking at the data from their national electronic health record system, and acting on it.

Unlike the VA hospitals, though, he knew that most places where surgery takes place in the U.S. don't have a way to share their records securely and electronically – and even if they could have, competitive pressures would stand in the way as they tried to stay afloat in Michigan's downturned economy.

If things were going to get better for patients at non-VA hospitals, he realized, it would take a lot of trust, a lot of technology, and a lot of time.

Primary care doctors were already hard at work doing the same thing in their sphere. But they had so much to do to improve management of common chronic conditions that the surgeons weren't yet on their radar.

And yet nearly half of American medical care is related to surgical procedures. So, Campbell first spearheaded U-M's participation in a surgical quality improvement project that started with three hospitals and grew to hundreds nationwide that's now run by the American College of Surgeons. The effort won him a [national award for patient safety](#). But in 2005, the opportunity arose to harness BCBSM funding and launch a statewide effort involving a few dozen hospitals.

Because a statewide initiative can be nimbler than a large national one, Campbell calls MSQC a real "boots on the ground" approach. A key part of its success, he says, has been the culture of trust and familiarity that the MSQC team has cultivated through regular conference calls and meetings of all the participating teams. He also credits the responsive customer service from MSQC staff, who work directly with the nurses who spearhead data collection and reporting at each hospital.

"What we rely on is a spirit of collaboration – that we're not going to use the quality information to award trophies or put up billboards about who's the 'best in the state,'" he adds. "It's measurement to improve, not measurement to judge. We treat the data confidentially, and share findings among our participants – including helping outliers understand how their practices or results differ from those around the state, and how they can change."

More hospitals have joined over the years, as MSQC attained a special

status as a [federal Patient Safety Organization](#). The kinds of operations that MSQC focused on grew, from ones done by general surgeons to those done by vascular surgeons and now gynecological surgeons. Most recently, a bundle of interventions aimed at reducing inappropriate use of hysterectomy, and reducing infections among those who do opt for surgery, has rolled out for hospitals' use.

More tellingly, no hospitals have dropped out. More will join in the coming year. And other states, from South Carolina to Tennessee to Illinois, have launched similar efforts with funding from their own Blue Cross Blue Shield insurers.

"The medical professions tend to be adversarial with big third-party payors, but we have the same goals of better quality and lower cost, and more appropriate use of care with fewer complications," says Campbell. "Through efforts like MSQC, we can work together productively with them."

The next challenge, he says, lies in connecting surgical quality improvement efforts with the care that patients receive before and after surgery, and linking up with quality improvement efforts going on in primary and non-surgical specialty disciplines. MSQC's rich data set, with records from more than 420,000 operations, can help drive such programs.

For example, U-M has [launched an effort based on MSQC data](#) that can help surgical patients reduce their risk of complications by undergoing pre-surgery "prehabilitation" that includes exercise, quitting smoking and emotional factors. Another effort draws on evidence from MSQC and other sources to fuel efforts to improve opioid painkiller prescribing after surgery.

Another challenge is to help hospitals improve the value of the care they

provide to surgical patients - - not just by reducing cost, but by improving quality. Even if it costs more up front, higher-value care will ultimately mean fewer repeat [hospital](#) stays, and less time in nursing homes and the emergency room, Campbell feels. This drive is in line with the move by Medicare and other insurers to changing the way they pay for care to focus on value.

"It's a fertile field, and there's still a lot we can accomplish that can have a great impact on a lot of people," Campbell says. So even if MSQC doesn't get Christmas cards from the [patients](#) its work touches, "We are learning from our data, and acting on our [data](#) across a broad spectrum. For me, that brings a satisfaction of a different sort."

Provided by University of Michigan Health System

Citation: Big data brings big gains in surgical quality (2016, September 30) retrieved 2 May 2024 from <https://medicalxpress.com/news/2016-09-big-gains-surgical-quality.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--