



# Microsoft for Work



## Turning raw patient data into life-saving insights



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Technology has come a long way since the 1970s.

It's a fairly obvious statement, but one that's under-appreciated, especially when human lives are on the line. Technology has revolutionized the way Deborah Rodgers approaches her job—and has transformed the level of care that hospital patients in Duncan, Oklahoma, receive.



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"It's amazing how much more information we have and how much time it doesn't take to get that information," says the VP of quality reporting at Duncan Regional Hospital.

Rodgers began in 1977 as the director of medical records at the rural 137-bed nonprofit hospital, and all her subsequent roles have facilitated quality and performance improvement efforts. Every cent that her hospital saved meant better care for the people in Duncan who depended on its existence. Now, when large chunks of the hospital's funding are tied to outcomes, it's more vital than ever for doctors to have as close to real-time data as possible.

"It's amazing what we can capture, and what we can see, and how we can evaluate our care," emphasizes Rodgers. "The change is accelerating exponentially faster because of EMR." She's referring to electronic medical records. And while she acknowledges that the road from paper to electronic records is still bumpy, she's also observed physicians appreciation of having insights at their fingertips. "What we've been able to do instead of bean counting is freeing up our time to act on the information rather than just going through charts manually and trying to dig information out. That's automated for us."

The information is automated, thanks to [Medisolv](#), a company that develops and delivers hospital services and software products, including business intelligence solutions.

"As recent as four or five years ago, most of the time for people on the front lines was spent in data collection," explains Medisolv's President and Chief Executive Officer, Zahid Butt, MD. A board certified gastroenterologist with more than fifteen years' experience in health analytics, Dr. Butt has first-hand experience with the previously manual reporting process. "Manually extracting data and trying to put it together in spreadsheets meant you had almost no



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Dr. Zahid Butt  
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time to really analyze it and act upon it because by the time you would actually have information, things had already moved on," he says, stressing the inefficiency of the time-consuming process.

"Now we can provide hospitals automated extracts of their data on a daily basis," continues Dr. Butt. "We organize the raw data into actionable information so that when Deborah and her colleagues look at it, they can identify where they need to spend their time to address patient safety and quality issues."

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This includes predicting the most at-risk patients and assessing historical trends in a more systematic way. For a small hospital with limited resources, Duncan Regional needs to focus on performance improvement, not data collection. Medisolv manages the collection software, allowing Duncan to do so. But most important to both Rodgers and Dr. Butt is the extent to which the process improves patient care.

"We know what we need to do to improve on a day-to-day, timely basis," says Rodgers. "Before we didn't even know!"

She describes the intuitive dashboards she looks at each day, including hospital-acquired conditions such as pulmonary embolisms or pressure ulcers. Potential hospital shortcomings—and where time needs to be spent—show up in red on the dashboards. "These are evidence-based patient safety indicators that, as soon as patients are identified, we can look at the documentation accuracy, the quality of the care provided," she continues. "Instead of looking at this information quarterly or monthly, we can see it on a daily basis to make sure there are no trends by practitioner, location, or ER care."



The color-coded visuals intentionally make the information easy to digest. “Most people find visual graphic representation more appealing than a lot of text,” observes Dr. Butt. “The more you can create visual graphics that point towards good or bad areas, you then have the ability to drill down from there.” This is especially important to doctors and clinicians, who need to quickly digest a lot of information. “With complex data, there are two ways you can deal with it,” he explains. “You can either expose the complexity to the user and have them make decisions by ingesting a lot of data points. Or you can do a lot of the processing and simplify the presentation of the data so that they are only looking at issues they need to look at.”

This is crucial in a hospital, where certain indicators are applicable to the birth center or the surgery department. Managers have access to the data and can monitor findings independently. This self-service setup with highly visual data enables clinicians to retrieve the information that they need and instantly digest it, without being professional data miners or having to rely on IT.

“We put data wall charts in public places,” Rodgers reveals. “We’re transparent in showing visitors, patients, and families the areas we’re doing well in and the areas where we need to improve. Using that method to communicate our quality and processes is a cultural thing for us.”

The technology also allows the hospital to compare itself against its peers, a huge motivator for everyone at Duncan. "Comparing our rates for things like readmission against others, it's healthy competition. Everyone wants to provide great care," argues Rodgers. "When you see that maybe you are even just average, it makes you try a little bit harder to find a way to improve that care or reduce readmission. The bar gets higher every year because people are aware of how they're doing and how they compare."

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The peer comparison is huge, agrees Dr. Butt, in particular when talking about funding. "One component of this, which is very important for hospitals, is payment adjustment. The other equally important component is reporting of this data on public websites."

The Centers for Medicare and Medicaid Services (CMS) is trying to improve the quality of publically reported data so patients can use it when making choices of what providers to select. Dr. Butt notes that simplifying metrics is the key, and the new five-star rating system for patient satisfaction is a step in the right direction. "Eventually, once they get the bugs worked out, a similar system might be done with other quality measures, so hospitals need to look good to their consumers." He jokes that it's a "look good, feel good scheme" because hospitals that perform better will not only look good in the eyes of the public, but also get higher payments assigned to them by payers. "Some will lose, some will gain," says Dr. Butt.

Rodgers adds that if a hospital has a readmission rate over a certain limit or threshold, it may have a negative effect on the hospital's Medicare dollars because funding is tied to outcomes. And because the year in which quality based payment adjustments occur lags the actual performance year by almost two years, proactive monitoring and timely corrective actions are crucial. Medisolv keeps the hospital on top of it now so they won't have to face cuts in funding down the line. "We can start putting a plan together to mitigate risk for readmissions in particular categories," says Rodgers giving an example of how the hospital is able to proactively shift priorities.



Duncan Regional Hospital

For hospitals—and frankly, any business—that haven’t adopted business intelligence tools, Dr. Butt has a word of caution, “There’s going to be a profusion of data, and if people haven’t been able to sort it out and make sense of it now, they’re going to have an even harder time in the future.”

In particular, he believes the proliferation of wearable device data is the area to watch. “You might have access to Fitbit data of someone moving around 10 times during the night or their heart rate captured 100 times during the day. How does that get fed into the other data that’s being collected by the provider community? How do you get patients to take better care of themselves? Maybe it’s not even part of the medical delivery system. One place where I think we could potentially make good use of this is in post hospital discharge monitoring of certain high risk patients. There’s a big care coordination gap at present. You give a patient instructions at discharge, but until they come back, you don’t know what’s going on with them at home.” Remote monitoring technology could be an important component of case management that extends beyond the hospital or the physician’s office. Although this technology is here some issues still need to be worked out before its widespread use.

“Who, for example, is supposed to monitor this information 24/7 if it’s coming in 24/7? What kind of alarms do you set up when parameters aren’t met? That raises a whole host of liability issues.”

Regardless of what happens in the future, both Rodgers and Dr. Butt agree that new technology leads to one solid fact: the patients are the ones who win.