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## THE 2011 INNOVATOR AWARDS

**Creating the Healthcare of the Future**

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# The 2011 Healthcare Informatics Innovator Awards

## Honoring Leaders in Healthcare IT Innovation

**WHAT MAKES FOR AN INNOVATOR ORGANIZATION? READ ON AND FIND OUT**

What does it mean to be an innovator in healthcare today? Just ask the folks at Children's Hospital & Medical Center in Omaha, at Southeast Texas Medical Associates (SETMA), and at HealthInfoNet, Maine's statewide health information exchange (HIE). The leaders at these three organizations exemplify leadership across a broad range of dimensions. Most importantly, in the face of a daunting array of policy, reimbursement, operational, staffing, and other challenges, leaders at Children's of Omaha, SETMA, and HealthInfoNet are moving forward boldly to create healthcare of the future, strategically leveraging information technology to improve care quality, patient safety, efficiency, and data exchange.

As a result, the leadership teams from those three organizations have been named Healthcare Informatics Innovator Award winners, following in the footsteps of two previous groups of outstanding patient care organizations. In 2009, this magazine recognized Detroit Medical Center, Johns Hopkins Medicine, and BayCare Health System; in 2010, we paid tribute to Children's Hospital of Pittsburgh, Children's Healthcare of Atlanta, and Chester County Hospital. What do the current three winners of our award program have in common with the previous six? In every case, senior leaders in all nine of these organizations have taken personal leadership risks in order to compel their organizations forward towards a set of clearly defined strategic goals that span a spectrum of care quality, patient safety, efficiency, and effectiveness areas. What's more, they have helped, in a team-based, multidisciplinary fashion, to drive organized, measurable improvements in care delivery or operations (or both). And all nine organizations have much to show for their efforts.

In the case of Children's of Omaha, George Reynolds, M.D., who serves both as that organization's CIO and its CMIO, has helped lead a veritable cultural revolution, helping his colleagues to infuse care delivery, financial administration, and just about every other kind of operational activity in that

pediatric facility, with a passion for data-driven performance improvement. The result, in a period of just a few years, has been massive reductions in medication and prescribing errors; an end to physician alert fatigue; healthy increases in important screenings and examinations across a variety of areas; and improvements in emergency department wait times and a reduction in transcription costs, all while also achieving a 5-percent reduction in the organization's overall operating budget. All of these changes have been facilitated by the proliferating use of dashboards to support continuous performance improvement.

At SETMA, physician leaders have been aggressively engaged in leveraging that organization's electronic health record (EHR) to transform care delivery and individual physician performance. Under the direction of CEO James L. Holly, M.D., the SETMA Model of Care has emerged—a model that is helping every doctor in the 22-physician practice track his or her patient outcomes, as well as analyze his or her patient panel. The result? A level of continuous performance measurement and improvement that has led to a massive reduction in unnecessary variations in care, and vastly improved the care management of patients with chronic illnesses.

And in Maine, Devore Culver, executive director of HealthInfoNet, and his colleagues, have been busy creating an HIE model that is both sustainable and is producing meaningful clinical data exchange statewide, while bringing that state's providers together in meaningful ways to improve care delivery for Maine's widely scattered residents.

We at *Healthcare Informatics* are honored and delighted to bring to you these accounts of innovation, in the hope that they will inspire the leaders of healthcare organizations nationwide. From our team to yours, please enjoy the case studies that follow. And heartfelt congratulations to the winners of this year's Innovator Awards program!

*Mark Hagland, Editor-in-Chief*

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First Place Organization: Children's Hospital & Medical Center

# Data-Driven

HOW CHILDREN'S OF OMAHA IS BENDING THE CURVE ON QUALITY AND EFFICIENCY THROUGH DASHBOARD USE BY MARK HAGLAND

It's hard to imagine an organizational narrative following an individual leader's narrative as closely as has happened in the case of the 145-bed Children's Hospital & Medical Center and George Reynolds, M.D. Indeed, the personal-professional journey that Reynolds has been on since he joined the Omaha pediatric hospital in 1996 as the director of its pediatric ICU, eventually becoming its CMIO and then last year, its CIO, has been echoed in the evolution of the organization's Clinical Analytics and Business Intelligence Project, and the medical center's broader journey towards becoming a data-driven, continuous improvement-focused organization. So to understand the organization-wide phenomenon, one first needs to learn a bit about George Reynolds' personal story.

"For me, as a personal journey, this all started back when I started as the director of the pediatric ICU in 1996, and as I grew the unit over a period of years,"

unit. How well were we doing with our patients? How often did we have central line infections? That kind of thing. We were doing a good job as an institution, but we were relying on those midnight-census Joint Commission reports," and unable to produce a significant amount of analyzable clinical data. "And it all started with really simple things like our asking how many nurses we needed. We simply didn't know."

Reynolds' curiosity on behalf of quality and efficiency in the ICU turned into a quest, one that only intensified when he became medical director of informatics in 2004 and then CMIO in 2006. By that time, he had relinquished a portion of his medical practice to focus on clinical informatics. Then last spring, the organization's CIO departed, and Reynolds was asked to take on the CIO role, while continuing as CMIO. By that time, he had become a crusader for clinical

Cummings, and I had a great partnership, because we were both data-driven people," Reynolds continues. "And as we started to do clinical projects like CPOE [computerized physician order entry], we started building metrics into implementations, including simple ones like who's using CPOE, and including clinical care goals. She was the founder of the data services division, and had a vision for creating a data warehouse, which we both felt was a necessity. We have Epic [Epic Systems Corp., Verona, Wis.] on the ambulatory side and formerly Eclipsys, now Allscripts [Allscripts Healthcare Solutions Inc., Chicago], on the inpatient side," he adds. "So we always felt we needed a data warehouse to pull all this together."

Thus was born the first dashboard, which was designed to determine which physicians were using CPOE, and in what ways. Over time, success with that first dashboard and with a few others that followed it led to a natural organic growth, as "this became very exciting for everyone, from finance to clinicians," Reynolds says. At press time, the folks at Children's of Omaha had created 12 dashboards

supporting inpatient care, 15 supporting the organization's affiliated pediatric physician practices, and others addressing financial performance and system-wide operational issues. Among the numerous departments that have adopted dashboards are the ED, pediatrics, the ICU, the perioperative area and OR, the NICU, the quality



George Reynolds, M.D.

**MY MOTIVATION WAS TO GET A HANDLE ON THE DATA OF OUR OWN UNIT. HOW WELL WERE WE DOING WITH OUR PATIENTS? HOW OFTEN DID WE HAVE CENTRAL LINE INFECTIONS? —GEORGE REYNOLDS, M.D.**

says Reynolds. "I also was running, and we still run, the pediatric ICU at the University of Nebraska," he recalls. "And my motivation was to get a handle on the data of our own

transformation, as he was seeing with his own eyes how data, when intelligently leveraged, could transform care delivery and outcomes.

"My predecessor as CIO, Allana

wide operational issues. Among the numerous departments that have adopted dashboards are the ED, pediatrics, the ICU, the perioperative area and OR, the NICU, the quality



Team members across the Children's of Omaha enterprise. Photo: Children's Hospital & Medical Center

division, ambulatory care, finance, supply chain/materials management, and revenue cycle management. Indeed, Reynolds reports, virtually the entire leadership of the organization is now using dashboards of some kind at this point.

**SPECTACULAR RESULTS, TEAM-BASED EFFORTS**

The results of this shift towards data-driven performance improvement speak for themselves. Among the many metrics that Reynolds and his colleagues have to show for their work:

- A 59-percent reduction in medication errors reaching patients;
- The elimination of prescribing errors associated with therapeutic heparin orders and insulin orders, with new order sets for each ordering process;

- The reduction in clinical alerting rates for CPOE orders to below 3.6 percent with regards to allergy, pediatric dose range, duplicate checking, and drug-drug interaction alerts, meaning that alerts have been optimized to ensure that physicians no longer experience “alert fatigue”;

- A 12-percent increase in annual examinations for asthma patients, and a doubling in the percentage of patients receiving detailed asthma management plans;

- An increase in autism screening rates from 65 percent to 94 percent;

- An increase in screening for lead exposure from 59 percent to 96 percent;

- An increase in rates of follow-up for care of patients with ADHD (attention deficit hyperactivity disorder) from 57 percent to 100 percent;

- A 95-percent reduction in tran-

scription costs among the affiliated general pediatric practices;

- The shortest emergency department wait times among any of the children’s hospitals reporting data to the Child Healthcare Corporation of America, the pediatric hospital association;

- A 5-percent reduction in the hospital’s overall operating budget using targeted reductions identified by financial and productivity-based dashboards.

Of course, none of these results has come about because of a single person, or even because of a handful of people. People across the extended Children’s of Omaha enterprise have, in the past few years, become boldly energized to become change agents and take on a variety of clinical, operational, and financial challenges in every corner of the organization.

**CHANGE CHAMPIONS TO THE FORE**

Certainly, the impact of certain change champions has been very significant in convincing large numbers of clinicians and others to embrace

lied with Reynolds, and set to work on developing a variety of dashboards to improve care delivery and care management quality in her 35-physician practice. Among the numerous areas

every six months, to check in regarding the potential manifestation of side-effects of the ADHD medications they were on, including anxiety and depression.

**WHEN THEY FIRST APPROACHED ME WITH THE DASHBOARDS, I DIDN'T EVEN KNOW WHAT DASHBOARDS WERE, AND I DIDN'T EVEN KNOW WHAT BUSINESS INTELLIGENCE SOFTWARE WAS! BUT IT SHOWS YOU THAT YOU CAN LEARN NEW THINGS.**  
**—NANCY KNOWLES, M.D.**

From there, the initiative blossomed, on both the outpatient and inpatient sides. Boone, who practiced as an

data-driven change. Among those most cited as a change champion by others at Children's of Omaha has been Nancy Knowles, B.S.N., M.D., the medical director of Children's Physicians, one of the two large salaried-physician practices affiliated with the hospital.

Indeed, Knowles's involvement in the initiative is particularly intriguing, because of her combination of decades of clinical experience, yet almost no experience with IT-driven change efforts prior to this initiative. "Honestly," says Knowles, who has logged decades as a clinician, first as a nurse and then as a physician, "when they first approached me with the dashboards, I didn't even know what dashboards were, and I didn't even know what business intelligence software was! But it shows you that you can learn new things."

What Knowles instantly recognized was the potential the dashboards offered to leverage data to effect clinical transformation. "I've always been interested in quality and quality

she and her colleagues have applied dashboards to have been the tracking of check-in appointments for patients with ADHD; quality of asthma assessment; child immunization status tracking; and treatment of children with pharyngitis.

Given her newness to working with data and IT, Knowles says she was thrilled to have a whole team of clinical informaticists and IT people supporting her and her colleagues, including Wendy Worthing, R.N., director of IT operations, Vicky Boone, M.D., data warehouse administrator (and a retired physician), and Jared Rothfuss, application consultant. "Vicky Boone, being a physician, has been a good translator," Knowles notes. "And sometimes, she would say, well, I put this on the dashboard, even though you didn't ask for it, because it seemed to make sense. That was the value of having a physician informaticist involved."

Equally importantly, Knowles says, "We did a lot of testing before bringing the dashboards live," noting

OB/GYN before going back for a degree in clinical informatics, says of her involvement, "Like Wendy, I saw the need for improving ways in which we used data. George had just created the CPOE dashboard when I came here. And from there, people like Dr. Knowles really wanted to see their data and work with their data. And even people who aren't terribly technical can really use these dashboards."

Importantly, Boone and Knowles agree, while physicians have not historically been early IT adopters, they are scientists at heart, and fiercely competitive; and the adoption of dashboards in Omaha has triggered their healthy competitiveness, they say.

**SUPPORT FROM THE VERY TOP**

Of course, all those involved in these efforts in Omaha will readily agree that no change initiative will go very far without support from the C-suite; fortunately, this one absolutely has it. "I don't think the good ideas necessarily come from the C-suite; but when ideas are generated that are

consistent with the goals and vision of the organization, our C-suite gets 100 percent behind those goals and that vision," says Gary A. Perkins, president and CEO of Children's Hospital

**WHEN IDEAS ARE GENERATED THAT ARE CONSISTENT WITH THE GOALS AND VISION OF THE ORGANIZATION, OUR C-SUITE GETS 100 PERCENT BEHIND THOSE GOALS AND THAT VISION. —GARY A. PERKINS**

improvement," she says. "And the way I look at it is, if we do what's best for the patient, everything will fall into place; and secondarily, I want to make sure the clinicians have the tools to deliver the best quality care. And we take care of 70,000 kids in Omaha," she adds, "so I'm always looking at the big picture." Knowles quickly al-

that physicians will not give data-driven initiatives a second chance if they don't find the data involved immediately credible. It was also important, Knowles notes, that "Our first dashboard was very simple." Her goal was to make sure that she and her colleagues were bringing children with ADHD in for repeat visits about

& Medical Center. In the case of the broad data-driven initiative that has been evolving forward in the organization, Perkins says the fit with the organization's mission and vision has been perfect from the outset. "It really starts out with having a vision for what you want the organization to be, and then to have goals," he says.

And we were very interested in goals around patient safety and outcomes, and around being efficient and effective in what we do; we've had that goal and that vision for a long time." Individuals across the organization have, over time, embraced the data, as the process of introducing and explaining the data and its use has evolved forward, he notes.

Carl Gumbiner, M.D., senior vice president and chief medical officer, agrees that this has all been a process, a journey, and in fact, one that continues in the present. "This is and always will be a work in progress; and change, particularly among the physicians, but also in general, does not come automatically or easily," Gumbiner says. "And while for a long time we've stood for quality and efficiency in the organization, to change our IT outlook, to become more real-time and data-driven, has not come easily. What we've had to do is to create a positive feedback loop, so that with the encouragement of Mr. Perkins and others in the organization, change has come, and cats have been herded, and they've been over time been

able to see positive change, which has created this positive feedback loop," he says, referring to the classic metaphor about motivating doctors forward. "There wasn't a meeting that said we're going to change the culture tomorrow. But the IT has supported change over time."

Perkins, while emphasizing the organization-wide nature of the changes taking place, makes sure to praise George Reynolds for his leadership in helping to initiate the first data-driven changes at Children's. "Dr. Reynolds has gone through a great deal of effort to keep himself contemporary on what's happening out there," he notes. "And he did an excellent job in engaging his peers, and helping them understand how this benefited them as well as their patients. He was able to really communicate that, and he went for some advanced education in that area, and that's the reason he now carries the title of both CIO and CMIO. And he's done an excellent job of developing his knowledge and understanding of the technical side of the technology, and is able to translate that across to the

clinical side. And that's been of incredible value to us as an organization."

For his part, Reynolds says he has been strongly encouraged by the culture of Children's, where the focus has been, and remains, on the kids. And he believes that the changes that he and his colleagues have brought about are happening at a most opportune moment in the evolution of the overall healthcare system, in terms of the potential to be replicated in other organizations nationwide. "This is a very exciting time," he says. "And I think the whole meaningful use/stimulus program is going to raise all boats, because it's going to get people thinking about these metrics, and about measurements in general. So my advice to my colleagues out in the field is, don't stop there; push the envelope, find the things that are meaningful to your organization and to your organization's patients, and make sure you can get access to that data. Because that's what's going to change behaviors and change healthcare."

# QlikView

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