Evidence for Value

An interview with AMGA's Dr. John K. Cuddeback

John K. Cuddeback, M.D., Ph.D., is chief medical informatics officer (CMIO) at AMGA. Dr. Cuddeback leads AMGA Analytics, bringing together AMGA member organizations to improve population health through comparative clinical analytics. AMGA's advocacy has long focused on moving health care from volume-based to value-based payment, and data analytics plays a central role. He previously served as CMIO at MedStar Health, the largest healthcare provider in the Baltimore–D.C. region, and prior to that as CIO and then VP for Health Policy at Shands HealthCare at the University of Florida. *Group Practice Journal* interviewed Dr. Cuddeback about his work and the role data analytics plays in value-based care.

GPJ: ***What kinds of data should members be looking at to improve value-based performance?***
Cuddeback: If you've assumed financial risk for a population, you need to look at the adjudicated claims you'll receive to understand the major drivers of cost—such as post-acute care, unnecessary ED visits, overuse of advanced imaging, and expensive medications or specialty services obtained outside your provider network. On the revenue side, you need to ensure complete and accurate diagnosis coding, since Medicare Advantage and many other risk arrangements pay higher capitated rates based on the clinical complexity of the patients who make up your population.

You can't afford to ignore these financial strategies; they yield immediate benefits. But an even greater opportunity, over the long term, is to redesign your care delivery system to improve population health. Members who are contracting directly with employers report that the employers are already beginning to see improvements in productivity.

GPJ: ***What about clinical data?***
Cuddeback: The fundamental strategy for improving population health and reducing overall cost is to risk-stratify your population and provide care tailored for each patient's needs. The higher the risk, the more intensive the services, and the more proactive you need to be. But you need to engage everyone, with a focus on prevention.

You can estimate future cost based on past utilization, as reflected in claims. And you shouldn't ignore these indicators. But by tracking trends in clinical data, you can often get an earlier indication of rising risk. For example, you may be able to predict—and avert—an *initial* hospitalization, not just a readmission. In an elderly patient with multiple chronic conditions, you might avoid the downward spiral that often begins with a hospital admission.

GPJ: ***What are members doing, along those lines?***
Cuddeback: They're building on a series of accomplishments. AMGA members were early adopters of electronic health records (EHR), which enabled clinical decision support. Is the patient you're seeing right now getting all the evidence-based care that they need? And *only* evidence-based care?

With patient registries, groups moved beyond this one-patient-at-a-time view in the EHR. They were able to look across their entire population, see who's due for follow-up or screening, then reach out, rather than waiting for patients to have a problem and come in. That's easy risk stratification and low-intensity outreach.

But most registries use very simple decision criteria—discrete logic, based on just one or two clinical parameters, like hemoglobin A1c, blood pressure, or a schedule for immunizations or cancer screenings.

The next level of innovation is to use the longitudinal data accumulated in the EHR to build multivariable predictive models. Among patients with A1c in the pre-diabetes range, 5.7–6.4, those with A1c toward the high end of that range are generally at higher risk to develop overt diabetes than those with A1c at the low end of the range. But we know from the Diabetes Prevention Program Study that among the highest-risk patients, 25% have a low A1c (< 6.0), and among lowest-risk patients, about 15% have a high A1c (≥ 6.5). Using a combination of seven to 12 variables, we

can create a predictive model that assesses a patient's risk of progressing to overt diabetes and likelihood of benefiting from either an intensive lifestyle intervention or taking metformin.

GPJ: ***So, the multivariable model gives you more accurate predictions than simply looking at whether A1c is at the low or high end of the prediabetes range. Where can members get this model?***

Cuddeback: We're studying it now, with two members—Mercy in St. Louis and Premier Medical Associates in Pittsburgh. The model was developed at Tufts Medical Center and adapted at OptumLabs. Mercy and Premier are embedding it in their EHRs, so it can be used for shared decision-making. It's not quite ready for broad dissemination, but we'll be completing our study over the coming year.

GPJ: ***Are there other ways to use longitudinal clinical data?***

Cuddeback: Quality measures are usually defined in terms of a cross-sectional view at a fixed point in time. Of the people with Type 2 diabetes you saw during the past year, what proportion had their A1c in control? Next year, the same question. You may see 75% one year and 76% the next.

That's progress, but underneath this modest net improvement, we typically see 9% of the overall population with Type 2 diabetes who had been out of control and came into control offset by 8% who had been in control but slipped out of control.

GPJ: ***It sounds like trying to fill up a leaky bucket.***

Cuddeback: Exactly, and this effect is remarkably consistent across medical groups. Of course, there are some patients who are just below the threshold this year and just above it next year, and vice-versa. Providers know they need to pay attention to them. But there's a larger population with A1c that's well below target—patients who appear "safe." Of these, 5% will actually slip out of control over the next 12–15 months. With the data from AMGA members who are using an Optum population health analytics tool, we've built a predictive model to identify patients who

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In the short term, these models help you target your prevention efforts where they will do the most good. Prevention and care coordination can improve health and reduce future utilization, but they cost money, and members are finding that the financial margin—the return on this investment—can be narrower than they expected.

seem to be "safe" but are actually at risk of slipping out of control. Care teams can pay extra attention to these patients—check their A1c more frequently, maybe provide extra encouragement to stay active or stick with their weight loss plan.

GPJ: ***How can providers identify those patients?***
Cuddeback: The multivariable model is the best way. Among the patients who seem to be "safe," it identifies 10% who, absent intervention, will make up 30% of those who slip out of control over 12–15 months. You can think of this as "concentrating" the risk of slipping out of control by a factor of three.

But providers can also use the major factors in the model as "rules of thumb" to identify patients for extra attention. In contrast to the full model, the rules of thumb still concentrate risk by a factor of two. Members can contact me, and I'd be delighted to share the model, the rules of thumb, and what other members have learned about using them in practice.

GPJ: ***How does that help with value-based contracts?***
Cuddeback: In the short term, these models help you target your prevention efforts where they will do the most good. Prevention and care coordination can improve health and reduce future utilization, but they cost money, and members are finding that the financial margin—the return on this investment—can be narrower than they expected. Using analytics to target these interventions improves that margin.

Over the long term, of course, you can expect fewer patients to develop diabetes or complications of diabetes, which drives future savings, as well as better health. GPJ

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