IF THERE IS ONE WORD THAT HAS TAKEN ON NEW MEANING FOR HEALTHCARE IN THE NEW ERA OF ACCOUNTABLE CARE, IT IS THIS ONE: RISK.

Risk has traditionally, in healthcare, corresponded to a doctor’s or institution’s chance for malpractice. But now, as providers and payers take on new responsibilities in the areas of patient experience, clinical outcomes, population health management, and financial accountability, “risk” takes on a multitude of new meanings and roles in the business of healthcare.

With the expansion of risk, the ability to predict needs and outcomes is more important than ever. Imagine, for instance, a physician being able to predict whether a patient is more or less likely to comply with their medication regimen based on various demographic factors. Or, imagine a health system being able to project which of its patients are most at risk for high-impact events like infections and readmissions—and taking the steps to proactively manage those patients to avoid these events.

Decision making like this can be possible through the use of predictive analytics—the ability to mine data in order to forecast probabilities and trends, and ultimately, manage risk. Indeed, predictive analytics has the potential to radically change healthcare, and the way decisions are made at the bedside and in the corner office.

How are U.S. healthcare organizations leveraging predictive analytics right now? Are they using them at all? What are the barriers to integrating predictive analytics within a healthcare organization? This survey of 388 healthcare executives answers those questions and more.
The opportunity for using predictive analytics to make better decisions in healthcare is high and expansive, according to surveyed healthcare executives. Direct clinical and financial outcomes are the most valuable data to predict, with clinical outcomes leading (55%) and costs—whether per patient, per episode of care, or through another lens—coming in a close second (52%). Less critical, but still considered valuable, are the following predictors from data: reimbursement (35%), hospital readmissions (35%), staffing and workforce needs (32%), and patient demand and population shifts (28%). [Figure 1]

There are notable differences between payers and providers. Payers are more than twice as likely as the survey average to choose patient behavior and diagnosis as valuable outcomes to predict. They also place far less emphasis on staffing and workforce needs, with only 8% identifying this as a valuable outcome to predict vs. 31% of providers.

Where there are opportunities, there are also challenges. When asked to identify their organization’s biggest obstacle to implementing predictive analytics at their organizations, healthcare executives cited incomplete data (20%) and insufficient technology (19%). These are not unexpected, as the industry’s slow acceptance of technology compared with other industries has caused a lack of structured, organized data—both of which are key to leveraging predictive analytics. Interestingly, almost as many healthcare executives don’t know the top obstacle their organization faces, uncovering an absence of strategy or urgency around using predictive analytics. [Figure 2]

Payers and providers exhibit notable differences in this question, as well. Hospitals and health systems are more likely to lack the sufficient technology (23%) than payers (3%) or medical groups/clinics and nursing homes (14%). Payers, on the other hand, are more likely to encounter incomplete data, with 31% noting this as their top obstacle, vs. the survey average of 20%. Payers are also less likely to face any barriers at all, with 15% citing no barriers vs. the survey average of 4%. Additionally, medical groups/clinics and nursing homes are twice as likely to lack the skilled employees needed for predictive analytics. [Figure 2]

**KEY FINDINGS**

- The most valuable type of predictable data in healthcare is clinical outcomes, while the biggest challenge to implementing predictive analytics is incomplete data.
- 43% of healthcare organizations use predictive analytics, with hospital readmissions and costs being the most common types of data predicted.
- Predictive analytics roles are swelling in healthcare—every survey respondent that influences hiring decisions in their organization reported they are adding PA roles.
Within the U.S. healthcare industry—in this survey, composed of 78% providers, 12% payers and 10% other organizations—fewer than half are currently using predictive analytics (43%). Nearly the same amount (42%) are not using predictive analytics, and 15% of respondents are unsure of their organization's status. This even split represents an honest picture of an industry that has historically made business decisions differently than other industry sectors. The fact that healthcare is provided regardless of a patient’s ability to pay for services is just one factor that makes healthcare business decision making unique.

When diving deeper into the data, we find disparities among the different sectors within healthcare. A large majority of payer organizations in this survey use predictive analytics (80%). That number dives to 39% for medical groups/clinics and nursing homes, and even further to 36% for hospitals and health systems. Payers arguably operate more like businesses than providers, basing many of their decisions and systems in actuarial science, like other insurance operations. This helps make sense of their much higher use. [Figure 3]

Belonging to an accountable care organization (ACO) affects whether a healthcare organization uses predictive analytics. Of organizations that are part of an ACO, 52% are using predictive analytics vs. 28% who are not using them. Why are ACO-related organizations more inclined to use predictive analytics? ACOs need analytics to evaluate risk, more so than the average healthcare organization, because ACOs tie provider reimbursements to quality metrics. The better able organizations are in predicting outcomes, the better able they are to create positive results.

What type of information is being predicted at the 42% of organizations that say they’re using predictive analytics? The most common outcomes being predicted are hospital readmissions and costs, both reported by 55% of respondents. Inventory needs are the least common to be predicted, with 13% of respondents predicting this category. [Figure 4]

Differences emerged again between the industry sectors on this question. Medical groups/clinics and nursing homes were more likely than other sectors to predict adverse events (39% vs. the survey average of 28%) and staffing/workforce needs (50% vs. the survey average of 31%). Payers, interestingly, are more likely to predict clinical outcomes (57% vs. the survey average of 49%). And hospitals and health systems are more likely to predict hospital readmissions (62% vs. the survey average of 55%). While nearly half of hospitals and health systems predict costs, a much higher percentage of medical groups/clinics and nursing homes (78%) and payers (77%) do so.
As more of the healthcare industry adopts predictive modeling for various aspects in business decision making, support services and staff are expected to increase accordingly. Where are these roles being housed within healthcare organizations? We asked this of survey respondents who are in the position to influence or make hiring decisions related to predictive analytics (PA) roles in their organizations. Of those 50 survey respondents, half indicated that PA roles are increasing at their organizations in an astounding six of the seven possible categories. The most common area for growth is clinical (80%), followed by financial (66%) and operations (60%). [Figure 6]

This group of respondents also specified who might fill these PA roles. With healthcare organizations taking on more risk, experience with risk evaluation is a more attractive skill than ever: 57% said they would consider or recommend an actuary to fill a PA role. While other backgrounds may be more common among today’s healthcare workforce, actuaries are particularly positioned for success in the area of predictive analytics through their training to measure and manage implications of future events.

This briefing summarizes the results of a custom research survey conducted by Modern Healthcare Custom Media on behalf of The Society of Actuaries. Invitations to participate in a web-based survey were sent via email to 20,796 healthcare executives in April 2016. By the closing date of April 25, 2016, 388 returns had been received for a 1.9% response rate. As an incentive to complete the survey, respondents were offered the chance to win a $500 gift card.

### About the survey

With roots dating back to 1889, the Society of Actuaries (SOA) is the world’s largest actuarial organization with more than 26,000 credentialed members. Through research and education, the SOA’s mission is to advance actuarial knowledge and to enhance the ability of actuaries to provide expert advice and relevant solutions for financial, business and societal challenges. The SOA’s vision is for actuaries to be the leading professionals in the measurement and management of risk. Learn more at www.soa.org/health_analytics.

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