Accountable Care and Data Analytics Emerging in Healthcare

By Susan E. White, PhD, CHDA, and Lisa Brooks Taylor, RHIA

Value-based purchasing of healthcare is transforming the US healthcare delivery system and payment methodologies. Spurred by commercial pay-for-performance initiatives and the roll out of the Centers for Medicare and Medicaid Services' (CMS) Medicare Shared Savings Program (MSSP), accountable care organizations (ACOs) have begun to emerge. An ACO is a combination of hospitals, primary care providers, and specialists who comprise a contracted entity accountable for the overall care for an assigned patient population. This includes facility and clinician cost, quality, and patient/population outcomes. Providers of an ACO work cooperatively across the continuum of care to improve care transitions, ensure patient safety, enhance the patient and caregiver experience, improve health outcomes, and help patients achieve wellness goals. The success of an ACO is demonstrated by population-based metrics which impact incentive payments for high quality and low cost growth. Management under the ACO population-based delivery model is data driven. As a member of the data analytics team, HIM professionals will find their knowledge domain and skill set highly valued.

The MSSP's final rule requires ACOs to report 33 clinical quality measures divided into five domains:

1. Patient and caregiver experience
2. Care coordination
3. Patient safety
4. Preventive health
5. At risk populations (including frail, elderly, and populations with chronic conditions such as diabetes, hypertension, ischemic vascular disease, heart failure, and coronary artery disease)

As with other federal quality measure programs, there will be a phase-in schedule with pay-for-reporting the first year followed by pay-for-performance for an increasing number of measures the subsequent years. The 33 measures and pay-for-performance phase-in summary can be found on pages 67889-67890 of the MSSP final rule.[1]

Using 'Real Time' Population-Based Metrics

Shifting healthcare from a fee-for-service delivery model to a population-based delivery model requires a fundamental change in management paradigms, metrics, and terminology.[2] Quality measure results are the retrospective view of performance and adherence to evidence-based medicine guidelines. ACOs will need to use population-based health metrics and data analytic techniques closer to "real-time" to monitor and improve health outcomes as well as delivery effectiveness and efficiencies-thereby driving positive quality measure results. ACOs that are able to use data mining and analytics to predict the portions of the population they serve, requiring higher levels of service, will be far more financially successful than those ACOs that cannot leverage their data to manage utilization. Under the current CMS rule, ACOs will have access to historical data as well as data regarding the services provided to their assigned population by other providers. This data will be used to determine the relative level of risk or expected healthcare utilization of the ACO's population.

Pay Issued Per Member Per Month

Each ACO will have an assigned population which will naturally fluctuate each month and the organization will monitor utilization of services, revenue, and costs for the population. The primary population-based health metric is "member months" calculated by summing the assigned members in each month of the specified time period. Revenues and costs are tracked per member per month (PMPM). Examples of cost categories include inpatient costs PMPM and outpatient costs PMPM.

Another essential population health-based metric is “per 1,000 members per year” and is commonly expressed as “per 1,000.” This is calculated by dividing member months by 12,000. Examples of inpatient utilization of services include inpatient admissions per 1,000 and inpatient days per 1,000.

Risk Adjustment

Two-Year Trending Data

Inpatient Admission per 1000	**Year 1**	**Year 2**	**Trend**
Primary Care Group A	275	260	-5.5%
Primary Care Group B	265	265	0.0%

Risk Scores

Average Risk Score	**Year 1**	**Year 2**
Primary Care Group A	1.1	1.0
Primary Care Group B	1.0	1.1

Risk Adjustment

The Inpatient Admission metrics are adjusted by dividing the Primary Care Group’s Inpatient Admission per 1000 by its average risk score to calculate Risk-adjusted Inpatient Admission per 1000. Risk adjustment demonstrates that Primary Care Group B managed a “sicker” member population and decreased inpatient admissions per 1000 by 9.1 percent.

Risk-adjusted Inpatient Admissions per 1000	**Year 1**	**Year 2**	**Trend**
Primary Care Group A	250	260	4.0%
Primary Care Group B	265	241	-9.1%

Risk Stratification, Risk Scores, and Risk Adjustment

Risk stratification is used to identify and profile individuals of the assigned population by disease markers, often to the level of severity of a condition. Historically, this has been accomplished through the use of ICD-CM diagnosis and procedure codes. This provides the organization actionable risk information which can be used to refer patients into care management programs to proactively prevent gaps in care, confirm appropriateness for specific healthcare interventions, and support care transitions. For instance, risk stratification may be used to identify patients with uncontrolled asthma or diabetes. These strata or subsets of the population may then be targeted for focused interventions to ensure they remain compliant with their maintenance medication or speak to a care manager regularly to prevent emergency department visits and inpatient stays.

Risk stratification may also be used to create "risk scores" and perform "risk adjustment." Risk scores are designed to serve as a prediction of the relative cost between members and allow a risk-adjusted comparison between two populations. For instance, an ACO with an older population should not be held to the same standards for cost and utilization as one with a younger population. The typical risk score is calculated as the observed or actual risk in a population compared to the risk found in the typical population.

For this example, the older population served by the ACO is expected to have 10 percent higher resource utilization than the typical Medicare enrollee. The risk score for this ACO would be 1.1. Risk scores higher than 1.0 indicate a population that is sicker than the norm; a value lower than 1.0 is indicative of a population that is expected to have lower utilization of services. Scores are linear so a member with a score of 1.0 is predicted to be twice as costly as a member with a score of 0.5 and half as costly as a member with a score of 2.0. While predictive accuracy is poor at the individual level, when averaged among a large group of members the predictive power becomes strong. Without risk adjustment, ACOs would be incented to enroll only the healthiest portions of the population to avoid the cost containment challenges associated with the riskier population.

The "Risk Adjustment" sidebar demonstrates the impact of risk adjustment on the inpatient admission rate per 1,000 over a two-year period for Primary Care Group A and Primary Care Group B. At first glance, the numbers indicate the management of Primary Care Group A members results in a decrease of the inpatient admission rate from year one to year two by 5.5 percent. But the risk score of the population served by Primary Care Group A decreased from year 1 to year 2 while the risk score for the population served by Primary Care Group B increased during that same time period. After risk adjustment, Primary Care Group B with the "sicker" population achieved a decrease in admissions per 1,000. Conversely, Primary Care Group A's risk-adjusted admission rate actually increased by 4.0 percent.

It is widely recognized that the power of predictive modeling, fueled by "Big Data," will produce improved patient outcomes. With the ability to link episodes of care into a continuum and look at outcomes across the continuum, the accuracy of models improves. Predictive models have been successfully implemented to identify members on the path to surgery for back pain and knee implants. Care management is then implemented to increase adherence to evidence-based guidelines, promote patient engagement, and meet patient goals.

Implications for Health Information Management

Supporting ACO data analytics requires a population health information infrastructure with health information exchange and data aggregation. Refer to AHIMA's Thought Leadership Series "Accountable Care: Implications for Managing Health Information" for a broader perspective of the HIM professional's role in ACOs.[3] Paramount for data analytics will be the emergence of strong data governance and information governance programs to ensure data integrity. This will require strong HIM leadership.

National discussions at healthcare data analytics conferences and webinars often turn to "the data analytics team" and the scarcity of analysts. ACO pioneers encourage leaders to identify employees outside of the traditional boundaries of IT departments and business offices. Analysts should possess an innate curiosity for knowledge and vision for what analytics can do to revitalize healthcare delivery. Often cited is the need for a deep understanding of the vocabulary of healthcare data, including medical classification and code systems, reimbursement methodologies, and claims data elements.

The AHIMA Certified Health Data Analyst (CHDA) is well positioned with the requisite knowledge domains and skill sets. Because the HIM profession sits at the integration point between clinical, business, and legal realms, the CHDA brings a unique understanding of the needs of different end users of data. The CHDA has the ability to transform clinical, operational, and financial data into a strategic resource for the ACO.

Consult the AHIMA website, www.ahima.org, and the HIM Career Map for useful information on career progression into data analytics and preparation for the CHDA credential.

Note

1. "Medicare Program; Medicare Shared Savings Program: Accountable Care Organizations; Final Rule." Federal Register 76:212 (November 2, 2011). www.gpo.gov/fdsys/pkg/FR-2011-11-02/pdf/2011-27461.pdf.
2. Pearce, Jonathan. "The Return of Capitation: Preparing for Population-Based Health Care." Healthcare Finance Management Association, July 2012. http://www.hfma.org/Templates/InteriorMaster.aspx?id=33188.
3. Washington, Lydia and Allison Viola. "Accountable Care: Implications for Health Information Management." Thought Leadership Series. AHIMA, 2011.

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Article citation:
White, Susan E; Taylor, Lisa Brooks. "Accountable Care and Data Analytics Emerging in Healthcare" *Journal of AHIMA* 83, no.11 (November 2012): 56-58.