CMS
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Case STUDY

Learning Systems
for Accountable Care Organizations

Nebraska Health Network's Data Management System for Improving Quality and Reducing Costs

Nebraska Health Network (NHN) developed a data management system to more efficiently respond to the quality reporting requirements of the Medicare Shared Savings Program (MSSP) and to facilitate the implementation of performance improvement strategies. This case study describes how the ACO established this system and leveraged its analytic tools to improve the quality of care and reduce costs. NHN's experience is informative not only for new ACOs that are forming their analytic approach but also for experienced ACOs that are using data to support strategic initiatives.

BACKGROUND ON THE ACO

Nebraska Health Network is a physician-led ACO formed by two health systems—Methodist Health System and Nebraska Medicine—and their affiliated physicians and hospitals. This network includes more than 1,700 providers, the vast majority of whom are employed by the two health systems. The network uses over 35 electronic health record (EHR) platforms in its hospitals and practices. NHN joined the MSSP in 2017 as a Track 1 ACO and transitioned to Pathways Level E in January 2020. The ACO serves more than 38,000 beneficiaries throughout Nebraska and western Iowa. NHN also participates in 12 other value-based contracts, including commercial ACO contracts.

OVERVIEW OF THE STRATEGY

When preparing to become a MSSP ACO, NHN recognized the need to invest in a data management system that could inform internal analyses and efficiently respond to the quality reporting requirements of MSSP and commercial value-based contracts. The organization determined that its existing system did not have the capacity to integrate data from multiple sources, which meant that submitting quality data to payers required a substantial manual effort. In addition, the analytic capacity of the data system limited NHN's ability to assess the impact of new performance improvement strategies.

NHN sought to design a strategy that would allow it to meet the quality reporting requirements of its value-based contracts and to achieve its performance goals within those contracts. To do this, ACO's leadership team a set of questions to guide its early decisions and other actions, including establishing an organizational structure that could support the development and maintenance of a more

Table 1

NHN's guiding questions for developing a data management system

Guiding question	Value for decision making
1. Are the desired **system features** necessary for reporting needs and ongoing analyses?	Enables NHN to focus on developing a "right-sized approach" to a data management system by de-prioritizing complex or non-essential features.
2. Are the **data sources** critical to supporting the desired features? Are they accessible such that they can be obtained and integrated into the system in a cost-effective manner?	Supports NHN in determining whether a data source is necessary to supporting system operations and whether it exists in a format that is readily usable, given the system's features.
3. Does NHN have **experienced, knowledgeable, and dedicated staff** to operate the system and use the data?	Allows NHN to assess gaps in its current staff capacity with respect to establishing and maintaining the data management system. This work will involve reporting, producing analyses, and considering refinements to the system to ensure that it continues to meet NHN's evolving needs.

advanced data management system. NHN also used these questions to define the features and functionality of the new system and to choose a vendor to build, maintain, and improve it. Once the system was in place, the ACO then leveraged the improved analytics capabilities to engage providers in quality improvement efforts related to its population health priorities.

CREATING A NEW DATA MANAGEMENT SYSTEM

NHN envisioned a data management system that would streamline reporting processes, improve the quality of care, and reduce costs. The ACO's leadership team—including Lee Handke, the Chief Executive Officer (CEO); and Mike Romano, the Chief Medical Officer (CMO)—crafted three questions to guide the development of the data management system. The questions defined the structure through which the team could (1) identify the system features that would meet the ACO's analytic goals, (2) control the scope and cost of the development effort, and (3) determine the infrastructure through which the system would support the ACO's long-term needs. Table 1 shows the guiding questions and their value for decision making.

> *"You've got to be realistic of how much data [your ACO] can actually consume and use."*
>
> —Mike Romano, MD, NHN CMO

Rather than aiming for the most robust and novel capabilities, NHN sought a right-sized approach to developing its data management system. The ACO's leadership stressed the importance of understanding how it would use a feature to ensure cost-effectiveness. Having identified the need for a comprehensive data management system, the ACO quickly turned to organizing its internal capabilities, seeking external expertise, and deciding what functions its system should have. For instance, NHN first established staffing responsibilities to both develop and implement its strategy. The ACO then defined the components that would support its dual goal of efficient reporting and performance improvement. Finally, given the number of reporting requirements and the complexity of data, NHN sought a vendor to build and maintain its analytic platform.

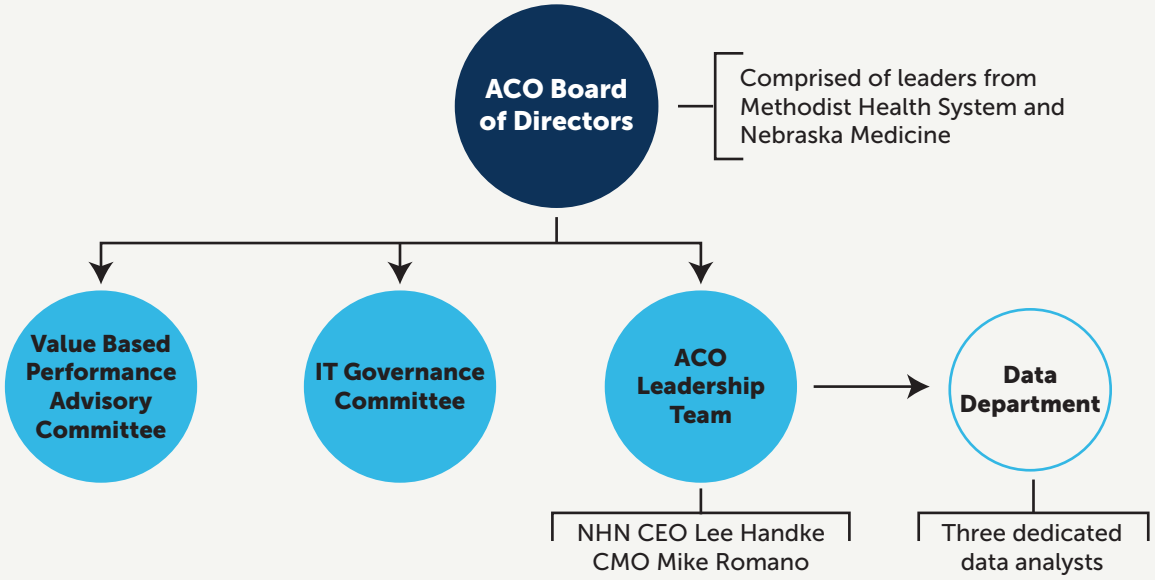
Establishing an organizational structure

The NHN leadership team established an organizational structure not only for building the data management system, but also for maintaining it. This structure integrates the insight and perspectives of three parties: (1) the governing body of the two health systems that comprise the ACO, (2) provider representatives on the ACO's committees, and (3) the team that oversees the day-to-day operations based on their expertise in data systems (see Figure 1). Through this balanced structure, the leadership team positioned the ACO to determine the system's basic functionality, select a vendor, and manage ongoing operations, including reporting and performance improvement.

The ACO's Board of Directors includes management representatives from both large health systems as well as a Medicare beneficiary who represents the patient's perspective. The board is the ultimate decision maker on important ACO matters and oversees the leadership team that spearheaded the establishment of the data management system. The leadership team also served as the main liaison between the staff in the Data Department and the Board of Directors.

Figure 1

NHN organizational structure for the data management system



Two committees played important roles in developing the data management system. NHN formed the IT Governance Committee to help determine the system's core requirements: identifying and prioritizing the functions and features of the data management system, per the first guiding question in Table 1. The committee includes physician from both major health systems and IT leadership. NHN also looked to the existing Value-Based Performance Advisory Committee, which is made up of physician and administrators from the health systems and independent physicians. The committee monitors the ACO's cost and quality performance, especially related to its population health priorities. It also supported the development of the data management system by ensuring that the system could effectively produce reports for all the ACO's value-based contracts. In addition, the committee uses the data system to identify opportunities for improvement in priority areas.

Although NHN decided to use a vendor to automate features in the data management system, it determined that dedicated staff would be essential to operations. NHN therefore hired three individuals to establish the IT and Analytics department, which would perform advanced ad hoc analytics and identify improvements to data processes in order to address the ACO's evolving analytic needs. The ACO's leadership team, which includes the Vice President of ACO Operations and Performance, provides oversight for the new full-time analysts who have both actuarial and analytic experience. The Data Department works directly with a data vendor to collect, aggregate, and analyze data sources.

> *"When it comes to the ability to do more advanced analytics, you still need data analysts to help do that for you… It gives the institutions the ability to look at their own data, to get an idea where they're at."*
>
> —Mike Romano, MD, NHN CMO

Putting functionality first

The IT Governance Committee considered the essential functionality of the ACO's reporting and analysis needs in order to select the features to include in the early building of the data management system. The essential functionality includes:

- **Multiple integrated data sources** to allow the ACO to streamline the reporting process. The committee wanted the platform to efficiently replicate the reporting process across all 12 value-based care contracts by integrating clinical and claims data to make the reports available to all end users, including ACO administrative staff, health systems managers, and participating providers.
- **Enhanced provider engagement capabilities** with a variety of components, such as care team access to quality performance measures and dashboards, and reports that show claims-based quality measure and utilization performance for individual providers and clinics.

- **Data analysis capabilities that enhance quality improvement analyses,** such as quality measure benchmarking against high-performing clinics and ad hoc analyses of measures that are important to the ACO.

The committee recommended that NHN de-prioritize IT functions that are not critical to basic system operations and defer enhancements to these functions until later stages of development. Examples of valuable, but non-essential features, for the data management system include faster access to clinical data and the ability to accommodate the network's multiple EHRs. In the evaluation process, these functionalities were weighted as less important than the essential functionalities.

Selecting a vendor

NHN decided to work with a vendor to develop the system because of its complex reporting requirements across multiple value-based contracts. The vendor would be responsible for building, maintaining, and improving the data management system so the ACO could automate elements of data management, address quality reporting requirements, and produce analyses that support performance improvement. To comprehensively and systematically evaluate vendors, NHN used a formal request for proposals (RFP) that required a written description of the recommended approach and a 90-minute live demonstration.

The IT Governance Committee created a scorecard to compare the vendors' approaches and to support the Board of Directors in making the final selection. Using the scorecard, the committee members ranked the responses from the 15 vendors that submitted a proposal. As shown in Figure 2, the scorecard included multiple requirements, such as built-in reporting capabilities, easy access for end users (administration and providers), and the ability to break down data by clinic, provider, or payer. The ACO weighted some requirements more heavily than others—for example, supporting the ACO in maintaining and improving the system, and experience working with other ACOs.

Figure 2

Example of metrics from the NHN vendor scorecard

	Weight	Vendor #1	Weighted score
Alignment with system requirements	**0.60**		
Quality reporting capabilities	0.15	1	0.075
Claims data aggregation	0.15	2	0.15
Role-based access and user-specific dashboards	0.15	2	0.15
Enhanced provider engagement capabilities	0.15	0	0
HCC reporting for risk adjustment	0.15	0	0
EMR integration capabilities	0.05	1	0.025
Proven ACO technology	0.05	0	0
HIPAA-Compliant and encrypted	0.05	2	0.05
Alignment with system requirements (TOTAL)	1.00		0.45
0 = does not meet, 1 = partially meets, 2 = fully meets		60% Score	0.27
	Weight	**Vendor #1**	**Weighted score**
Implementation and Performance	**0.4**		
Implementation plan	0.2	1	0.1
Experience in the ACO market	0.2	0	0
Support team	0.2	1	0.1
External reference	0.2	0	0
Annual growth	0.2	0	0
Implementation and performance (TOTAL)	1.00		0.2
0 = underperformer, 1 = capable performer, 2 = strong performer		40% Score	0.08
TOTAL SCORE			**0.35**

After reviewing the written proposals and live demonstrations from vendors, the ACO chose a vendor with the following qualifications: has worked with other MSSP ACOs, has expertise related to integrated claims from multiple national payers, and offered a collaborative, iterative approach that would facilitate continuous improvement to the data management system. The Board of Directors appreciated that approach, as the analysts in the Data Department would likely work with the vendor daily to address challenges and brainstorm new features.

USING THE DATA SYSTEM TO ENGAGE PROVIDERS IN QUALITY IMPROVEMENT

Having worked with the vendor to create the data management system, NHN used it to engage providers in quality improvement efforts related to its priorities in population health. For example, the Data Department worked with the vendor to develop reports for providers participating in the ACO that display performance results, thereby creating a sense of accountability and highlighting gaps in care.

The ACO produces two performance reports to spur competition between providers and between clinics, and to identify opportunities for improving the delivery of care. The Provider Performance Report (PPR) tracks the number of patients covered under each value-based contract, the ACO's internal quality metric performance, and engagement metrics at the individual provider level. These quality metrics are in ACO priority areas (such as completed annual wellness visits and Hierarchical Condition Category recapture rate), and they encourage increased accuracy in the clinical documentation of beneficiaries' care needs. The engagement metrics include providers' participation in ACO-wide administrative meetings and in educational opportunities. The second report is at the level of the tax identification number (TIN). This TIN Performance Scorecard (TPS) report allows clinics to compare their results to other TINs in the network. In addition, because shared savings flow from quality and cost performance, the TPS report indicates how the ACO believes the clinics are contributing to the ACO's overall shared savings.

> ***"We've done a lot of both quality and cost performance [analyses] at a system- and TIN-level. And that… transparency has created a little bit of peer rivalry."***
>
> —CEO Lee Handke, PharmD, MBA

To supplement the PPR and the TPS report, NHN provides primary care teams with lists that identify gaps in care faster than standard claims data does. The gap lists, based on integrated EHR and claims data, focus on a core set of quality measures, such as such as depression screening. The list notes whether a patient has gaps in care that the team might be able to address. For example, if a beneficiary has not received a depression screening in more than a year, providers can act on this information. NHN designs this list to be payer agnostic and to reflect an aggregation of patients treated by the care team in order to provide a complete picture of the team's patient population.

RESULTS

NHN's data management system has significantly improved its key operations, such as quality reporting and performance improvement. The ACO's leadership and the Board of Directors appreciate and are satisfied with the system's ability to predict and respond to data inquiries from payers, to efficiently meet contractual reporting requirements, and to deliver pertinent analyses to providers.

Furthermore, the ACO has implemented a feedback process through which providers can engage the IT Governance Committee to request improvements or enhancements to the functionality and accessibility of quality data. The Data Department then works either independently or with the vendor to make these improvements. As an example, physicians provided feedback on how the calculated readmission rates impact overall performance results. On the initial version of the reports, the ACO's use of a readmission metric in the PPR disadvantaged physicians with low numbers of admissions. If a physician had a report noting her attributed beneficiaries had four total hospital admissions in the recent period and one was a readmission, the resulting readmission rate would be 25 percent and meaningfully impact the physician's performance scores. With this feedback, the ACO had the information to improve the scorecards and reports, which made them more useful for providers to identify opportunities for improvement.

NHN observed an improvement in its internal quality scores after launching the new data management system. For instance, NHN identified Medicare annual wellness visits (AWV) as a strategic priority based on (1) its interactions with peer ACOs who cited AWVs as a critical to improving population health and (2) feedback from its Value-Based Performance Advisory Committee. NHN incorporated these quality improvement metrics into its gap list after finding that the NHN had lower rates than its peer MSSP ACOs. In 2017, NHN had a baseline Medicare AWV performance of about 25 percent. After using the data, the ACO's AWV completion rate improved to nearly 50 percent in 2019, which the ACO believes played a large role in the improvement in cost outcomes in Medicare Shared Savings. NHN overspent its benchmark by $3.5 million in 2017, and successfully saved nearly $5 million in 2018 and more than $13 million in 2019.

LESSONS LEARNED

NHN found that combining EHR data with claims data allowed for production of more robust, timelier, and actionable gap lists, which helped the care teams to improve the quality of care. The leadership team noted that integrating the two data sources provided faster access to clinical data, which was originally three to six months when relying only on claims data. Providers appreciate the fact that the gap lists reflect more recent care needs and a more complete rundown of services delivered. Both have made providers more confident in the reports and, in turn, have helped to guide their point-of-care decisions.

Over time, the ACO's leadership team determined that the TPS report, as compared to the PPR, more effectively delivers performance feedback and motivates providers to make the most of opportunities for improvement. The team therefore discontinued the PPR in the first quarter of 2020 because its underlying analyses were based on small patient populations that skewed the results, both positively and negatively. In addition, individual providers employed by the two health systems do not see the direct benefit of shared savings and may therefore not find their performance results to be motivating. In providing performance feedback at the TIN level, the TPS report reflects analyses that include larger patient populations, which lead to more consistent and meaningful results. Additionally, because the reports are specific to the two health systems that make up much of the ACO, internal quality performance data has spurred competition between them.

NEXT STEPS

As NHN's data management infrastructure has improved, the ACO has begun to receive more sophisticated data requests from health systems and payers. In response, NHN is exploring advanced predictive analytics to refine its cost modeling methodology and to better identify "rising risk" beneficiaries who would benefit from additional support (such as individuals who are at greater risk for near-term hospitalization). In addition, NHN plans to integrate new data sources into the system, for example to identify needs related to social determinants of health that would enable referrals to community-based organizations. Through improvements like these, the ACO hopes to enhance its data management system to deliver more complete reports on population health to providers.

About the ACO Learning Systems project
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