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getting proactive about bundles

A midwestern health system is using data analytics to design, refine, and improve episodes of care.

AT A GLANCE

> Robust data analytics capabilities are instrumental in improving and designing episodes of care.
> Providers can design their own bundles to pilot with insurers, and they can work with state officials to modify mandated Medicaid bundles to better represent clinical and operational realities.
> Identifying where variation exists within an episode of care—both technical variation that providers can control and patient-based variation that is out of a provider's control—is key to successful bundling.

When the Ohio State University Wexner Medical Center (OSUWMC) in Columbus, Ohio, entered Medicare's Bundled Payments for Care Improvement (BPCI) initiative in 2015, leaders at the academic medical center (AMC) saw the voluntary demonstration project as a way to learn about taking on risk for a patient population. Just as important, leaders hoped that focusing on episodes of care would enhance the quality of care while curtailing unnecessary utilization and improving efficiency.

As of mid-2017, OSUWMC saved Medicare more than $1 million across 10 federal fiscal quarters, compared with historical spending. The AMC focused on cardiac care episodes, including coronary artery bypass graft (CABG) and heart valve procedures. As part of BCPI Model 2, these episodes begin with admission and end 90 days post-discharge.

The positive BPCI experience has helped to energize and empower leaders and staff at OSUWMC around performance improvement and population health efforts. In general, healthcare providers tend to focus on ensuring that each patient encounter, such as a diagnostic test or procedure, is handled effectively and efficiently. By stepping back and examining the patient journey throughout an entire episode of care, both outside and inside the hospital walls, physicians and other clinicians have been able to identify additional opportunities for optimizing patient care.

At the same time, early bundle experiences provided leaders with critical knowledge about how to craft clinically relevant and financially sound episodes of care. As a result, OSUWMC has been able to proactively design its own bundles to pilot with insurers, and it has worked with state officials to modify mandated Medicaid bundles to better represent clinical and operational realities.

Robust data analytic capabilities have proved critically important to OSUWMC for improving and designing episodes of care. By pulling together and analyzing previously disparate information—including claims, cost, and

clinical data—the health system is uncovering opportunities to improve patient care and reduce financial risk as it moves toward population health management.

Improving Under Bundles

Before OSUWMC participated in BCPI, physicians and other clinicians were in the dark about the services that Medicare beneficiaries received after discharge. An advantage of participating in the initiative is the claims data shared by the Centers for Medicare & Medicaid Services (CMS) covering the entire episode of care. OSUWMC financial analysts used these data to illustrate to physicians the type of post-acute care services cardiac surgery patients sought.

The story for patients undergoing CABG or heart valve procedures was particularly eye-opening: Compared with patients of the AMC's peer organizations in BPCI, twice as many OSUWMC patients went to a skilled nursing facility (SNF) after a CABG or heart valve surgery.

Although complex and frail patients tend to need SNF care after these operations, many patients do not require this level of care. The majority of patients at peer organizations were discharged home with home health services, which is significantly less expensive than skilled nursing.

When cardiac surgeons and other clinicians at OSUWMC saw these data, they decided to redesign when and how patients are educated about what to expect after a CABG or a valve procedure. Now patients are educated during their preadmission outpatient visits, as opposed to the day of admission, when they are likely to be preoccupied with their upcoming surgery. All patients are given the option of skilled nursing, but healthier patients are encouraged to go home after discharge, assuming they can arrange for someone to stay with them for a few days.

By educating patients, as well as the care teams, about the appropriate level of care, OSUWMC reduced the number of patients who underwent CABG or heart valve procedures and were discharged to SNFs by half. Subsequently, the 90-day readmission rate for patients discharged home has improved—possibly because the patients tend to move around more at home than in facilities, contributing to a healthy recovery.

OSUWMC also informally partnered with local SNFs to review length of stay (LOS) for these patients. After discussing best practices for such patients, the SNFs have reduced average LOS by half.

Refining Bundles

In March 2015, Ohio launched a mandatory Medicaid bundled payment program as part of the state's transition to value-based payment. Under the program, providers must meet predetermined targets for spending as well as quality metrics to receive incentive payments. Currently, providers are at risk for 10 medical and surgical episodes:
> Asthma exacerbation
> Chronic obstructive pulmonary disease exacerbation
> Perinatal care
> Appendectomy
> Cholecystectomy
> Upper respiratory infection
> Urinary tract infection
> Gastrointestinal bleed
> Esophagogastroduodenoscopy
> Colonoscopy

Beginning in 2019, providers will assume risk for an additional 30 episodes, including breast cancer, neonatal, behavior health, cardiac, and orthopedic care and treatments.

When Medicaid first rolled out the initial bundles, OSUWMC leaders and clinicians were concerned that the episode designs would not adequately adjust for a patient's severity of illness. As a tertiary care facility, OSUWMC cares for many complex and very sick patients who tend to require additional resources. However, to date, Medicaid has been excluding about half of OSUWMC patients from the populations paid by the bundled payment program for either clinical or business reasons.

The Ohio Department of Medicaid also has been open to suggestions from healthcare providers on how to make the episodes of care clinically relevant, operationally accurate, and financially sound. Clinicians from OSUWMC have participated in clinical advisory groups that have helped Medicaid officials design and refine the episodes. Further, since the episodes have been rolled out, OSUWMC has pointed out ways to further refine the episodes or accurately report performance.

For instance, the perinatal bundle follows expectant mothers from 40 weeks prior to delivery to 60 days after childbirth. One of the quality metrics for this episode tracks whether the provider tests pregnant women for HIV.

When OSUWMC learned that it was performing at exceptionally low levels on the HIV metric, financial analysts dug into the data to determine why. Armed with a list of perinatal patients who purportedly did not get an HIV test, according to Medicaid reports, an analyst and a nurse manager conducted chart reviews. They discovered that all the patients had, in fact, received HIV tests but that OSUWMC was using a different CPT code than Medicaid for the test. In reality, the medical center administered a more comprehensive HIV test that required a different code than the standard HIV test.

After OSUWMC alerted Ohio Medicaid about this coding issue, the state updated its coding guidelines, and the medical center's score on the HIV metric rose to almost 100 percent compliance.

In addition to reaching out to Medicaid to refine bundles, OSUWMC has been collaborating with a commercial insurer on total orthopedic bundles. After the insurer approached the health system with an initial bundle design, OSUWMC and the insurer collaborated and made adjustments to the proposal that were mutually beneficial to both parties. For example, a portion of patients scheduled to undergo joint replacement at the health system are receiving treatment for cancer. The risk associated with these patients differs considerably from that associated with a purely elective joint replacement. Exclusion criteria were collaboratively designed to mitigate risk for both parties, which included considering various clinical, business, and high-cost outlier criteria to determine if the entire episode or portions thereof were excluded.

Designing Bundles

With an eye to the future, leaders at OSUWMC's cancer hospital, The James Cancer Hospital and Solove Research Institute, wanted to take a proactive approach to bundled payment. Cancer care tends to be highly variable and dependent on numerous clinical and patient factors, including the stage of the disease and tumor histology. By designing its own cancer bundles, the hospital hoped to gain insight into these variances for both clinical and financial reasons.

For instance, physicians saw an opportunity to improve quality and the patient experience by following agreed-upon, evidence-based pathways when possible. At the same time, financial and operational leaders wanted to identify instances of variation that were outside the hospital's control so they could work with insurers to design bundles that did not put the hospital at risk for unmanageable or untreatable factors. Leaders also believed this effort would help prepare staff for the Medicaid breast cancer bundles that are going into effect in 2019.

Choosing the pilot bundles and mapping the patient journey. The James Cancer Hospital arranged to pilot a cancer bundle with the OSU Health Plan, which manages health benefits for faculty and staff at The Ohio State University. Under the agreement, payment will be retrospective and only cover services provided within the OSU Health System. In addition to meeting a pre-determined spending target, the hospital would need to perform well on quality metrics to receive an incentive payment/shared savings.

The next step was to identify the right bundle to test. Administrators and data analysts worked with medical oncologists and breast cancer

surgeons to identify the type of cancer care or treatment to focus on, resulting in the selection of two related breast cancer procedures: benign lumpectomy and malignant lumpectomy.

A *lumpectomy* is an outpatient surgical procedure to remove a tumor(s) and/or suspicious tissue from the breast. If pathology finds no cancer—which is to say, a benign lump—then the patient's pathway typically ends with the surgery. But if the tumor is malignant, or cancerous, then the patient typically undergoes radiation therapy and possibly chemotherapy and other drug therapies.

Building the bundle. The experience gained on Medicare and Medicaid bundles helped guide staff at The James Cancer Hospital as they built the two lumpectomy bundles. The following questions needed to be addressed to determine key definitions and parameters:
> What is the trigger event?
> What is the duration of the episode?
> What are the eligibility criteria?
> What services are included or excluded from the bundle?
> Who is the principle accountable provider?
> Should certain services be carved out?
> How should patient outliers be handled?

The trigger event, or the first step in the episode of care, and the diagnosis or procedure CPT codes that define this event were fairly easy to identify for procedure-related bundles, which typically begin with the procedure or the related hospital admission. Both lumpectomy bundles use the lumpectomy procedure as the trigger event.

The duration of each bundle differs, however, because treatment is so different for benign versus malignant cancers. To determine an appropriate end point for each bundle and for services that might be carved out of the bundles, data analysts worked alongside clinicians to review data on patients undergoing lumpectomy. For instance, when looking at total costs by episode day for lumpectomies, it became apparent that costs increased dramatically on day 45 and every 20 days after that for some patients.

After clinicians explained that this pattern reflected the timing of chemotherapy treatments, the analysts dug deeper into the data and discovered that carving out chemotherapy from the bundle would help reduce the level of uncontrollable variation. The hospital is limited in what it can do to control chemotherapy drug costs and did not want to be at risk for these costs.

As staff continued to build the episodes, they decided to exclude certain outlier cases, such as patients who got mastectomies after a lumpectomy. They also defined the duration of the bundles based on the typical endpoint of cancer-related services for these patients. The benign bundle ends 45 days post-lumpectomy, and the malignant bundle ends at 180 days.

Once the bundle parameters were defined, clinicians and operational staff met to map out and refine the patient pathway through the lumpectomy journey to ensure it was efficient and followed evidence-based best practices. This effort involved using flowchart methods to illustrate, analyze, and improve the steps taken during and after the lumpectomy.

Identifying quality metrics. After the bundle was built, staff determined the quality metrics that should be measured for both bundles as shown in the exhibit on page 5. Various considerations went into determining these measures, including other quality reporting requirements from Medicare and other payers.

Two metrics are being tied to the incentive payment the hospital is eligible to receive: timely diagnostic workup rate and core needle biopsy rate. These metrics are required for accreditation by the National Accreditation Program for Breast Centers. A third metric measuring patient experience also was included in the agreement.

Launching the bundles. The James Cancer Hospital and the OSU Health Plan launched the two lumpectomy bundles on Jan. 1, 2018. Prior to launch, clinicians and operational staff were educated on the refined lumpectomy pathway. But

BREAST CANCER QUALITY METRICS			
Metric type	**Quality metric**	**Description**	**Relevant time period**
Tied to incentive payments	Timely diagnostic workup rate	Percentage of valid episodes with appropriate diagnostic imaging	During the pre-trigger window (90 days)
Tied to incentive payments	Core needle biopsy rate	Percentage of valid episodes triggered on core needle biopsies	Trigger window
Informational	Surgical complications rate	Percentage of valid episodes with a surgical complication (e.g., hemorrhage, infection)	During the trigger and post-trigger window
Informational	Repeat biopsy/ subsequent excision rate	Percentage of valid episodes with a subsequent breast biopsy or excision	During the post-trigger window (30 days)
Informational	Genetic testing rate	Percentage of valid episodes where patient with documented family history of breast or ovarian cancer received genetic testing	During the episode window

the more time-consuming task involved working with the health plan on administrative details, such as how the hospital would indicate that patients should be included in the bundled payment when submitting claims.

Initial results from the lumpectomy bundle are expected later in 2018. In the meantime, the hospital is working on designing additional bundles for endometrial cancer, acute lymphoblastic leukemia, and other conditions.

Confirming the Importance of Data Analytics

As leaders and staff at OSUWMC gain more experience with episodes of care, they keep coming back to the same lesson learned: This work is much easier with sophisticated data analytic capabilities and integrated IT systems. A key to success is identifying where variation exists within an episode of care—both technical variation that providers have control over (e.g., treatment protocols, inefficient processes) and patient-based variation that is out of a provider's control (e.g., comorbidities, stage of disease). Having willing clinician input to complement the data analytics was another key contributor to success in this endeavor.

Identifying variation often requires dicing and slicing various types of data in different ways to reveal truths that are not readily apparent. When OSUWMC took on its first bundles from Medicare and Medicaid, the health system did not have the capability to pull and integrate data from various IT systems, with the result that a lot of performance improvement work involved creating spreadsheets or even manual chart review. The health system's cost accounting capabilities also were limited, making it difficult to pinpoint cost variation.

To address this issue, the health system invested in a new cost accounting system and a decision support tool that allows analysts to pull together clinical, cost, and claims data from previously disparate systems or sources and create meaningful visual stories to share with clinicians. A module for episode analytics also was designed and built within the cost accounting application. With the data in front of them, physicians have become more engaged in performance improvement discussions.

Evolving for the Future

OSUWMC leaders recognized the need to evolve from a reactive to a proactive mindset about bundles and other value-based payment. As the amount of revenue tied to value increases, the AMC must be nimble enough to make informed clinical or operational changes to ensure it performs well under risk-based structures. At the same time, leaders and clinicians seized opportunities to work with Medicaid and other payers to refine and design bundles to make them more relevant for patients and more useable both operationally and clinically for providers.

The ultimate goals of OSUWMC's bundled payment activities are universally accepted by providers and insurers alike: improve health outcomes, lower the total costs of care, and enhance the patient experience. The state of Ohio has one of the sickest populations in the United States, and it spends more per resident on health care than all but 17 states. To meaningfully change this scenario, healthcare providers and insurers must dig into the data to identify and manage variation. ▪

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