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EDITORIAL – HEALTH SERVICES RESEARCH AND GLOBAL ONCOLOGY

An Overview of Bundled Payments for Surgical Oncologists: Origins, Progress to Date, Terminology, and Future Directions

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The US healthcare system is in the midst of a transition in reimbursement and delivery models from a volume orientation ("fee for service") to one that allies payments with health outcomes achieved ("pay for performance").[1] The impetus for this has been an unsustainable rise in healthcare spending [17.8% of the 2016 gross domestic product (GDP)] that has not been matched by commensurate improvements in health coverage or population-level care quality.[2] Alternative payment models (APM) such as global capitation, patient-centered medical homes, and bundled payments have emerged as key levers for driving this change. Currently, more than 30% of Medicare fee-for-service (FFS) provider payments flow through APMs, with a target of 50% by the end of the 2018 calendar year.[3]

Bundled payments, a form of episode-based payment, denote an arrangement wherein hospitals and providers are paid a predetermined lump sum in exchange for all services furnished to a patient during a predetermined time period (e.g., 30 or 60 days) or over the course of a defined clinical condition. The principal aim of this strategy is to engineer better coordination and communication between providers across the *entire* care continuum, encourage standardization, and focus systems on lowering preventable complications. In contrast, when services are paid for individually or per "item" (i.e., fee for service), respective providers face a distortion of incentives to increase the volume of each service offered regardless of its impact on outcomes or contribution to duplication of services.[4] By linking reimbursement to outcomes, bundled payments serve to increase provider (hospital and physician) financial accountability for the costs and quality of care delivered. Conceptually, bundled payments represent the middle ground between reimbursing discrete units of service ("fee for service") and remunerating the totality of care a given population receives ("global capitation").

ORIGINS AND PROGRESS TO DATE

Although bundled payments have been the subject of considerable policy and research attention in recent years, they have actually existed for several decades. In many ways, diagnosis-related groups (DRG) and the 90-day global billing period are episode-based payment constructs and precursors to contemporary bundles. The earliest iterations of *true* bundles were put forward in the private sector during the mid-1980s in orthopedic surgery[5] and renal transplantation.[6] Medicare introduced its first attempt at bundled payments in 1991 with the "Medicare Participating Heart Bypass Center Demonstration." Completed in 1996 and involving a total of seven participants, analysis determined that all-inclusive bundled payments were able to generate sufficient incentives for physicians and hospitals to coordinate services for the delivery of efficient,

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high-quality care without any untoward effects on beneficiary postdischarge health.[7] This was succeeded in 2009 by the "Acute Care Episode Demonstration Project," a 3-year voluntary model that broadened the global payment for a single inpatient episode of care format to include cardiac valve procedures, defibrillator placement, percutaneous coronary intervention, and hip or knee revision/primary replacement. A recent analysis revealed that for surgical (cardiac or orthopedic) patients, it was not associated with any significant changes in 30-day episode-based spending or mortality.[8] Conversely, Medicare's mandatory Comprehensive Care for Joint Replacement bundled payment program, launched in April 2016 in 67 urban areas for approximately 800 hospitals, did demonstrate savings in spending. These saving were due to declines in implant prices and usage of high-cost post-acute services.[9]

Over this time period, it should be noted that select private-sector hospital systems kept pace with Medicare through the Prometheus[10] and Geisenger ProvenCare bundled reimbursement models.[11] Enactment of the Affordable Care Act (ACA) in 2010 served to accelerate the prevalence of bundled payments in the marketplace. This was largely accomplished through two mechanisms. First, the creation of the Center for Medicare and Medicaid Innovation (CMMI) within the Center for Medicare and Medicaid Services (CMS) enabled testing of innovative payment and service delivery models to reduce program expenditures, while preserving or enhancing the quality of care for those individuals who receive Medicare, Medicaid, or Children's Health Insurance Program (CHIP) benefits.[12] Second, the ACA contained specific language (Section # 3023) that empowered the Secretary of Health and Human Services (HHS) to pilot and evaluate national programs involving use of bundled payments for "episodes of care provided to an applicable beneficiary around a hospitalization in order to improve the coordination, quality, and efficiency of health care services."[13]

The Bundled Payments for Care Improvement (BPCI) model, Bundled Payments for Care Improvement-Advanced (BPCI-A), Oncology Care Model (OCM), and Comprehensive Care for Joint Replacement (CJR) programs were born out of this statutory provision. All four build upon lessons from the prior Medicare bundled payments portfolio by covering, to varying degrees, longer clinical episodes including post-hospitalization rehabilitation services, and healthcare providers (multiple physician and facility types).[4]

The Medicaid programs of some states, such as Ohio, have increasingly turned to bundled payments as a lever for reducing costs while improving the quality of care delivered to enrollees.[14] In recent years, several bundled payment private-sector pilots have been introduced, such as the MD Anderson Cancer Center and United Healthcare head and neck bundle and direct-to-employer contracting via the Pacific Coast Business Group.[15,16] According to recent estimates, approximately 30% of hospital systems and 20% of self-insured employers are engaged in some sort of bundled payment contracting.[17]

MECHANICS AND TERMINOLOGY

As mentioned above, a bundled payment describes a lump sum ("target price") intended to cover all care delivered to a patient over the course of a specified clinical episode or for a set time horizon. This payment is intended to span multiple providers and treatment settings. This characteristic delimits it from episode-based payments, which are usually anchored, to a single treatment setting (e.g., DRG for hospitals) or provider (90-day global period for surgeons). In other words, a bundle must encompass all treatment sites and assorted providers and services involved in the care of a particular patient (e.g., physician fees, labs, imaging, acute care hospitalization costs, and post-acute care costs). Another critical feature of a bundle is that its *full* receipt (i.e., target price) must be tied in a meaningful way to achieving predefined quality metrics. This mitigates concerns about providers "skimping" on necessary services in order to "beat" the target price. Features of an "ideal" procedure-specific bundle are (1) nonemergent timing, (2) incidence that is not geographically bound or limited, (3) high annual volume with clearly understood variability in costs, and (4) preexisting clinical outcome measures.

Scope

The bundle scope (i.e., condition-based or procedural) determines which providers, setting, and services to include in a particular episode of care and how care will be integrated across the various elements. Concomitantly, the bundle scope also sets up the duration of the episode. For example, a colon cancer bundle would include more services (radiation, imaging, surgery, chemotherapy) and providers (surgeons, medical oncologists, pathologists), and be of a longer duration, relative to a colectomy procedural bundle. For operational ease and due to the availability of claims data, most of the current episodes are designed around procedures.

Episodes are initiated by a "trigger event" that can take the form of an inpatient admission for a given diagnosis code (e.g., DRG 329- 331 for bowel surgery, ICD-10 code 0DTN0ZZ for sigmoidectomy) or the use of a specific professional claim (e.g., CPT 44140 for partial colectomy). It is worth noting that a trigger event is not always synonymous with the *beginning* of the episode. Strictly

speaking, it denotes the *existence* of an episode; For example, an episode can be triggered by an ICD code for colectomy but in its design can include preoperative workup such as imaging, colonoscopy, etc.

Episode of care duration is largely shaped by the scope (condition or procedural) and always defined in relation to a trigger event. A colectomy episode could be 30 or 60 days post trigger event in duration. Alternatively, it could also be 14 days pre-trigger event and 30 days post trigger, creating a 45-day episode that encapsulates the preoperative workup period. The usual phases of a full episode of care, for the purposes of bundle construction, are the following: diagnosis, operative or medical treatment strategies, and post-acute care. Ideally, the conclusion of a bundle should be coincident with complete clinical recovery. There is mounting interest in creating separate diagnosis and treatment bundles, as a way to measure and improve the appropriateness of surgical procedures.

Target Pricing and Accountable Entities

Across payers, there is considerable variance in the methodology used for target price calculation. In the BPCI-A program, an eligible alternative payment model under the MACRA statute, a blend of regional and historical pricing, is used.[17] In brief, historical claims, over a 2–3-year ("baseline") period, for a particular clinical episode were used to generate a baseline price for an accountable entity. Patient-level risk adjustment is typically incorporated at this point. The accountable entity then assumes responsibility for care delivery and is the risk-bearing entity for cost of care overruns relative to the target price. The use of stop-loss provisions allows some risk mitigation in the event of "high-cost" outlier patients whose episode costs fall above the target price. Accountable entities include hospitals, post-acute care facilities, independent practice associations, or a physician group practice. This baseline price is then benchmarked against other "peer" organizations relative to the accountable entity. Peer group characteristics include academic medical center affiliation, urban versus rural setting, safety-net status, US census division, and bed size (small, medium, large, extralarge). The rationale for adopting this approach is that it (a) encourages the participation of both low- and high-cost providers, (b) rewards improved efficiency over time, and (c) adjusts for case mix beyond the providers' control.[18] A small percentage (3%) "discount" factor is applied following standardization for geographic variations in spending (e.g., wage index) and policy-driven payment adjustments at hospital level (e.g., graduate medical education adjustments). The end result is the target price.

Payment Schedule

Optimally, the target price is paid prospectively (i.e., at the time of a trigger event as a lump sum to the accountable entity). Alternatively, the usual fee-for-service payments to individual providers could be made with a retrospective adjudication of the total payments against the target price. Regardless of the timing of payments, a reconciliation of costs incurred against the target price for each clinical episode is always done at the end of a performance period, i.e., on a quarterly or semiannual basis. It should also be noted that lump sum payments burden the accountable entity with the task of distributing reimbursement to all participants of the bundle, creating potential for conflict if clear expectations for payment allocation are not set initially.

Risk Mitigation

In the Medicare program, bundle participants are given a choice of three "risk tracks" wherein they opt to bear 100% risk up to the 75th, 95th, or 99th percentile of national spending levels for a particular episode. These tracks are usually updated on a quarterly basis. Any accountable entity cost overrun for a given clinical episode is "Winsorized," which limits the effect of extreme outliers on data analysis, to the applicable percentile for the chosen risk track. A similar arrangement exists to transform outlier costs at the 1st, 5th, and 25th percentile of national spending. In some private-sector bundle payments, re-insurance policies to underwrite catastrophic losses from care episodes are available. Finally, "stop-loss" or "stop-gain" provisions can also be implemented to protect extremes of risk for both entities. These are clauses that limit the reconciliation amount (discussed below) in either direction, i.e., up to 20% of the target price. Winsorization refers to total episode spending, while stop-loss/stop-gain provisions are applied only to the reconciliation amount.

Linking Payments to Quality

A key element of bundle payments is the linkage of full receipt of the target price to claims- or registry-based quality measures, akin to a pay-for-performance approach. Ideally, the measures should be episode specific and outcomes driven (as opposed to process measures) (e.g., anastomotic leak following colectomy). Vetting by the National Quality Forum (NQF) appears to be a prerequisite for measure recognition by CMS.

In the Medicare bundles portfolio, each clinical episode is assigned a composite quality score (CQS), which is a weighted average of several quality performance scores. The CQS for all similar clinical episodes attributed to an

TABLE 1 Sample calculation to illustrate potential savings and losses from a colectomy bundle

	Scenario A (US $)	Scenario B (US $)
Target price	45,000	45,000
Actual episode spend	30,000	60,000
Winsorized lower and upper limits of spending	37,500	52,500
Reconciliation amount (RA)	+ 7500	− 7500
Quality-adjusted RA	+ 6500	− 5500
Stop-loss/stop-gain provision (10%)	+ 4500	− 4500
Actual payment to/from Accountable entity	+ 4500	− 4500

accountable entity are aggregated to create a CQS-adjustment amount. This is then used to titrate the reconciliation amount, *not* the target price, up or down according to performance, at the accountable entity level, on quality measures. Table 1 provides an illustrative example of quality adjustment.

Waivers

To empower gain-sharing arrangements within accountable entities participating in the BPCI program, CMS exerted its waiver of fraud and abuse laws authority. Gain-sharing occurs when an accountable entity gives providers a portion of the saving accrued from reductions in cost of care relative to the target price. In the BPCI program, CMS waived the anti-kickback and self-referral ("Stark") statutes for participants in connection with gain-sharing and savings pool contributions.

FUTURE DIRECTIONS

As the medical economic climate around care of cancer patients evolves in a reimbursement-constrained environment, there is a compelling rationale that future bundled payment constructs *should* be condition and not procedure based. Although this might invite some tension with regards to identifying an undisputed episode start and end point, there is a belief that condition-based bundles are most conducive for shared decision-making and patient engagement.[19] The longer duration inherent to condition-based bundles also allows for the inclusion of a broader set of services and providers. This in turn generates stronger incentives for care coordination across settings and provider types (i.e., primary care physicians and specialists).[20] More importantly, condition-based bundles work to dampen the volume-based incentives still present in procedural bundles (i.e., trigger more care episodes) as a way to create financial margins.

The inclusion of outpatient procedures in the BPCI-A model may be a bellwether for future bundle programs that might include ambulatory surgery centers and outpatient clinics as accountable entities.[20] This will align bundled payments with the ongoing national trend of rapid growth in office-based surgical procedures.[21] Finally, future study is needed to unpack the interactions or overlap between bundle payments and other alternative payment models, such as Accountable Care Organizations (ACO), in the marketplace. Are there unintended consequences or inaccuracies with respect to cost accounting, savings attribution, and risk sharing for a pool of patients that participate in both programs?

CONCLUSIONS

Growth of bundled payments for episodes of care portfolio is well underway in both the private and public domain. Consequently, it will likely impact the practice environment for current surgeons and trainees. As a workforce, we have an obligation to be well versed in the key elements and implications of this reimbursement mechanism. This is because it will enable us to better serve our patients, identify knowledge gaps, and moderate any unintended negative consequences.

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