SURGEONS AND BUNDLED PAYMENT MODELS:

A PRIMER FOR UNDERSTANDING ALTERNATIVE PHYSICIAN PAYMENT APPROACHES

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INTRODUCTION

The American College of Surgeons (ACS) General Surgery Coding and Reimbursement Committee (GSCRC) developed this *Bundled Payment Primer (Primer)* to inform ACS Fellows about the concept of bundled payment and the effect bundled payment policies could have on surgical practices.

Medicare physician reimbursement in the United States has been criticized for rewarding physicians for the quantity of care they provide rather than for quality or value of services. As a result, proposed policy changes include models of delivery of health care and payment that are centered on coordination of care.[1] This focus on coordination of care is intended to increase efficiency while maintaining quality.

Bundled payment is one approach that both Congress and the private sector are exploring in an effort to promote more coordinated and efficient care across different providers or settings. In bundled payment models, a single payment is made to one entity for the entire episode of care and the bundled payment is distributed among the providers involved in providing health care services during the episode. For example, this could involve payment for a surgical procedure that merges Medicare Part A and Part B, resulting in the combination of physician fees and the hospital reimbursement for that procedure.

It is important for ACS Fellows to be aware of existing bundled payment programs and those under development. Fellows should also know how such programs are implemented in order to understand how surgeons fit into these new payment models. This *Primer* introduces the concept of a surgical bundled payment, describes existing bundled payment programs, discusses the GSCRC Surgical Bundled Care Project, and presents concepts to consider in deciding whether to participate in a bundled payment model. Surgeon knowledge of these programs and their implications will be critical to the successful implementation of bundled payment as an alternative payment model for surgical procedures.

WHAT IS SURGICAL BUNDLED PAYMENT?

Unlike traditional fee-for-service medicine, under a bundled payment approach the surgeon, other doctors, the hospital, and possibly other health providers and facilities share one fee for a surgical procedure or for treating a condition.

The goal of bundled payment is to encourage health care providers to coordinate care in an effort to deliver care more efficiently and to improve quality and outcomes. Bundled payments are typically either related to a procedure or clinical episode of care, such as colon resection, or to a specific condition, such as colon cancer, over a defined period of time. For example, a colon resection episode of care bundle could include surgical preparation, diagnostic tests, anesthesiology, the surgical procedure, operating room fees, radiological examinations, laboratory tests, and other physician services. A colon cancer condition bundle could include the services that are part of the colon resection bundle with the addition of chemotherapy, rehabilitation, readmissions, and postacute care.

Although in this example the costs of the surgical procedure and associated follow-up care are less than the costs of the entire episode of care for treating colon cancer, it is important for surgeons to know how their services fit into the overall structure of the bundle in order to understand how they can impact the efficiency of the care delivered and effectively negotiate the distribution of the bundled payment. In this way, surgeons have the capacity to be key leaders in the future of bundled payments for surgical care.

EXISTING BUNDLED PAYMENT PROGRAMS

Despite the recent attention given to bundled payment, it is not a new concept. Global capitation, which brings together all costs for a patient's care, was a payment method in early managed care programs. This model failed in large part because it relied on a gatekeeper as a method for reducing costs. In the future, experts will determine what represents high-quality and cost-effective care, thus attempting to avoid the pitfalls of the global capitation approach.

Another established form of bundled payment is diagnosis-related groups for hospital care, introduced in the 1980s as part of the prospective payment system under Medicare. A more current example of bundled payments is the global surgical package. Following is a description of some of the more recent major public and private sector bundled payment programs, along with a discussion of an important case study, the bundled payment for transplant surgery.

Congressionally Mandated Initiatives

ACUTE CARE EPISODE (ACE) DEMONSTRATION

The Medicare Prescription Drug, Improvement, and Modernization Act of 2003 authorized the Acute Care Episode (ACE) Demonstration.[2] This demonstration, implemented by the Centers for Medicare & Medicaid Services (CMS) is a three-year project that tests the use of a global payment for an episode of care covering all hospital and physician services associated with a patient's inpatient stay.[3] The ACE Demonstration is limited to physician-hospital organizations (PHOs) with at least one physician group and at least one hospital and that routinely provides care for at least one group of selected orthopaedic or cardiac procedures, namely: (1) hip/knee replacement or revision surgery; or (2) coronary artery bypass graft (CABG) surgery or cardiac intervention procedure (pacemaker and stent replacement). Under the ACE Demonstration project, the Medicare program pays a single amount to the PHO to cover both hospital and physician services for the specific orthopaedic and cardiac procedures, and then the PHO divides the payment between the hospital and the physicians. The hospital, physicians, and patients are allowed to share in any savings the PHO achieves. The ACE Demonstration is limited to five hospitals and health systems: Baptist Health System in San Antonio, TX; Oklahoma Heart Hospital in Oklahoma City, OK; Exempla Saint Joseph in Denver, CO; Hillcrest Medical Center in Tulsa, OK; and Lovelace Health System in Albuquerque, NM.

The first ACE sites began their programs in May 2009, and the last sites began in November 2010. The programs at each site run for three years. Given the late start date of some of the programs, which were scheduled to run through most of 2012, the official CMS results of the ACE Demonstration are not yet available. Preliminary results from Hillcrest Medical Center and Lovelace Health System (both part of Ardent Health Services, based in Nashville, TN) indicate that over the first two years of the demonstration, Hillcrest saved $1.59 million on cardiac and orthopaedic services. At the same time, key quality measurements remained stable and some improved.[4] Officials at Ardent Health Services indicated that the two health systems have averaged 7 percent savings, or $300,000 per year, in orthopaedic implants and similar savings were achieved with the cardiology implants.[5] Savings centered primarily on implants and supplies. Early results from Baptist Health System showed that in the first 18 months of the demonstration, Baptist Health System saved $4 million in total device and supply spending, passing on $550,000 to the 150 physicians participating.[6]

MEDICARE BUNDLED PAYMENTS FOR CARE IMPROVEMENT INITIATIVE

The Medicare Bundled Payments for Care Improvement Initiative (Bundled Payments Initiative) is implemented under the authority of the Center for Medicare & Medicaid Innovation (CMMI).[7] The Bundled Payments Initiative is designed to encourage doctors, hospitals, and other health care providers to work together to better coordinate care for patients both when they are in the hospital and after they are discharged. The Bundled Payments Initiative includes four models where CMS and providers would agree to a target payment amount for a defined episode of care. The following table describes these four models:

EXISTING BUNDLED PAYMENT PROGRAMS *(cont.)*

TABLE 1: CMMI BUNDLED PAYMENTS INITIATIVE FOUR MODELS[8]

Model	Episode of Care	Medicare Payment	Implementation
Model 1: Retrospective Acute Care Hospital Stay Only	The episode of care is an inpatient stay in a general acute care hospital. It includes most Medicare fee-for-service discharges for the participating hospitals.	Medicare will pay the hospital a discounted amount based on the payment rates established under the Inpatient Prospective Payment System, and physicians would be paid separately under the Medicare Physician Fee Schedule. Hospitals and physicians will be permitted to share gains arising from better coordination of care.	Participation will begin as early as April 2013, and no later than January 2014.
Model 2: Retrospective Acute Care Hospital Stay Plus Postacute Care	The episode of care is an inpatient stay plus postacute care that would end, at the applicant's option, either at a minimum of 30 or 90 days after discharge. Participants can select up to 48 different clinical condition episodes.	In Models 2 and 3, the bundle would include physicians' services, care by the postacute provider, related readmissions, and other Part B services included in the episode definition such as clinical laboratory services; durable medical equipment, prosthetics, orthotics, and supplies; and Part B drugs. In both Models 2 and 3, the target price will be discounted from an amount based on the applicant's fee-for-service payments for the episode. Payments will be made at the usual fee-for-service payment rates, but the aggregate Medicare payment for the episode will be reconciled against the initial target price. If fee-for-service payments exceed the target price, the participants must repay Medicare the difference; if actual costs are lower than the target price, providers can keep the difference.	Implementation of Models 2, 3, and 4 is divided into two phases: Phase 1 (January–July 2013) is a no-risk period where CMS and participants prepare for implementation and assumption of risk; Phase 2 (beginning in July 2013) is the phase where participants assume financial risk.
Model 3: Retrospective Postacute Care Only	The episode of care would being at initiation of postacute care with a participating skilled nursing facility, inpatient rehabilitation facility, long-term care hospital, or home health agency within 30 days of discharge from the inpatient stay and would end either a minimum of 30, 60, or 90 days after the initiation of the episode. Participants can select up to 48 different clinical condition episodes.		
Model 4: Prospective Acute Care Hospital Stay Only	The episode of care is an inpatient stay in a general acute care hospital. Related readmissions for 30 days after hospital discharge will be included in the bundled payment amount. Participants can select up to 48 different clinical condition episodes. Model 4 is the only model that is prospectively established and therefore presents the most risk to providers.	CMS would make a single, prospectively determined bundled payment to the hospital that would encompass all services furnished during the inpatient stay by the hospital, physicians, and other practitioners. Physicians and other practitioners would submit "no pay" claims to Medicare and would be paid by the hospital out of the bundled payment.	

Results of the CMMI Bundled Payments Initiative are not yet available because this program is in the early stages of implementation.

EXISTING BUNDLED PAYMENT PROGRAMS *(cont.)*

NATIONAL PILOT PROGRAM ON PAYMENT BUNDLING

The Patient Protection and Affordable Care Act (ACA) requires the establishment of a National Pilot Program on Payment Bundling for the Medicare program by January 1, 2013.[9] The ACA requires the establishment of a pilot program for integrated care during an episode of care provided to an applicable beneficiary in order to improve the coordination, quality, and efficiency of health care services under Medicare. The pilot's duration will be five years. CMS has not yet released details of this pilot's implementation.

Private Sector Bundled Payment Programs

The private sector has been testing bundled payment for many years. Although there are several well-established private bundled payment programs, two of the most successful are described below.

GEISINGER

Geisinger Health Plan instituted its ProvenCare bundled payment program in 2006. Geisinger is a physician-led health care system that includes several hospitals, outpatient centers, and community practice locations in central and northeastern Pennsylvania. ProvenCare began with a bundle for nonemergency CABG procedures and included the preoperative evaluation, all hospital professional fees, and management of any complications (including readmissions) occurring within 90 days of the procedure. ProvenCare was then expanded to the following additional programs: hip replacement, cataract surgery, percutaneous coronary intervention/angioplasty, perinatal care, bariatric, low back pain, and erythropoietin management.[10]

ProvenCare has received a great deal of national attention and is considered by many to be a successful pioneer in bundled payment. According to at least one study, the ProvenCare program for CABG procedures has resulted in increased compliance with best practices, improved trends in 30-day clinical outcomes, improved quality, decreased length of stay, decreased readmission rate, decreased mean hospital charges, and decreased complications.[11]

BLUECROSS BLUESHIELD OF MASSACHUSETTS ALTERNATIVE QUALITY CONTRACT

In 2009, BlueCross BlueShield of Massachusetts (BCBSMA) introduced the Alternative Quality Contract (AQC) to provider and hospital groups in Massachusetts.[12] As of May 2012, more than three quarters of BCBSMA's in-state health maintenance organization (HMO) physician network is participating in the AQC. These doctors care for approximately 77 percent of BCBSMA's members.[13] The AQC is a global payment system tied to nationally accepted measures of quality. The payment rate is set for all services, and costs associated with a patient's care are risk-adjusted for patient's health status, sex, and age, and updated annually for inflation. The AQC covers all conditions that a BCBSMA member may present with, includes all services that the member may require across the continuum of care, and rates performance based on a detailed list of process, outcome, and patient experience measures. The contract also includes a pay-for-performance component

where providers are eligible for an additional 10 percent of total payment if they meet certain quality benchmarks.[14]

Results of the AQC show that the rate of increase in spending slowed compared with control groups. Savings were accounted for by lower prices achieved through shifting procedures, imaging, and tests to facilities with lower fees, as well as some reduced utilization. The quality of care also improved compared with control organizations, especially with chronic care management, adult preventive care, and pediatric care. These results indicate that a bundled payment with pay-for-performance can begin to slow growth in medical spending while improving quality of care.[15]

Transplant Case Study

According to a Government Accountability Office (GAO) report, bundled payments for transplants is standard procedure and has been the industry practice for more than 20 years.[16] The main reasons why transplant lends itself well to bundled payments are that transplants are high-cost procedures, resulting in the potential for increased cost savings; they have clearly defined start and end points, which is useful in defining an episode of care; and they have well-established clinical protocols for care and well-defined outcome measures.[17] Bundled payments for transplants typically include all hospital, physician, and ancillary services for all phases of the transplant episode, which include: evaluation, organ procurement, hospital admission for the procedure, readmissions, and follow-up care. The transplant episode can vary from 30 to 365 days.

Payors generally do not adjust for the severity of the patient's condition beyond the inherent severity adjustment included in the Medicare diagnosis related group. However, payors typically include outlier provisions, which are based on a limit of total days or a threshold of total charges for the episode to limit the financial risk to providers. The payors often provide additional per diem payments when outlier thresholds are reached.[18]

A unique feature of transplant surgery is the transparency of outcomes. For more than two decades, transplant outcomes have been posted on a public website. The program outcomes are scrutinized by both CMS and commercial payors as they are compared with expected risk-adjusted outcomes, and statistically significant variances between actual and expected outcomes are flagged. These published outcomes remain the yardstick of performance for transplant centers. These outcomes are neither surgeon-specific nor specific to the surgical team, rather are reflective of care rendered by the entire transplant team, both for inpatient and outpatient care over a period of years. Thus, the transplant centers have demonstrated that by emphasizing alignment between physicians, and between physicians and hospitals, they can provide blameless care. However, if the care provided falls below the expected threshold, CMS will decertify the center, and the commercial payors will remove the center from their networks.

THE ACS GENERAL SURGERY CODING AND REIMBURSEMENT COMMITTEE

Given the increased attention on bundled payment as an approach to payment reform, the ACS General Surgery Coding and Reimbursement Committee (GSCRC) formed a workgroup with the goal of developing a process for creating clinically coherent bundled payment models and analyzing the potential opportunities and barriers in a bundled payment model. The data utilized for this project had several limitations.

The project was centered on two condition-specific procedures:

- Colon resection for colon cancer
- Mastectomy for breast cancer

The methods and findings are useful for surgeons to better understand not only their contributions to the bundle but also the services provided by other physicians. This information is critical for surgeons considering participating in bundled payment models. This project also brings to light the types of questions and issues to consider when examining bundled payment options.

A summary of the Surgical Bundled Care Project is found in Addendum A.

ISSUES TO CONSIDER WHEN DEVELOPING A BUNDLE

Through the GSCRC's analysis of existing bundled payment programs and those in development, and from the experience with the GSCRC Surgical Bundled Care Project (described in detail in Addendum A), the workgroup identified broad issues to consider when developing a bundle or determining whether to participate in a bundled payment program. These concepts are discussed here.

Condition or Procedure: Typically, the creation of a bundle first requires the determination of whether to center the bundle on a *procedure* or a *condition*. An example of a procedure-specific bundle is a bundle for colon resection, and an example of a condition-specific bundle is a bundle for treatment of colon cancer. The role of the surgeon could vary dramatically based on the type of bundle selected. Specifically, the surgeons' share of the bundle and ability to direct the care provided in the bundle would generally be much greater in a surgical procedure-specific bundle compared with a condition-specific bundle, even if the condition-specific bundle included a surgical procedure. However, a condition-specific bundle could result in greater efficiencies resulting in greater cost saving opportunities due to the ability to reduce unnecessary services provided across a broader time and care delivery continuum.

Distinct advantages and disadvantages exist for each type, so it is important to know in advance whether an arrangement involves a procedure-specific or condition-specific bundle.

Selecting Procedure/Condition to Bundle: There are many factors that go into the selection of the procedure or condition for the selection of the proposed bundle. The GSCRC developed a list of 12 criteria for selection of procedure-specific bundles. Examples of some important criteria are listed in Table 2, but for a full list of the GSCRC criteria, refer to Addendum A.

TABLE 2: SELECTED CRITERIA FOR A PROCEDURE-SPECIFIC BUNDLE

	Criteria
1.	Existence of adequate and relevant data for analysis
2.	Procedures should be elective, nonemergent
3.	Procedures should be those of high volume and/or high expenditure
4.	Procedures should be performed across the country and not isolated to certain areas or institutions
5.	Procedures should have a measurable variation in resource use

Services Included in the Bundle: Surgeons should know what services, both surgical and nonsurgical, will be included in the bundle. The bundle participants should identify the specialties of physicians and ancillary providers who will be involved in the proposed bundle, along with all the services included in the bundle. The bundle should also have well-defined provider responsibilities so that providers know exactly what is required of them in order to produce successful outcomes, namely efficient and high-quality care. Surgeons should understand what aspects of the bundle are under the control of the hospital, the surgeon, and other practitioners. If more of the bundle is under the surgeons' control, the surgeons have greater control over the services provided, and if less of the bundle is under the surgeons' control, the surgeons have less control over the services provided. The analysis of the data in the GSCRC Surgical Bundled Care Project showed that more services than expected were being provided to patients by more physicians than anticipated.

Costs of Provider Services: The data in the GSCRC Surgical Bundled Care Project show that in both the colon resection for cancer and mastectomy for cancer analyses, the **core procedure costs** and **surgeons' fees** for the colon resection or the mastectomy were relatively stable regardless of the length of the episode period examined (in large part related to the already existing Medicare global surgical payments). In both the case of the shortest episode, three days preadmission/30 days postdischarge, and the longest episode, 30 days preadmission/90 days postdischarge, payments to the surgeons were found to be generally the same. However, additional unanticipated provider services were identified, such as daily inpatient hospital evaluation and management (E/M) services provided by multiple different specialties.

Further, in both the colon resection for cancer and mastectomy for cancer analyses, **postdischarge care** and **readmissions** accounted for large variations in cost when the episode length was expanded from 30 days to 90 days postdischarge. This information is critical because surgeons could be approached to participate in bundled payment arrangements of various types (procedure versus condition) and with differing episode periods. Based on the findings of the Surgical Bundled Care Project, however, it is clear that surgeons should be able to coordinate the care and reduce unnecessary services to ensure appropriate reimbursement for the surgical procedure portion of the bundle.

ISSUES TO CONSIDER WHEN DEVELOPING A BUNDLE *(cont.)*

Timeframe of Bundle: Bundles can vary greatly in episode length. In many of the currently existing bundled payment models, the episode length is three days preadmission and 30 days postdischarge. On the other hand, some condition-specific bundled payment models have longer time periods. Bundle participants should be aware that increasing the timeframe also increases risk.

Need for Data: The bundle participants must have access to enough historical data to accurately assess the risk that will be assumed by entering into the bundled payment agreement. Unless the participants have access to detailed utilization and payment information, it is difficult to accurately predict the appropriate costs and payment for a bundled service. These data, in addition to analysis by clinical content experts, are necessary for determining how much variation is warranted and which events are preventable, which will help determine whether certain services should be included in the bundle.

One of the challenges identified in the GSCRC Surgical Bundled Care Project was the amount of data analysis required to identify both the variation in resource use and opportunities for cost savings. The GSCRC required access to a significant amount of data and technical expertise to manipulate these large data sets. The particular Medicare sample (discussed in more detail in Addendum A) that GSCRC utilized contained significant extraneous data and charges that were difficult to distill. As such, surgeons considering a bundled payment approach must not only have access to the appropriate data but also should have the financial and technical assistance to analyze the data. Also, when participating in a bundled payment model, it is critical to have timely information to understand utilization and outcomes.

Quality Measures: Bundled payment approaches must ensure that quality of care provided in association with the bundle does not diminish. One way to maintain quality is to include quality measures in the definition of the bundle as a way to counter any incentives to reduce appropriate care. Quality, safety, and patient experience of care measures must be incorporated and coordinated with resource use metrics so that the bundled payment model is not simply a capitated payment model. Such quality measures should also be included to ensure that necessary services are provided that can prevent unnecessary subsequent care. Bundle participants should be aware of whether quality measures are part of the bundle and if so, whether the measures are appropriate. Generally speaking, outcomes, rather than process, and clinical, rather than administrative, measures that are properly risk-adjusted and have received National Quality Forum (NQF) or other multi-stakeholder third-party endorsement are preferable.

Who Administers the Bundle: Often a central organization holds and administers the bundled payments and claims. It could be a hospital financial department, an independent practice association (IPA), or a third-party administrator. The administrative entity should be capable of receiving, storing, and transmitting information on pricing of cases, payments, types of providers, contracts, bundling rules, and length-of-stay data. It is important for bundle participants to know what entity will administer the bundle because that entity will be responsible for calculating payments to the providers in the bundle in addition to numerous other cost calculations related to managing the bundle.

A related issue is that bundled payments tend to be most effective in integrated delivery systems, where it is easier to align incentives across providers. Creating and maintaining the bundled payment model, determining the cost allocation, and the administration of the bundle is more challenging for surgeons participating in nonintegrated care delivery systems.

Attribution: Assignment of responsibility for care provided is important for both quality and payment purposes. This determination is more straightforward for some conditions. For example, it could be easier to determine the relative involvement of hospitals, postacute care facilities, specialists, and other physicians for a hip replacement compared with a heart attack because hip replacements have more predictable care assignments. Bundled payment programs have handled attribution differently. Some were at liberty to allocate the bundled payment as the administrator deemed necessary, and others based the allocation of payment on the share of what the providers' fees would have been. It is important for bundle participants to have a clear understanding of the attribution methodology that will be used.

ISSUES TO CONSIDER WHEN DEVELOPING A BUNDLE *(cont.)*

Gainsharing: Often bundled payment arrangements include the concept of gainsharing. Gainsharing refers to an arrangement in which a hospital gives physicians a percentage share of any reduction in the hospital's costs for patient care attributable in part to the physicians' efforts. This means that if the costs of care during the episode or agreed timeframe are less than the bundled payment amount, the providers keep and share the difference. Gainsharing is used to reward providers for achieving cost and quality goals. It is also possible that costs exceeding the bundled payment amount could result in a shared loss among bundled payment participants.

Currently, Federal laws known as the Civil Monetary Penalties, Antikickback, and Physician Self-Referral, statutes generally prohibit certain gainsharing arrangements. Therefore, participants in the bundle should be certain whether such an arrangement is permitted under the law. While exceptions have been granted in order for the arrangements to exist, it is important to know whether gainsharing is incorporated into any program in which a surgeon is participating. If so, bundle participants should know how much they can earn, what performance targets must be met in order to earn a share of the savings, how much they could lose if performance targets are not met, and that the gainsharing agreement is legally sound.

Risk Adjustment: Risk adjustment is a statistical process used to identify and adjust for variations in patient severity of illness. It could take into account differences in patient demographics, co-morbidities, geographic location, socioeconomic status, and so on. Proper risk adjustment ensures that providers are compensated for treating patients with more complex conditions. Risk adjustment is a complicated concept and surgeons should evaluate the strength of the risk adjustment of a bundled payment arrangement or have some other assurance that the agreement is adequately risk adjusted before entering into a contract for bundled payment.

Bundled Payments and Accountable Care Organizations

Whereas both bundled payments and accountable care organizations (ACOs) seek to facilitate coordinated, integrated, and efficient care, these two alternative payment methodologies are not the same. Following is a brief comparison of the Medicare Shared Savings Program and the CMMI Bundled Payment Initiative as a way to highlights some of the differences.

Under the **Medicare Shared Savings Program**, ACOs are responsible for the health of a population, which is defined as patients who receive care from primary care physicians who are part of the ACO. All providers continue to be paid by Medicare through their normal payment methodology, fee-for-service. The ACO has incentives to implement care management processes that improve the health of the population while maintaining quality and reducing cost. When a minimum savings amount is attained, the ACO and Medicare will share in the savings. An ACO is also required to be established as a unique legal entity.

Rather than focusing on the care of a population, the CMMI **Bundled Payment** Initiative focuses on improving efficiency and thereby reducing hospital, physician, and/or postacute care utilization for defined episodes of care. Assuming legal barriers to gainsharing have been overcome, under the CMMI Bundled Payment Initiative, the bundle participants may share in the savings but need not share the savings with Medicare. A bundled payment contracting organization will be required to accept a discounted payment for all providers involved. A payment for the episode will be made by CMS directly to the contacting organization, which is responsible for dividing the payment among the physicians, hospitals, and/or other providers involved. The providers will not be paid directly by CMS using fee-for-service. Therefore, the bundled payment contracting entity will adjudicate payments to these providers according to the methodology determined by that entity. Organization as a separate legal entity is not required.

TEN QUESTIONS TO CONSIDER REGARDING BUNDLED PAYMENT

Following is a summary of the information contained in this *Primer* in the form of questions to consider regarding bundled payment.

1. Is the bundle centered on a procedure or a condition?
2. What services are included in the bundle?
3. Are the costs of the services provided and ordered by the surgeon relatively stable if different episode lengths are considered?
4. What is the timeframe of the bundle?
5. Will adequate, appropriate, and analyzable data be available before and during the bundled payment arrangement?
6. What quality measures will be included in the bundle?
7. What entity will administer the bundle? What attribution methodology will be used?
8. Will there be gainsharing? If so, how much could surgeons earn or lose?
9. Is the bundle properly risk-adjusted?
10. How will the care be monitored to reduce unnecessary services?

ADDITIONAL RESOURCES

CMS ACE Demonstration:
cms.gov/Medicare/Demonstration-Projects/DemoProjectsEvalRpts/Medicare-Demonstrations-Items/CMS1204388.html

CMMI Bundled Payments for Care Improvement Initiative:
innovation.cms.gov/initiatives/bundled-payments/index.html

Geisinger and ProvenCare:
geisinger.org/provencare/

BlueCross BlueShield of Massachusetts Alternative Quality Contract:
bluecrossma.com/visitor/pdf/alternative-quality-contract.pdf

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17. *Id at 5*.
18. *Id*.

ADDENDUM A: SURGICAL BUNDLED CARE PROJECT

Background

Given the increased focus on bundled payment as an approach to payment reform, the American College of Surgeons (ACS) General Surgery Coding and Reimbursement Committee (GSCRC) formed a workgroup to develop a process for creating clinically coherent bundled payment models and analyzing the potential opportunities and barriers in a bundled payment model. The workgroup is composed of surgeon experts in quality and coding and reimbursement methodology. The surgeons are clinically active in the fields of general, pediatric, vascular, laparoscopy/endoscopy, breast, colorectal, trauma, oncology, and transplantation.

The workgroup's tasks included: (1) determining the resources and expertise necessary for developing clinically coherent surgical bundles; (2) developing general principles regarding the selection, optimal structure, and function of surgical bundles; (3) providing robust guidelines about which procedures or condition characteristics must be present to construct a usable bundle; and (4) providing insight about which characteristics might make a procedure or condition a poor candidate for a bundled payment model. Although the Congressionally mandated and private sector bundled payment initiatives served as context, the GSCRC Surgical Bundled Care Project was not tailored to any specific initiative.

This addendum describes how the workgroup selected procedures to bundle, how the workgroup selected codes to include in the bundles, and the take-aways from the GSCRC Surgical Bundled Care Project.

Selected Procedures/Conditions

Typically, the creation of a bundle first requires the determination of whether to center the bundle on a *procedure* or a *condition*. The GSCRC focused on a third alternative: the creation of a *condition-specific procedure bundle*. This hybrid bundle was required because of the need to crosswalk codes between hospital- and physician-based coding systems as a way to determine what services would be included in the bundle. The GSCRC found that this crosswalking was best achieved by focusing on a procedure *within* the context of a specific condition.

The GSCRC next created a list of criteria to determine which procedures would be appropriate candidates for bundling. Surgical procedures for bundled payment should have many or all of the 12 criteria shown in Table 1.

TABLE 1: CRITERIA FOR SELECTING SURGICAL PROCEDURES FOR BUNDLED PAYMENT (SOURCE: GSCRC)

1.	Adequate and relevant data for analyses
2.	Elective, nonemergent procedures
3.	High volume, high expenditure
4.	Procedures performed across the country and not isolated to only certain areas or institutions
5.	Existence of evidence-based or appropriateness criteria
6.	Established measureable processes of care or performance measures
7.	Ability of the surgical patient or outcomes to be risk adjusted
8.	Measureable variation in resource use
9.	Opportunity for cost savings
10.	Reasonable predictability of costs
11.	Low vulnerability to CPT/ICD/DRG upcoding or miscoding
12.	Include the involvement of multiple providers in the delivery of care

Based on these criteria, the GSCRC selected two procedures to frame candidate bundles: **colon resection for colon cancer** and **mastectomy for breast cancer**. These procedures were selected because they are high volume, widely performed, involve several medical and surgical specialties during the episode, have established processes of care to monitor quality of care, and are generally elective, nonemergent procedures. In addition, because these procedures are common in the elderly, they have the added advantage of abundant Medicare Part A and Part B data.

Episode Periods

The GSCRC sought to select an episode period for each procedure that was broad enough to capture utilization and cost variation, yet narrow enough so that the key physicians involved could influence the care provided and that accurate attribution of this influence was possible. As such, the GSCRC examined data associated with four potential episode periods:

- Three days preadmission and 30 days postdischarge
- 30 days preadmission and 30 days postdischarge
- Three days preadmission and 90 days postdischarge
- 30 days preadmission and 90 days postdischarge

Data

The GSCRC utilized the Medicare Provider Analysis and Review (MedPAR) Limited Data Set file with 5 percent claims (LDS 5% file) as core data and the Medicare Limited Data Set Date file (LDS Date file), both from 2009. The LDS Date file contains de-identified beneficiary level health information. These CMS data sets are publicly available, subject to privacy release approvals. The analysis was restricted to beneficiaries with both Medicare Parts A and B and did not include data related to Medicare Parts C or D. The GSCRC also used the Berenson-Eggers Type of Service (BETOS) codes and descriptions to help analyze groups of Current Procedural Terminology (CPT)* codes. CMS developed the BETOS coding system to analyze growth in Medicare expenditures. The BETOS coding system assigns every Level I and Level II Healthcare Common Procedure Coding System (HCPCS) code to a single BETOS code, which represents a clinical category.

The LDS data that the GSCRC utilized had inherent limitations. Because it was not possible to obtain entire files on each patient, the findings were based on the use of proxies, and the GSCRC had to make assumptions to map services back to a particular patient.

**All specific references to CPT (Current Procedural Terminology) codes and descriptions are © 2008 American Medical Association. All rights reserved. CPT is registered trademark of the American Medical Association.*

Selected Codes and Methodology

The GSCRC sought to obtain Medicare claims data on all services that are performed for patients receiving colon resection for cancer and mastectomy for cancer. The initial goal was to identify all of the care provided to patients who received a colon resection specifically for colon cancer and a mastectomy specifically for breast cancer. The GSCRC used the following steps to identify this care:

1. The GSCRC selected specific CPT codes, International Classification of Diseases, Ninth Revision (ICD-9) codes, and the related Medicare Severity-Diagnosis Related Groups (MS-DRGs) (the GSCRC collectively referred to these as "index codes") for the purposes of identifying cases of colon resection and mastectomy for which all Part A and Part B claims to be collected from the data.
2. The "index" CPT and ICD-9 codes were also used to cross-reference and confirm the selection of "index" MS-DRGs into which colon resections or mastectomies fall.
3. The cases in the LDS 5% file associated with the "index" MS-DRGs were then further refined to only include the beneficiaries with admissions and discharges that occurred during a time window that would capture the spectrum of services received during the course of treatment.
4. With this inventory of services (listed by BETOS code description), the workgroup could determine which services provided might appropriately be included in the candidate colon resection for cancer or mastectomy for cancer bundles.

Findings

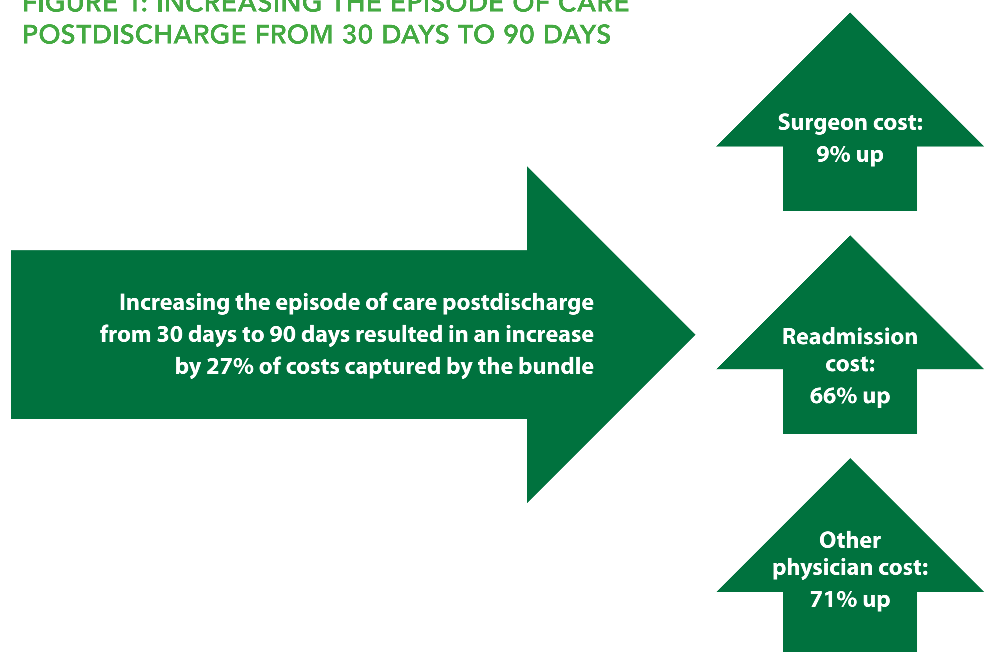
The GSCRC analyzed the data and identified several broad findings. Colon resection for cancer is addressed here. Mastectomy for cancer is adderessed starting on page 20.

Colon Resection for Cancer:

Three of the broad findings related to the colon resection for cancer include:

1. The **core procedure costs** and **surgeons' fees** were relatively stable regardless of the length of time of the episode period.
2. **Postdischarge care** and **readmissions** accounted for large variations in cost when the episode was expanded. Based on the available data, the GSCRC found that *increasing the episode of care postdischarge from 30 days to 90 days resulted in an increase by 27 percent of costs captured by the bundle*. This overall increase is broken down by: surgeon cost (up 9 percent), readmission cost (up 66 percent), and other physician costs (up 71 percent), shown in Figure 1.

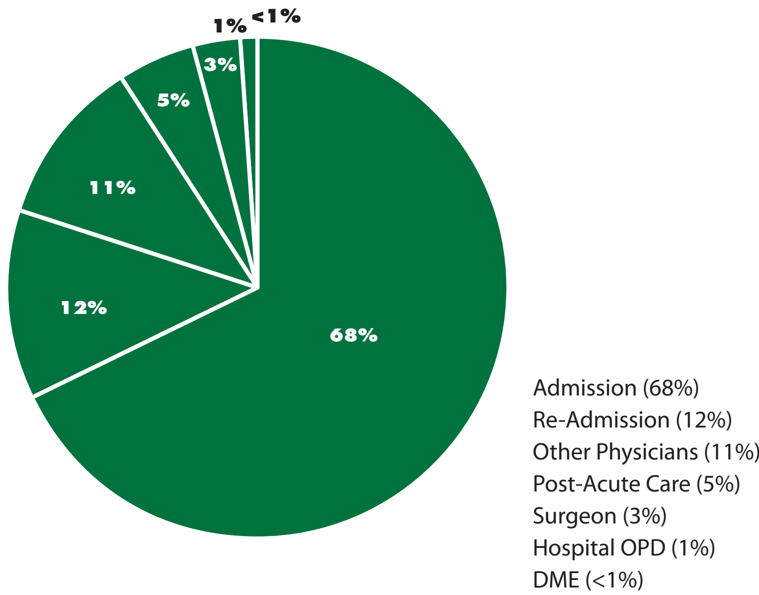
FIGURE 1: INCREASING THE EPISODE OF CARE POSTDISCHARGE FROM 30 DAYS TO 90 DAYS



3. Regardless of the length of the episode period, the most costly service (as defined by BETOS description) for colon resection for cancer was not payment for the surgical procedure itself but for "*hospital visit–subsequent*," with internal medicine providing the plurality of those services.

FIGURE 2: DISTRIBUTION OF OVERALL COST PER COLON RESECTION FOR COLON CANCER EPISODE

(Three Days Preadmission/30 Days Postdischarge)

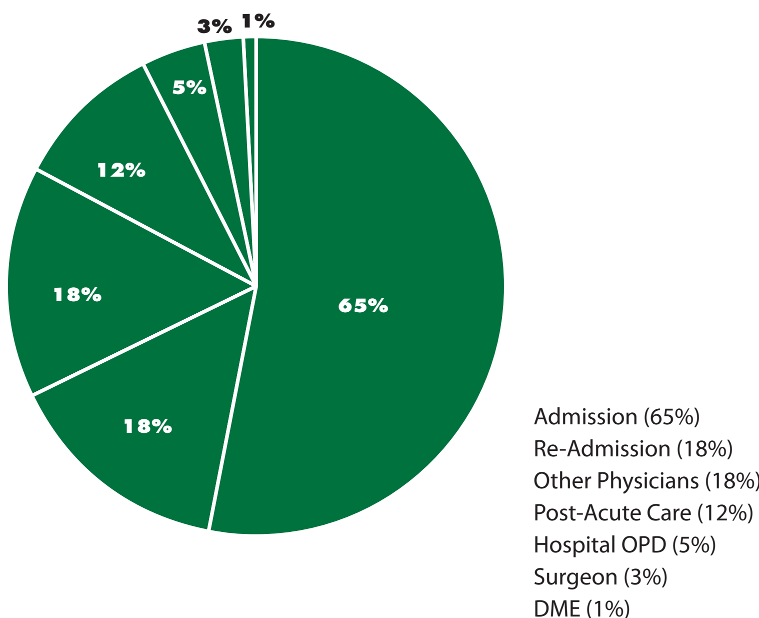


Admission (68%)
Re-Admission (12%)
Other Physicians (11%)
Post-Acute Care (5%)
Surgeon (3%)
Hospital OPD (1%)
DME (<1%)

Figure 2 shows overall Part A and Part B spending for a colon resection episode of three days preadmission/30 days postdischarge. Looking at all Part A and Part B spending for these cases, the payments made to the surgeon only account for 3 percent of the overall spending.

FIGURE 3: DISTRIBUTION OF OVERALL COST PER COLON RESECTION FOR COLON CANCER EPISODE

(30 Days Preadmission/90 Days Postdischarge)



Admission (65%)
Re-Admission (18%)
Other Physicians (18%)
Post-Acute Care (12%)
Hospital OPD (5%)
Surgeon (3%)
DME (1%)

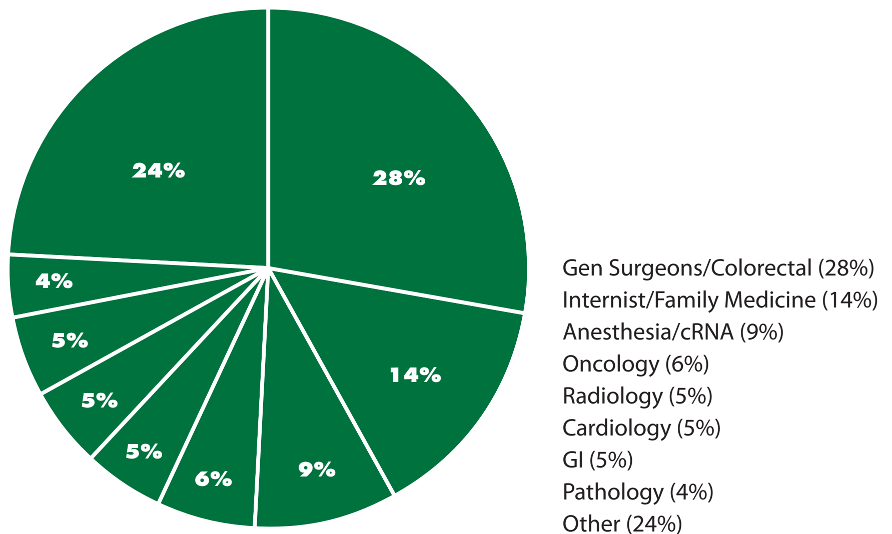
Figure 3 shows overall Part A and Part B spending for a colon resection episode of 30 days preadmission/90 days postdischarge. Note that the spending attributed to general surgeons and colorectal surgeons remains 3 percent, the same percentage in Figure 2. As the length of the episode increased, the percentage of cost attributable to the surgeon remained stable while the share of the spending attributable other physician spending, readmissions, and postacute care increased.

One of the challenges in this project was that although the selected colon resection for cancer MS-DRGs captured the majority of colon resections performed due to colon cancer, the sample still included some colon resections for other causes and diseases. Therefore, GSCRC performed a second round of analysis to determine the physician services for colon resection for cancer, specifically. Based on this second round of analysis specific to colon resection for colon cancer, GSCRC found that:

In the 30 days preadmission and 30 days postdischarge episode, *28 percent of the overall Part B payment for colon resection for colon cancer was for general surgeon or colorectal surgeon services*. Figure 4 shows the breakdown of the percentages of payments.

FIGURE 4: OVERALL PART B PAYMENT FOR COLON RESECTION FOR COLON CANCER

(30 Days Preadmission/30 Days Postdischarge)



In the 30 days pre-admission and 30 days post-discharge episode, the highest percentage of total billing (by major BETOS group) was *hospital visits*. Figure 5 shows the breakdown of payments.

FIGURE 5: OVERALL PART B PAYMENT FOR COLON RESECTION FOR COLON CANCER BY MAJOR BETOS GROUP

(30 Days Preadmission/30 Days Postdischarge)

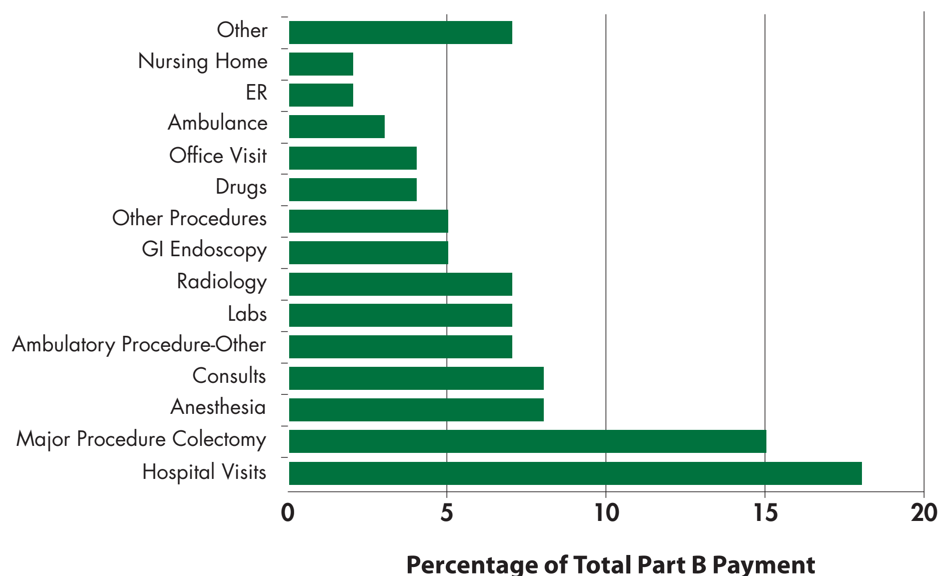
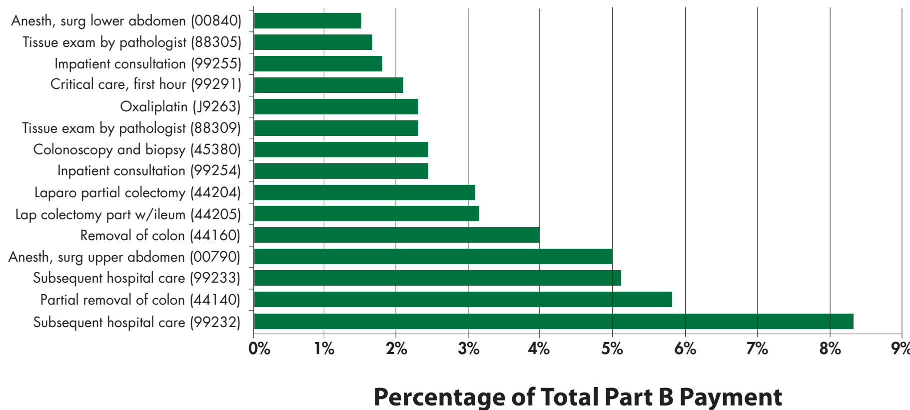


FIGURE 6: PERCENT OF PART B PAYMENT FOR TOP 15 CPT/HCPCS CODES FOR COLON RESECTION FOR CANCER

(30 Days Preadmission/30 Days Postdischarge)



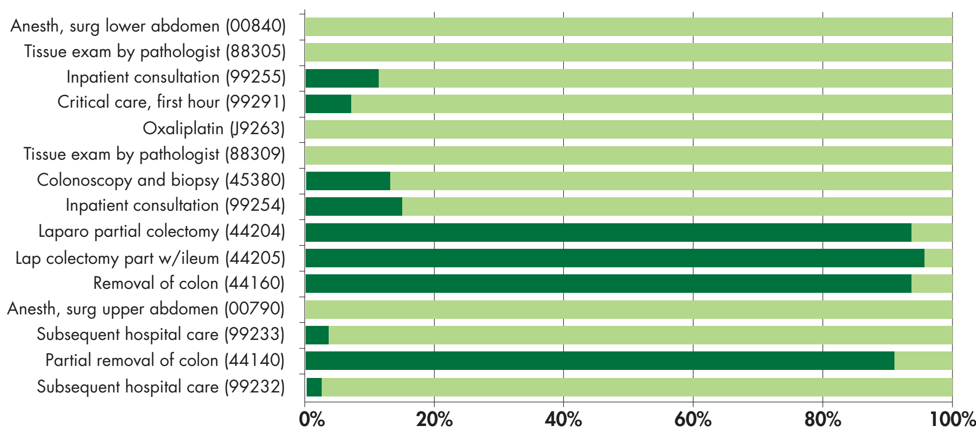
Percentage of Total Part B Payment

In the 30 days preadmission and 30 days postdischarge episode, payment for the top code was "*subsequent hospital care*," 99232. Figure 6 shows the breakdown of payment for the top 15 CPT/HCPCS codes in this episode.

The top 15 codes in Figure 6 represent approximately 51% of Part B payment for this colon resection for cancer episode.

FIGURE 7: PERCENTAGE OF PAYMENT FOR TOP 15 CPT/HCPCS CODES FOR GENERAL/COLORECTAL SURGEONS VERSUS OTHER PHYSICIANS

(30 Days Preadmission/30 Days Postdischarge)



Dark green is percentage of payment by code to colorectal surgeons and general surgeons.
Light green is percentage of payment by code to others.

Figure 7 shows the breakdown from Figure 6 of payments for the top 15 CPT/HCPCS codes in the 30 days preadmission and 30 days postdischarge episode. Figure 7 compares payments to general and colorectal surgeons with payments to all other physicians in the colon resection for cancer episode for each of the top 15 CPT/HCPCS codes.

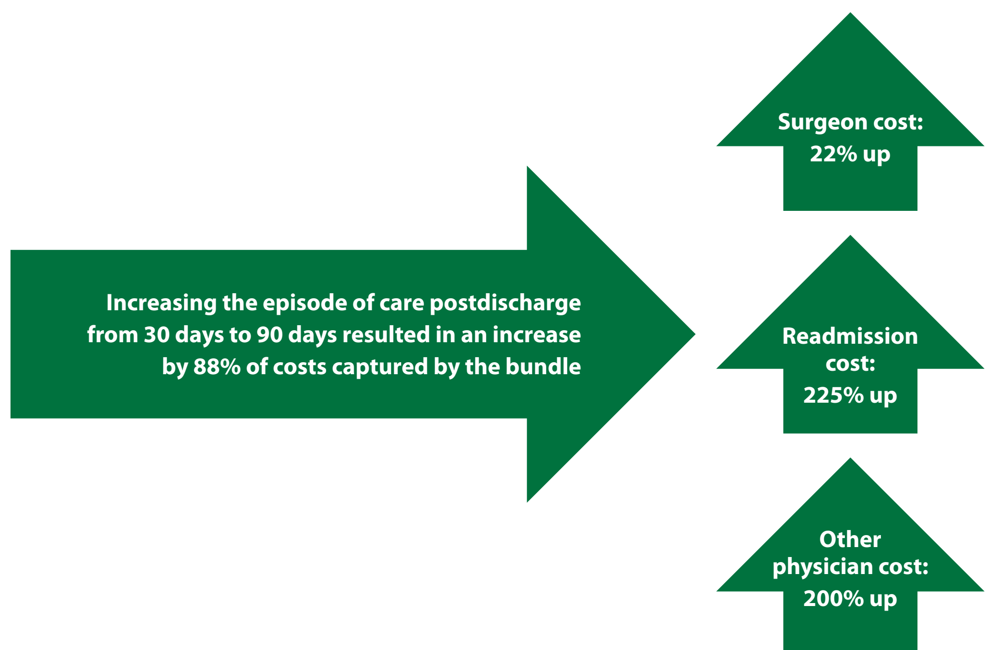
Mastectomy for Cancer

Because the CPT "index codes" included only a small percentage of partial mastectomies, the GSCRC was unable to conduct the analysis for partial mastectomy. Therefore, the GSCRC focused instead on only total mastectomies. Following are some of the broad findings related to total mastectomy for breast cancer.

1. As with colon resection for cancer, the **core procedure costs** and **surgeons' fees** for mastectomy for breast cancer were relatively stable regardless of the length of time of the episode period.
2. Also similar to colon resection for cancer, postdischarge care and readmissions accounted for large variations in cost when the episode was expanded. Based on the available data, the GSCRC found that *increasing the episode of care postdischarge from 30 days to 90 days resulted in an increase by 88 percent of costs captured by the bundle*. This overall increase is broken down by: surgeon cost (up 22 percent), readmission cost (up 225 percent), and other physician costs (up 200 percent), shown in Figure 8. Although the readmission **percentage increase** is large, the percent of readmissions compared with total cost in each episode period analyzed was relatively small: 30-day post-discharge readmissions were 6 percent, and 90-day postdischarge readmissions were 15 percent.

FIGURE 8: INCREASING THE EPISODE OF CARE POSTDISCHARGE

(From 30 Days to 90 Days – Mastectomy for Cancer)



3. The most costly BETOS category for the mastectomy cases was *"major procedure – breast."*

Unlike the colon resection for cancer analysis, the selected mastectomy for cancer MS-DRGs captured the majority (more than 95 percent) of total inpatient mastectomies performed due to breast cancer.

FIGURE 9: DISTRIBUTION OF OVERALL COST PER MASTECTOMY FOR BREAST CANCER EPISODE

(Three Days Preadmission/30 Days Postdischarge)

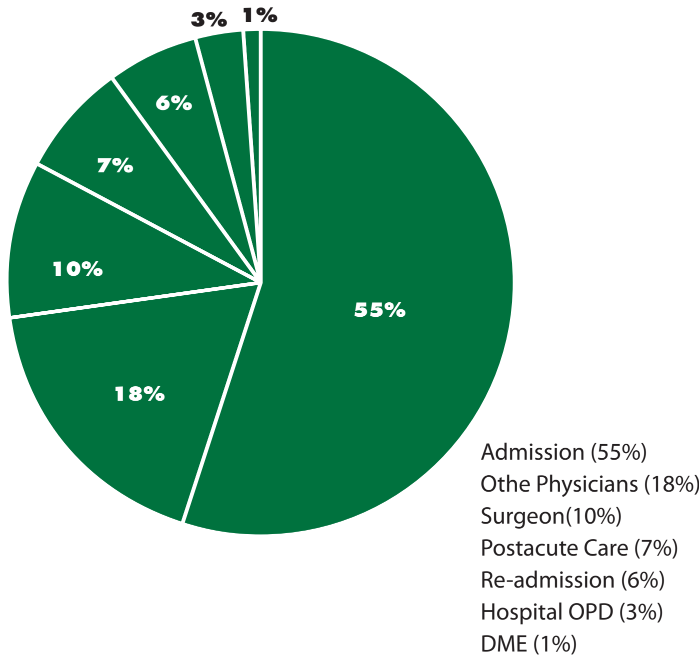


Figure 9 shows overall Part A and Part B spending for a mastectomy episode of three days preadmission/30 days postdischarge. Again, the costs attributable to the surgeon are relatively small, in this case only 10 percent of the overall A and B spending.

FIGURE 10: DISTRIBUTION OF OVERALL COST PER MASTECTOMY FOR BREAST CANCER EPISODE

(30 Days Preadmission/90 Days Postdischarge)

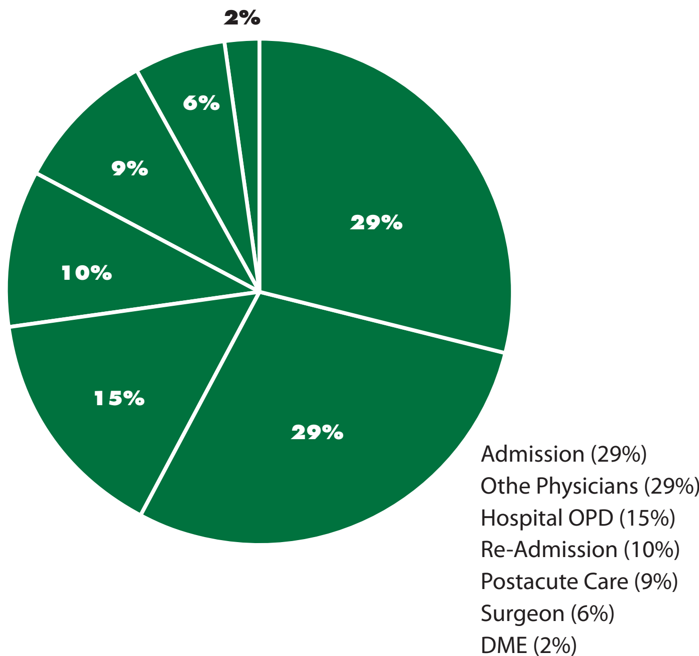


Figure 10 shows overall Part A and Part B spending for a mastectomy episode of 30 days preadmission/90 days postdischarge. As the episode length increased from the three day preadmission/30 day postdischarge window, the share of spending attributable to the surgeon decreased from 10 percent to 6 percent.

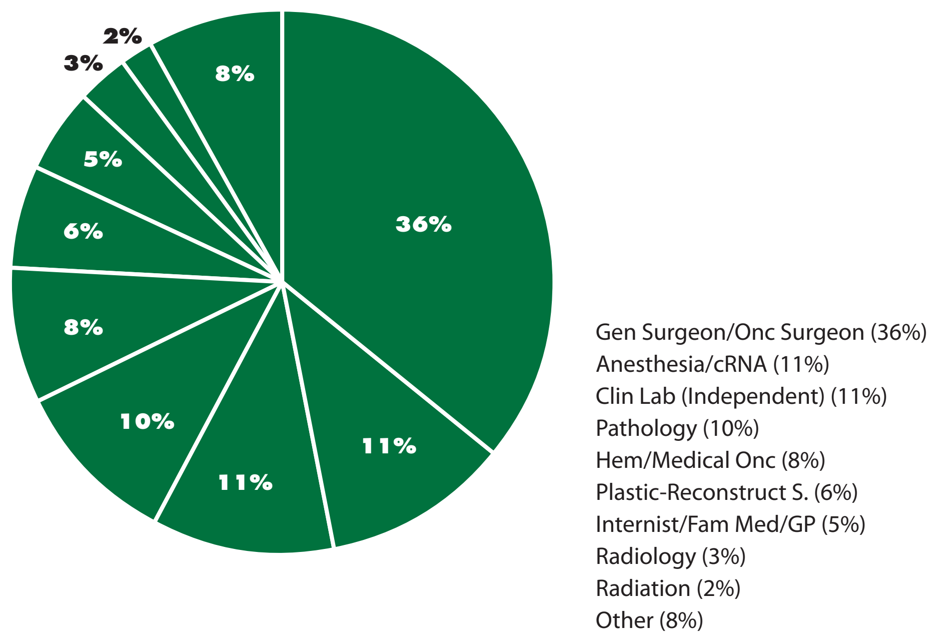
Note: Because the GSCRC used a crosswalk with DRGs, these data only include mastectomy cases that required an inpatient admission. The GSCRC believes this is an appropriate analysis because the bundling projects currently in existence and in development that the GSCRC reviewed (see the *Primer*) focus on inpatient bundling. In addition, a "condition-specific bundle" would begin to capture cases that do not necessarily require or result in an inpatient stay or surgical procedure, but capturing this type of data would be more difficult.

This analysis also found that:

In the three days preadmission and 30 days postdischarge episode, *36 percent of the overall Part B payment for mastectomy for breast cancer was for general surgeon or surgical oncologist services*. Figure 11 shows the breakdown of the percentages of payments.

FIGURE 11: OVERALL PART B PAYMENT FOR MASTECTOMY FOR BREAST CANCER

(Three Days Preadmission/30 Days Postdischarge)



In the three days preadmission and 30 days postdischarge episode, the highest percentage of total billing, by major Berenson-Eggers Type of Service (BETOS) group, was *major procedure breast*. Figure 12 shows the breakdown of payments.

FIGURE 12: OVERALL PART B PAYMENT FOR MASTECTOMY FOR BREAST CANCER BY MAJOR BETOS GROUP

(Three Days Preadmission/30 Days Postdischarge)

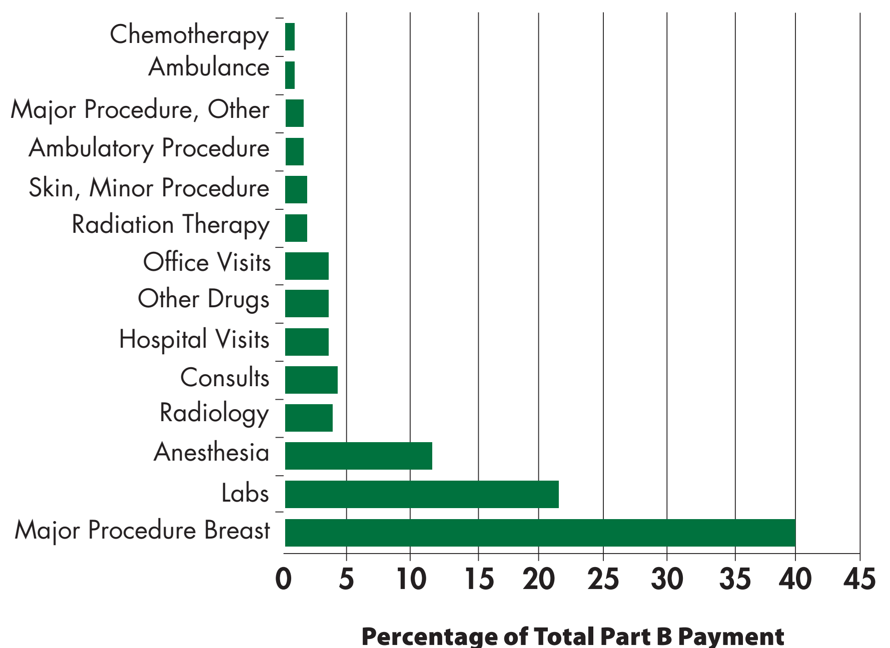
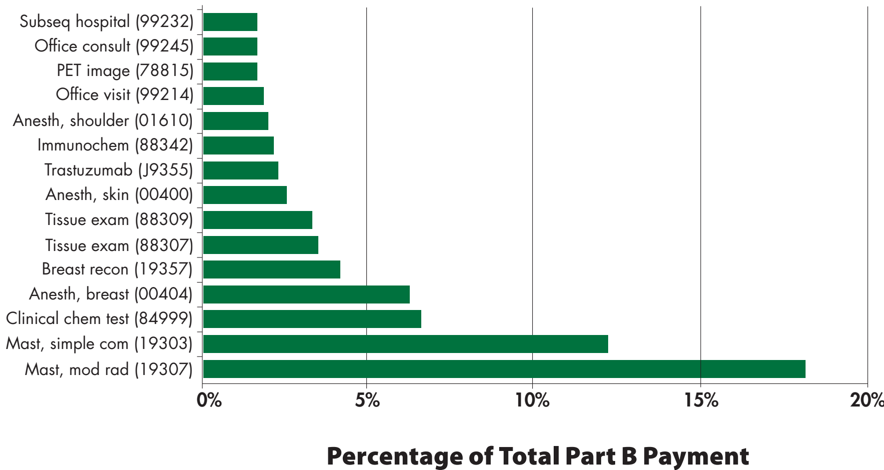


FIGURE 13: PERCENT OF PART B PAYMENT FOR TOP 15 CPT/HCPCS CODES FOR TOTAL MASTECTOMY

(Three Days Preadmission/30 Days Postdischarge)



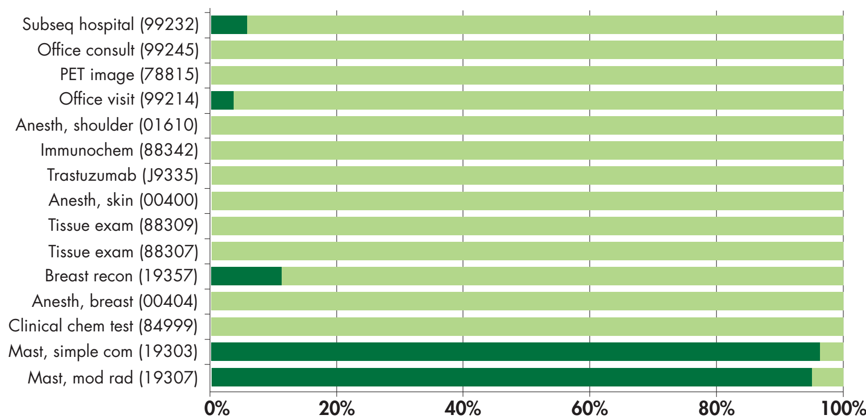
In the three days preadmission and 30 days postdischarge episode, payment for the top code was "*mastectomy, modified radical*," 19307. Figure 13 shows the breakdown of payment for the top 15 CPT/HCPCS codes.

The top 15 codes in Figure 13 represent approximately 63% of Part B payment for this total mastectomy episode.

Note: The analysis is based on 2009 data and does not include CPT codes established after 2009.

FIGURE 14: PERCENTAGE OF PAYMENT FOR TOP 15 CPT/HCPCS CODES FOR GENERAL SURGEONS/SURGICAL ONCOLOGISTS VERSUS OTHER PHYSICIANS

(Three Days Preadmission/30 Days Postdischarge)



Dark green is percentage of payment by code to general surgeons and surgical oncologists. Light green is percentage of payment by code to others.

Figure 14 shows the breakdown from Figure 13 of payments for the top 15 CPT/HCPCS codes in the three days preadmission and 30 days postdischarge episode. Figure 14 compares payments to general surgeons and surgical oncologists with payments to all other physicians in the total mastectomy episode for each of the top 15 CPT/HCPCS codes.

SUMMARY

The GSCRC Surgical Bundled Care Project to date has focused on the framework for constructing clinically coherent bundles. This data-driven methodology shows great promise to evaluate the extent of variation in costs within specific episodes of care for individual procedures linked to diagnoses. However, it is critical that the episodes selected have data metrics, clinical pathways, appropriateness criteria, and performance measures that allow for appropriate quality measurement.

Even in the simplest of scenarios, acquiring and analyzing the resources necessary to create a clinically coherent bundle is inherently difficult work. The investments and resources required will be challenging for many organizations, so policymakers must ensure that organizations with the expertise and interest have grant support and access to data and information needed to perform the requisite analyses. Bundled payment programs also present challenges in the development, attribution, accountability, and governance of the bundles.

The ACS remains committed to advocate that surgical bundles integrally include surgeons in those clinical decisions of development, clinical oversight, quality measurement, governance, and sensible payment models so that as these decisions are implemented, they will contribute to the creation of value and successful care for the surgical patient.

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