Seminars in Colon and Rectal Surgery 29 (2018) 51–54

Contents lists available at ScienceDirect

Seminars in Colon and Rectal Surgery

journal homepage: www.elsevier.com/locate/yscrs

The hospital-acquired condition reduction program for colorectal surgery: Current initiatives and implications for the future

Richard S. Hoehn, MD, Ian M. Paquette, MD*

Cincinnati Research in Outcomes and Safety in Surgery (CROSS), Department of Surgery, University of Cincinnati College of Medicine, Cincinnati, OH

ARTICLE INFO

Keywords:
Colorectal
Surgery
Policy
Payment

ABSTRACT

The 2010 Patient Protection and Affordable Care Act (PPACA)[1] sought to reform healthcare in the United States through a myriad of initiatives that included expanding health insurance accessibility, mandating coverage, revising and expanding a multitude of government programs, and incentivizing improved quality and value in healthcare delivery.[2] One initiative aimed at containing costs and improving patient outcomes is the Hospital-Acquired Condition Reduction Program (HACRP). Like the Hospital Readmission Reduction Program (HRRP), the goal of this program is to stratify hospitals based on their outcomes, in this case a composite score of multiple hospital-acquired conditions (HACs), and financially penalize the bottom performers. It is important for surgeons and hospitals understand the metrics behind these measures, and to lend a voice to the discussion of the benefits and alternative strategies to quality improvement.

Background

The 2010 Patient Protection and Affordable Care Act (PPACA)[1] sought to reform healthcare in the United States through a myriad of initiatives that included expanding health insurance accessibility, mandating coverage, revising and expanding a multitude of government programs, and incentivizing improved quality and value in healthcare delivery.[2] The Centers for Medicare and Medicaid Services (CMS) were empowered to spearhead many of these initiatives, both with programs described in the PPACA as well as with the CMS Innovation Center, which has been tasked with developing and testing innovative healthcare payment and service delivery models. One initiative aimed at containing costs and improving patient outcomes is the Hospital-Acquired Condition Reduction Program (HACRP). Like the Hospital Readmission Reduction Program (HRRP), the goal of this program is to stratify hospitals based on their outcomes, in this case a composite score of multiple hospital-acquired conditions (HACs), and financially penalize the bottom performers.

HACs have been targeted as a significant problem for patient outcomes as well as healthcare costs. In 2010, adult patients in the United States experienced 4.8 million HACs out of 32.8 million hospital discharges, approximately one out of every eight patients.[3] These events are expensive, ranging from $1000 for a catheter-associated urinary tract infection (CAUTI) to $21,000 for surgical-site infections (SSIs) and ventilator-associated pneumonia (VAP).[3] Countless studies have highlighted correlations between HACs and further complications, disability, and even mortality. Reducing HACs would not only impact health care expenditures but would also improve patient outcomes.

The hospital-acquired condition reduction program

The scoring system for the HACRP is complex, and detailed descriptions are available from a variety of resources,[4,5] but we will provide a brief overview for the purposes of this manuscript. Starting in fiscal year (FY) 2015 (discharges beginning 10/1/2014), all hospitals receiving Medicare payments were stratified according to a total HAC score. The measures used have expanded each year, and the most current measures are listed in Table 1. The Domain 1 score, which represents 15% of the total score, is a composite of the Patient Safety Indicator (PSI)-90 measures. Domain 2, representing 85% of a hospital's score, is an average of five common hospital-acquired infections (HAIs). Each measure gets a score from 1–10 (performance decile), which is used to calculate a final score, and hospitals in the 75th percentile (worst-performing quartile) are subjected to financial penalties.

The penalty is a 1% reduction in Medicare payments applicable to all discharges in that fiscal year. CMS controls a number of federal subsidies as well as payment penalties, which are delivered

Grants and financial support: none.
Conflicts of interest: none.

* Correspondence to: Division of Colon and Rectal Surgery, University of Cincinnati College of Medicine, 2123 Auburn Avenue, #524, Cincinnati, OH 45219. Tel.: +1 513 929 0104; fax: +51 513 929 4369.
E-mail address: ian.paquette@uc.edu (I.M. Paquette).

https://doi.org/10.1053/j.scrs.2018.01.002
1043-1489/

Table 1
Measures included in the Hospital-Acquired Condition Reduction Program (HACRP) FY2018 scoring system.

Domain 1: recalibrated patient safety indicator (PSI) 90 composite
PSI 03—pressure ulcer rate
PSI 06—iatrogenic pneumothorax rate
PSI 08—in-hospital fall with hip fracture rate
PSI 09—perioperative hemorrhage or hematoma rate
PSI 10—postoperative acute kidney injury requiring dialysis rate
PSI 11—postoperative respiratory failure rate
PSI 12—perioperative pulmonary embolism or deep vein thrombosis rate
PSI 13—postoperative sepsis rate
PSI 14—postoperative wound dehiscence rate
PSI 15—unrecognized abdominopelvic accidental puncture/laceration rate
Domain 2: Centers for Disease Control and Prevention (CDC) National Healthcare Safety Network (NHSN) Healthcare-Associated Infection (HAI) measures
Central-Line-Associated Bloodstream Infection (CLABSI)
Catheter-Associated Urinary Tract Infection (CAUTI)
Surgical Site Infection (SSI) (colon and hysterectomy)
Methicillin-resistant *Staphylococcus aureus* (MRSA) bacteremia
Clostridium difficile infection (CDI)

in the form of payment adjustments to hospitals. CMS adjusts their payments in the following order: disproportionate share hospital and indirect medical education, Hospital Value-Based Purchasing Program (VBP) and HRRP payment adjustments (if applicable), and then HACRP payment reduction (if applicable).

In FY 2015 there were 724 hospitals in the lowest performance quartile, receiving a 1% CMS payment reduction.[6] In FY 2016 that penalty was assigned to 758 hospitals. CMS estimates their savings in FY 2016 as a result of this program to be $364 million.[6] While 54% of hospitals penalized in FY 2015 were penalized again in FY 2016,[3] CMS highlights that that performance nationwide improved in two of the three measures used in the first 2 years.[6]

Hospitals receiving penalties

Several concerning trends have emerged from the early results of the HACRP. Surprisingly, several well-known and highly esteemed institutions were among those receiving penalties. In FY 2016, Brigham and Women's, Northwestern, Mayo Clinic, Barnes Jewish, and Cleveland Clinic were all in the lowest quartile of hospitals in the country.[7] These hospitals joined other lesser-known institutions in this ranking. Rajaram et al.[8] found hospitals that were penalized by the HACRP had more quality accreditations, offered more advanced services, and performed better on commonly accepted process and outcome measures. For a program designed to stratify hospitals based on quality, this seemed inconsistent.

Teaching hospitals in general have been identified by several studies as disadvantaged by the HACRP.[8–10] Urban teaching hospitals make up 45% of hospitals receiving HACRP penalties but represent only 29% of hospitals overall.[10] Among members of the Council of Teaching Hospitals, 55% received penalties compared to 19% of nonmembers.[8] Existing literature on the relationship between hospital teaching status quality go both ways, with recent evidence suggesting a positive correlation.[11] Moreover, large teaching hospitals provide the majority of complex surgical care in the country[12] and are responsible for training the next generation of doctors. Therefore, the methods of a program that disproportionately penalizes these centers may warrant reevaluation.

Safety-net hospitals are another group that has been adversely targeted by the HACRP.[8,9,13] Despite incurring a greater proportion of penalties for HACs, safety-net hospitals had mortality rates that were the same or lower than other hospitals for common medical conditions.[13] Gilman et al.[14] found that safety-net hospitals in California were more likely to be penalized under HRRP and other quality improvement programs, despite having lower costs and mortality rates than non-safety-net hospitals. Penalizing hospitals that care for poor, vulnerable patients and already suffer a financial disadvantage due to payer mix will only serve to widen disparities in care that already exist.

Using data from CMS, Ashish Jha has estimated that the likelihood a large, urban, public, teaching hospital with poor patients gets a penalty due to the HACRP is 62%.[9] Conversely, a small, rural, for-profit, non-teaching hospital with few poor patients has a 9% chance of receiving a penalty. These discrepancies and trends are similar to the HRRP, which uses similar methodology to penalize hospitals based on readmission rates.[15]

There are several possible explanations for these discrepancies, mostly revolving around hospital characteristics that may confound the ranking methodology. For one, hospitals accredited by the Joint Commission or those that participate in registries are required to have a rigorous outcome reporting, and this may disadvantage them when it comes to federal quality programs such as the HACRP.[8] Hospitals also vary widely in the use and capability of an electronic medical record, which influences surveillance of outcomes. Also poorer hospitals or those with an inferior payer mix are limited in their ability to invest in coding and billing infrastructure, which likely results in "undercoding" patient severity, and thus underperforming on risk adjusted outcomes. Finally, inadequate methodology and inadequate risk adjustment could have a significant influence on hospital rankings, and these will be addressed in the following section.

Criticisms of the HAC reduction program methodology

Not surprisingly, a financially punitive program of this scope has garnered some criticism. Some feel that the outcome measures are deficient.[3] For instance, the HACRP scoring currently does not include ventilator-associated events, which can have a substantial influence on patient cost and survival. Important complications

Table 2
NNIS risk adjustment model comparison.[22,23,29]

NNIS	NHSN	NSQIP
ASA class	Diabetes	Age > /= 75 y
Wound class	ASA class	Diabetes with medication
Operative time	Gender	> 2 Alcohol drinks per day
	Age	Functional status
	BMI > / < 30	ASA class
	Closure technique	Open/laparoscopic approach
	Oncology hospital (yes/no)	Stoma closure
		BMI
		Preoperative hematocrit
		Smoking status
		Disseminated cancer
		Intraoperative transfusion