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The Medicare Policy of Payment Adjustment for Health Care-Associated Infections: Perspectives on Potential Unintended Consequences

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Abstract

In 2008, the Centers for Medicare & Medicaid Services introduced a new policy to adjust payment to hospitals for health care-associated infections (HAIs) not present on admission. Interviews with 36 hospital infection preventionists across the United States explored the perspectives of these key stakeholders on the potential unintended consequences of the current policy. Responses were analyzed using an iterative coding process where themes were developed from the data. Participants' descriptions of unintended impacts of the policy centered around three themes. Results suggest the policy has focused more attention on targeted HAIs and has affected hospital staff; relatively fewer systems changes have ensued. Some consequences of the policy, such as infection preventionists having less time to devote to HAIs other than those in the policy or having less time to implement prevention activities, may have undesirable effects on HAI rates if hospitals do not recognize and react to potential time and resource gaps.

Keywords

health care quality; health care-associated infections; Medicare

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Background

In U.S. hospitals, roughly 1.7 to 2 million health care-associated infections (HAIs) occur annually (Jarvis, 2007; Klevens et al., 2007), resulting in approximately 99,000 deaths and an estimated cost of \$17 to \$29 billion (Dimick et al., 2001; Jarvis, 2007; Klevens et al., 2007; Stone, Hedblom, Murphy, & Miller, 2005; Warren et al., 2006; Whitehouse, Friedman, Kirkland, Richardson, & Sexton, 2002). Because of HAIs' significant health and economic burdens, their prevention has been identified as a major patient safety and public health issue (Burke, 2003; Gerberding, 2002; Leape et al., 1991; Pittet & Donaldson, 2006). This has led accrediting agencies, payers, state legislatures, and quality improvement organizations to focus substantial effort on reducing HAIs through increased emphasis on measurement and reporting efforts (Fong et al., 2007; Graves & McGowan, 2008; Griffin, 2007; Stricof, Schabases, & Tserenpuntsag, 2008).

Following this trend, in late 2008 the Centers for Medicare & Medicaid Services (CMS) adjusted its payment policy regarding HAIs. Under the 2008 CMS policy, hospitals no longer receive payment for certain clinical complications deemed preventable. Specifically, the policy denies additional payment for central line associated bloodstream infections (CLABSIs), catheter-associated urinary tract infections (CAUTIs), and certain surgical site infections (SSIs) such as mediastinitis after coronary artery bypass graft procedures, if these are documented during the hospital stay and were not present on admission. While the policy's intention is clear—to align incentives by preventing hospitals from receiving higher reimbursement for potentially preventable complications—concerns were raised both prior and subsequent to its implementation regarding its possible *unintended* consequences. That is, as the CMS policy affects myriad hospitals, it may exert influence more broadly than its original intent.

Various experts in the field have outlined a number of unintended consequences that are of potential concern with the nationwide implementation of the CMS policy (Pronovost, Goeschel, & Wachter, 2008; Saint, Meddings, Calfee, Kowalski, & Krein, 2009; Stone et al., 2010; Wachter, Foster, & Dudley, 2008). For example, hospitals may use screening cultures more frequently on admission, increase prophylactic prescribing of antibiotics, change compliance with practice guidelines, or avoid admitting patients they perceive at highest risk for HAIs. In addition, although the implication of the policy is that all infections are preventable, not all infections are preventable to the same degree (Brown, Doloresco, & Mylotte, 2009). This may affect hospitals in various ways, including in cross-hospital comparisons. For instance, in the face of real or potential loss of income because of the new Medicare policy, some hospitals may implement billing coding mechanisms designed to augment hospital reimbursement, including “up-coding” (i.e., attempting to increase reimbursement by identifying additional diagnoses, or attempting to order codes in ways that maximize reimbursement). Furthermore, some hospitals may adopt workarounds designed to limit or minimize the impact of the policy without reducing infection rates. While these are all theoretically possible consequences, the impact of how hospitals have implemented the policy to date has not been systematically studied.

Therefore, we designed a qualitative study to explore hospitals' impressions of and reactions to the 2008 CMS policy. In part, our study examined the range of possible consequences stemming from everyday implementation of the policy within hospitals, the focus of this article. To investigate a large variety of ways in which the policy's effects may be playing out, we conducted an in-depth examination of perceptions among lead infection preventionists (IPs) at 36 nonfederal, acute care hospitals. We explored IPs' views of how the 2008 CMS policy has affected hospitals thus far in terms of infection prevention, focusing particularly on unanticipated consequences. IPs were chosen as the key informants because they are positioned at the epicenter of the policy's effects within hospitals. They have the most comprehensive knowledge about the influence of the policy on infection prevention practices, as they are responsible for monitoring infections throughout the facility and are not beholden to the culture of a particular unit. Understanding IP views can provide pivotal information on how hospitals adapt to the new policy over time.

New Contribution

This study contributes to the limited literature pertaining to the perceptions and effects of the 2008 CMS policy. We do not yet know what the larger consequences of this policy will be; hence, preliminary qualitative work such as this is needed to explore its current implementation and to generate directions for future research as CMS and hospitals both move forward (Stone et al., 2010). Whereas other studies on the 2008 CMS policy have only speculated on its impact (Mookherjee et al., 2010; Saint et al., 2010), this study approached the policy in a unique manner. Our use of qualitative methods allowed us to generate in-depth insights about in-the-field perceptions of potential unintended consequences currently occurring at facilities. Interviewing a cross-section of key infection prevention personnel in hospitals nationwide provided us with an insider's view of the effect of the policy on actual hospital practices. It also allowed us to supplement the theoretical knowledge that has been obtained to date through expert opinion, reviews, and surveys.

The perspectives of IPs are valuable not only because IPs are frequently at the center of hospital infection surveillance and prevention but also because, as such, their role is significant in the actual implementation of infection prevention practices that the policy is designed to influence. For example, overburdening IPs with documentation activities that limit their ability to spend time educating frontline staff is not simply an inconvenience to individual IPs. It has the potential to diminish the effect of the policy itself at the hospital level. Therefore, it is important to tap into the knowledge and perceptions of these key informants, to understand what they observe as changes both in their environment and in their daily work routines.

Conceptual Framework

Our study was guided by the current understanding of pay-for-performance (P4P) programs. While many programs focus on the "carrot" (i.e., payment) rather than the "stick" (i.e., nonpayment, as the 2008 CMS policy does) to stimulate performance improvement, the overarching goal of any P4P program is aligning financial incentives with quality performance. The P4P literature emphasizes that context plays a large role in influencing the outcomes of programs and that these outcomes are not always predictable (Karve, Ou, Lytle,

& Peterson, 2008; Krein et al., 2010; Rosenthal, Frank, Li, & Epstein, 2005). Numerous factors may influence the trajectory of P4P programs, such as the size of the program's financial impact; the number and type of measures used to determine payment/nonpayment; the existing quality improvement infrastructure of the facility; the number and type of patients seen at a facility; the response of the facility to the incentive/disincentive; and the understanding and acceptance of and commitment to the program by facility employees (Christianson, Leatherman, & Sutherland, 2008; Conrad & Christianson, 2004; Young, Burgess, & White, 2007). Therefore, while a program may have uniform goals across facilities, its day-to-day implementation may lead to greatly varying consequences. In addition, the P4P literature also indicates that the consequences of programs are not always confined to intended goals. Among many possible unintended effects, P4P programs may result in misallocating organizational resources and clinician time, avoiding sicker patients, playing to the measure rather than focusing on the patient, and increasing unnecessary care and medical costs (Bozic, Smith, & Mauerhan, 2007; Casalino, 1999; Lindenauer et al., 2007; Snyder & Neubauer, 2007). Thus, we set out to explore the following research questions from the perspective of IPs. What are the potential unintended consequences of the 2008 CMS policy that hospitals are experiencing? What impact are these unintended consequences having on hospitals in general and on infection prevention specifically?

Method

Target Population and Recruitment Strategy

We purposively sampled hospitals from the American Hospital Association (AHA) database, stratifying by key hospital characteristics. Hospitals were excluded from sampling if the CMS policy was not applicable (i.e., federal, pediatric, specialty, and critical access hospitals) or was anticipated to have limited impact (i.e., hospitals with fewer than four adult ICU beds). Hospitals were stratified based on bed size and nurse staffing levels, since resources for IPs may vary by hospital size (Anderson et al., 2007; O'Boyle, Jackson, & Henly, 2002) and prior research has linked hospital workload, such as patient-to-nurse ratio, to the likelihood of an adverse event (Fridkin, Pear, Williamson, Galgiani, & Jarvis, 1996; Lang, Hodge, Olson, Romano, & Kravitz, 2004; Unruh, 2003; Weissman et al., 2007). We classified bed size as large (>400 beds), mid-size (100–400 beds), and small (<100 beds). We classified nurse staffing levels as RN (registered nurse) hours per patient day based on the AHA database. For descriptive purposes, other hospital characteristics included geographic location, average length of inpatient stay, and proportion of hospital discharges among Medicare-insured patients.

Recruitment was conducted between September 2009 and February 2010. Within each stratum, key leaders in the field of infection prevention were identified through a national organization of professionals dedicated to infection control and prevention. Individuals were mailed an initial invitation letter (based on information from the AHA database) with a small incentive (a box of cookies) as a token of appreciation. Follow-up was conducted via phone and e-mail to solicit interest and schedule interviews. The study protocol was approved by the institutional review boards of the Bedford VA Medical Center, Harvard Pilgrim Health Care, and the State University of New York at Albany.

Semistructured Interview Content

We conducted semistructured telephone interviews with participants using open-ended questions and follow-up probes. We based the content of our interview guide on issues identified in the existing literature as being important to the implementation of the 2008 CMS policy in hospitals. The policy specifically targets the following HAIs: CAUTIs, CLABSIs, mediastinitis after coronary artery bypass graft CABG surgery, and SSIs after certain orthopedic procedures or after bariatric surgery for obesity. We therefore asked participants to focus their answers on consequences related to these conditions. Interviews probed participants' impressions of the following, drilling down in each area using topic-specific probes: hospital-specific HAI best practices, general opinions about the 2008 CMS policy, opinions of the specific HAIs covered in the policy, views on how the hospital has responded to the policy, impressions of consequences of the policy (including barriers to implementation and effects of implementation on staff, infection control, finances, and outcomes), and concerns about the policy. To minimize both potential social desirability bias and a reluctance on the part of participants to report on anything at their facilities perceived as possibly negative, we began the interview with more general questions. We asked more sensitive questions toward the middle and end of the interview, to give interviewers time to build rapport with the respondent. We also introduced the study by emphasizing the confidentiality of responses.

Data Collection and Analysis

Two authors (CH and TH) conducted interviews with 36 IPs. Interviews lasted an average length of 48 minutes (range: 26–66 minutes). Participants provided information about personal characteristics (age, duration of experience in infection control, and current hospital position). All interviews were recorded and transcribed verbatim.

Data were analyzed with Atlas.ti (Version 6.1.1.) using a constant comparative approach to identify salient themes that emerged from the interviews (Charmaz, 2006; Strauss & Corbin, 1998). Two authors (CH and TH) coded the data and reviewed each other's coding lists in an iterative process. Data were reanalyzed as additional codes were added to the coding scheme. To provide additional validation, at the mid-point of data analysis, a third author (GL) reviewed a sample of 13 interviews and provided input into the coding scheme. All discrepancies were resolved through discussion among the three authors (CH, TH, and GL), and the resultant scheme was used to review the previous interviews and code subsequent ones. As coding progressed, codes were grouped into emerging themes by two authors (CH and TH), and the interpretations were validated through iterative discussion with the third author (GL). Through these discussions, several themes surfaced relating to the unintended consequences of the policy based on mutually exclusive groups of codes. These themes are the topic of this article.

Key Findings

A total of 36 IPs from 36 different hospitals participated in our interviews. The 28 reporting participants ranged in age from 39 to 64 years and had from 1 to 39 years of experience

working in infection prevention. The facilities were located in 24 states and represented all 4 census regions (see Table 1 for facility characteristics).

Our analysis revealed that respondents' perceptions of potential unintended consequences of the 2008 CMS policy grouped into three main themes: (a) Systems Changes, (b) Reallocation of Attention and Resources to HAIs Affected by Policy, and (c) Impact on Hospital Staff Activities and Expectations. Each of these themes overlapped with potential unintended consequences of the policy identified in the prior literature.

Systems Changes

We specifically asked participants about any changes they had noticed regarding clinical culturing or screening for HAIs on admission, given the 2008 CMS policy's focus on HAIs not present on admission. Many participants noted that this type of prophylactic approach could potentially be implemented by hospitals in reaction to the policy. A few participants indicated having knowledge of such changes at their facility.

If you put a Foley catheter in a patient on admission ... you automatically get a UA [urine analysis]. And before [the policy], we weren't doing that, so that's been a learning curve for a lot of the nurses, to learn "I have to do that on admission." A lot of our doctors who are admitting automatically get a UA on a patient when they come in ... [Since the implementation of the policy] they [the doctors] seem to be much more careful to check for an existing UTI before the patient's been here a day or so. (IP #14)

However, more participants stated clearly that such changes, while concerning theoretically, were not taking place at their facility.

We talked to the physicians about it, but we really felt like doing any type of urinalysis on admission, on routine admissions, with no clinical reason to do it, was not the way to go because that would increase costs we are not going to get reimbursed for. (IP #11)

I don't think we have gone out of our way to get a UA on every patient that comes in, for example, just to prove that, "Oh, this patient had it on admission." So I really don't think we've gone that step. (IP #31)

Another "defensive" measure that hospitals may take in response to the new policy is to avoid admitting patients perceived to be at higher risk for developing HAIs, a phenomenon known as "cherry picking." While participants may have felt uncomfortable indicating their own organizations engaged in such favorable risk selection practices, one IP noted that her facility was probably experiencing the effects of this phenomenon indirectly. Surgeons at her facility had contacted her, saying some infection cases the IP had flagged were patients who had been refused care at other hospitals.

Already, we are having surgeons, and again this had started about 6 months ago, coming to us saying some of their infection cases, those that have been reviewed, are patients who were refused care at other hospitals that have the ability to do that. And so then these patients are coming here and we're doing them, and they're high

risk and they're getting an infection, and then we're not getting reimbursed for it. (IP #17)

However, of the number of participants who expressed a hypothetical worry about cherry picking, none spoke about having seen this taking place at their own hospital.

So, for example, in coronary artery bypass surgery (we review this on a monthly basis), I do the risk adjustment of all of those cases. And I can see that we have Centers for Disease Control risk categories two and three [i.e., National Nosocomial Infection Surveillance risk index, where 0 is the *lowest risk* and 3 is the *highest*]. So have they stopped operating on really high-risk patients? No, they haven't. But initially when the CMS policy was first promulgated, people were very concerned about that. By people, I mean surgeons were very concerned about that. (IP #3)

Two other potential systems changes related to the policy were about documentation and coding issues. First, it is possible that those doing documentation are deliberately not documenting HAIs as infection in patient charts following admission, out of a desire to lessen the potential financial consequences of the 2008 policy. A few participants mentioned that this type of "gaming of the system" occurred to a limited degree at their facilities.

If they [physicians] don't document it, then it doesn't exist ... People aren't documenting a central line infection. The patient just magically appears on an antibiotic. (IP #17)

However, although we specifically addressed this issue in our interviews, no participant clearly stated that she/he felt the policy caused or exacerbated this phenomenon.

Second, coding discrepancies have the potential to cause underestimates or overestimates of the number of HAIs. When asked about this, IPs highlighted differences in how physicians, coders, and IPs define HAIs, as well as the complicated interaction among these three groups of people. Participants noted that physicians document in the medical record the possibility of an HAI, such as catheter-associated urinary tract infection, in the differential diagnosis. However, as additional clinical information is obtained by physicians, staff may not always clarify in medical record follow-up documentation that an HAI is *not* present. Because coders are required to use information documented in the medical record to generate billing codes, they may therefore code an HAI as present based on incomplete documentation. The reverse may also happen. In the 2008 CMS policy, billing codes are used for CMS reimbursement or nonreimbursement. In contrast, IPs typically use formal Centers for Disease Control and Prevention (CDC) surveillance definitions to identify HAIs, which may be different from both clinical definitions used by physicians and coding definitions used by coders.

In the majority of the participating hospitals, interactions between IPs and coders were limited. However, there were instances identified where interactions between coders, IPs, and physicians had increased due to the 2008 CMS policy. In these cases, a formal or informal feedback process between and among coders, IPs, and physicians had been created

to improve the accuracy of HAI coding. For example, in some cases IPs verified the HAIs identified by coders and, if they found a discrepancy, reported it back to coders.

The big problem here is that the data that goes to CMS comes from our coders ... [T]hey have to code from physician dictation. Physicians frequently don't know what an infection really is [using IPs' standardized CDC surveillance definitions] ... So what we're doing is the coders are sending us their codings at the end of each month and we are comparing them to our records. Then we have to go back through every one that's coded as a hospital-acquired infection and either verify it or not. (IP #27)

In other cases, IPs communicated directly with physicians about discrepancies:

We also looked at what can we do from the documentation perspective, to be sure that there's accuracy in what Medicare may be seeing from our end. And it's not only Medicare, but it's going to be all the third party payers that follow suit. And so we kind of did an initiative. For example, with the UTIs we looked at our [billing] data to be sure that it was being picked up appropriately for POAs. If it wasn't, we actually went right to the physician and talked with him and tried to do some education. (IP #4)

Other variations included direct communication between physicians and coders as well as a loop of communication from coders to IPs to physicians and back to coders.

Reallocation of Attention and Resources to HAIs Affected by Policy

Because the 2008 CMS policy concentrates on only a specific set of HAIs, one of the possible unintended consequences of the policy is having attention and resources focused on these HAIs at the expense of other high-risk, high-cost infections. Participants identified both intended and unintended consequences in interview questions related to this topic; we present the unintended consequences here.

CAUTIs were mentioned by the majority of participants who noted some realignment of priorities with the introduction of the policy. Some participants believed that having CAUTIs included in the policy was beneficial because it refocused energies on this infection.

I think there's clearly a relationship between the presence of a Foley [urinary catheter] and an infection ... And that, of all of them [the HAIs included in the policy], makes the most sense to me to include. Because I think they, in the past, have been overused, and they've been left in too long and people forget, and there's a lot of stuff you can do to get that sucker out and decrease your [infection] rate. (IP #12)

However, a larger number of participants saw the focus on CAUTIs as detrimental in the context of constrained resources. Specifically, these participants described having less time and fewer resources to devote to other infections they deemed to have greater clinical or financial significance.

We have limited resources in infection prevention and it gets limited more every day. And when you're trying to look at and work on issues like multi drug resistant organisms, C. diff [Clostridium difficile], and some very high risk, high mortality infections, and CMS pulls [CA]UTIs out of the hat, which is a lower risk (not that there isn't risk, I'm not saying that, but a lower risk), it takes resources that we have to be able to work on other issues that can have a more significant mortality and morbidity to the patients that CMS serves and pulls them to looking at [CA]UTIs, which has less of a significance. (IP #11)

In the past, [catheter-associated] urinary tract infections were considered—not that they were not important infections to follow up on and try to prevent and eliminate—it's just that they were less of a risk to the patient. So a lot of energy, a lot of my time, did not go into tracking that or trying to prevent and education around that. It went into other things, like catheter-related bloodstream infections, where the patient could become septic and die, or surgical site infections, for the same reason. (IP #19)

On the scheme of what we see happening in our hospital, this [CAUTI] is not a high area of risk for us. You're talking 12 infections we had in a quarter, versus maybe I had 25 VAPs [ventilator-associated pneumonias] that are costing \$40,000 apiece. I'm going to have to give up my VAP and take care of a [CA] UTI that costs \$5,000 because it's about reimbursement issues, and VAP is not on the list right now. (IP #17)

Many participants noted that reallocation of resources was especially problematic because hospitals in general and IP staff in particular currently operate in an environment where resources are stretched quite thin. Therefore, to give attention to the HAIs the 2008 CMS policy prioritizes, attention gaps may emerge in other areas.

Impact on Hospital Staff Activities and Expectations

Participants cited a broad range of effects of the 2008 CMS policy on clinical staff, IPs, and leadership. We grouped the issues they raised into two broad subject areas: (a) changed expectations and practices around surveillance, and (b) changed expectations around infection rates. First, although the 2008 CMS policy generates its determinations based on billing data compiled by coders, many IPs felt additionally burdened by the policy as well due to expectations for increased IP surveillance and reporting within hospital and/or hospital systems.

All of this [CMS policy] gets added into what I already do. So, in order to accomplish it, things have to fall off what I was doing, things that were felt to be necessary parts of the program. But since they don't actually help to achieve the mandated reporting or the mandated initiatives, they will go by the wayside until a point in time, until something happens that makes me attend to it right then. (IP #10)

I feel like we're constantly having to prove to CMS, to the government, to Joint Commission, to our state health department that we're doing what we're doing, that

we're doing everything right, that we're doing the right thing ... [W]e're tied to the chart and a computer entering data and doing surveillance. (IP #28)

Many participants also noted another consequence of spending more time behind a desk analyzing data and compiling reports: having less time to spend doing staff education and more traditional surveillance work out on the units.

If you have to continually add more burden about the data that has to be collected, so it could be reported, so you could receive your reimbursement from the government, you're going to miss an opportunity to be able to be out there on the units and be most effective in preventing the next infection. (IP #20)

We used to do [traditional surveillance, such as risk assessment and environmental assessment] when we had time. We don't have time to do that anymore. That went by the wayside because of this, well, because of the CMS thing. (IP #27)

Second, participants believed (or noted that others believed) that the policy implied a facility could achieve a zero-infection rate for all the indicated HAIs. In reality, from a reimbursement perspective, the CMS policy in essence includes a crude case-mix adjustment, in that if a patient has enough other complicating conditions, the hospital will still receive the higher diagnosis-related group payment. However, from an outcomes perspective, there is no adjustment; the objective of the policy is achieving zero infections. Participants acknowledged a rate of zero should always be the goal and is, in the case of some infections, becoming the norm. Yet they felt it was unrealistic for leadership to expect all the HAIs to achieve this rate consistently.

[T]he pressure's on everybody because the other thing [the 2008 CMS policy] has done has been to make the bean counters and the administrators think that zero can be zero absolutely all the time, regardless of the patient's underlying condition or how you get them. (IP #13)

Well, I've seen great disappointment on administration's side when you do have your health care-acquired infections. The goal is most certainly zero, but the reality is that you may have some now and again. It's just part of the name of the game. I applaud every one of us who thinks we can get there. (IP #21)

Participants who spoke about these issues almost always mentioned the importance of taking patient risk factors into account when assessing preventability of infections. Participants also frequently mentioned making a distinction between zero tolerance for bad practices, or moving *toward* zero, and actually achieving zero infections across the board, all the time. Their frustration sometimes stemmed from feeling that senior hospital administration or the public in general did not understand or agree with these distinctions.

Discussion and Implications

Ours is one of the first studies to examine the real-world impressions of the 2008 CMS policy to reduce payment for hospitalization associated with a preventable complication. Aligning financial reimbursement with improved quality of care is a desired outcome of this policy. However, concentrating exclusively on the intentional outcomes of a program may

mean ignoring important, if unintended, effects (File & Gross, 2007; Wachter, Flanders, Fee, & Pronovost, 2008). We found some feared consequences, such as avoiding sicker patients or obtaining unnecessary diagnostic studies on admission, were uncommon among our participating hospitals, from the perspective of the IPs working there. Rather, IPs more frequently reported more subtle reactions to the policy. Many participants emphasized the diversion of hospital attention and resources toward the HAIs in the policy, noting that this sometimes led to less notice being taken of, and fewer resources being devoted to, other HAIs. They felt this had the potential to result in greater morbidity, mortality, and financial expense. In addition, many participants felt strongly that, because the policy added to their reporting burden, it played a role in keeping IPs more “tied to their desks” and less able to implement infection control and prevention activities on hospital floors. Notably, diversion of attention and resources and increased burden on IPs may arguably have a greater impact on HAI rates if the hospital system is not flexible enough to cover the potential gaps.

As Krein et al. (2010) confirmed in their study of the organizational context of CLABSI infection prevention, it is not sufficient to focus solely on identifying “what” works in health care settings. Delving into the “why” and “how” of successful practices is critical, given the variations in environments that influence the implementation of even generally successful initiatives. While the CMS policy may motivate hospitals to reduce complications of care, policy makers will need to ensure that undesirable unintended consequences are mitigated in the implementation of such policies. As just one example, although no participant spoke about having seen clear evidence of gaming the system, failing to document postadmission infections (i.e., “down-coding”) represents a serious threat to the CMS reimbursement system. If CMS were to focus greater attention on hospital compliance with documentation around billing codes, which have previously been shown to have poor sensitivity and positive predictive values (Meddings, Saint, & McMahon, 2010; Zhan et al., 2009), hospital efforts might shift toward improving documentation, rather than improving infection prevention practices. An alternative solution would be to better align financial penalties with data more closely tied to outcomes, such as the CDC’s National Health Care Safety Network (NHSN). Data sources such as NHSN may be more appropriate to use to determine infection rates and may also help to move hospitals’ focus from documentation, or lack thereof, to prevention.

Our study has several limitations. First, its qualitative methods were designed to be exploratory and generate preliminary findings, not generalizable results. We used a national sample of facilities, but, because of our purposive sampling methodology, our findings should not be taken as representative of all U.S. hospitals. In addition, the snapshot we have of hospitals represents the perspective of IPs, not the various other stakeholders in the facilities. While IPs were chosen deliberately as ideally placed informants, they could not comment comprehensively on all aspects of the policy, particularly on its myriad impacts on coding and frontline staff. In addition, they may have been hesitant to speak about any facility practices perceived as potentially negative or socially undesirable. Furthermore, our methods did not allow us to generate any conclusions about cause and effect. Ideally, further research will expand on our findings using a longitudinal study with probability sampling methods. Finally, hospitals often participate in a variety of HAI reporting and prevention programs at the local, state, and national level. As a result, a few participants found it

difficult to attribute specific changes in their hospital solely to the 2008 CMS policy. However, the majority of IPs had no difficulty in pointing out specific consequences of the policy because of the unique scope and approach used by CMS.

Careful consideration should be given to the continued examination and potential for intended (i.e., improved prevention practices and decreased HAI rates) and unintended consequences (e.g., reallocation of resources without minding the emerging gaps). Interestingly, in 2011, CMS proposed several key revisions to their policy of adjusting payment for complications of care, specifically HAIs. CMS will soon use HAI rates reported through NHSN, rather than rates based on billing code data. IPs currently use standardized CDC surveillance definitions to report to NHSN based on available clinical data. By updating their payment policy to use standardized surveillance definitions based on clinical data, CMS will enhance their ability to align financial incentives appropriately with quality of care by defining outcomes that are clinically meaningful. It is also critical to develop clear definitions of target populations so that, for example, urine cultures are not taken without a clinical indication, simply to avoid possible financial penalties of the policy. In addition, as was noted about performance standards regarding community-acquired pneumonia, quality measurement systems benefit from periodic reassessment (Wachter, Flanders, et al., 2008). As gaps emerge and the policy for payment adjustment continues to evolve, future evaluations should focus on optimizing health outcomes and mitigating the impact of potential unintended consequences, particularly in high-risk populations.

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Table 1

Facility Characteristics

Facility Characteristics ^a	N/Mean/Percentage	Range
Region		
Northeast	9	
Midwest	8	
South	12	
West	7	
Size		
Small	7	
Medium	17	
Large	12	
Teaching hospitals		
Graduate teaching	8	
Major teaching	10	
Minor teaching	3	
Nonteaching	15	
Total hospital beds	388.7	40–1501
Adult ICU beds ^b	44.2	6–222
Mean length of stay (days)	4.9	2.5–7.4
Hospital discharges paid by Medicare (%)	43	20.2–64.6
RN hour per patient day (hours) ^c	14.8	7.9–26.8
RN FTE per 1,000 patient days ^d	8	3.8–12.5

Note: ICU = intensive care unit; RN = registered nurse; FTE = full-time equivalent; AHA = American Hospital Association.

^a. From AHA database.

^b. Does not include burn care, neonatal ICU, or pediatric ICU.

^c. Defined by AHA variables: (FTERN*2080)/IPDTOT.

^d. Defined by AHA variables: FTRNTE/(IPDTOT/1000).