

**Summary:** With healthcare’s enactment of new payment methodologies and its ongoing shift from fee-for-service to pay-for-performance, traditional inpatient CDI metrics—case-mix index (CMI), length of stay, and capture rates of complication/comorbidities (CC) and major CCs (MCC)—are no longer sufficient. CDI departments must think outside the box and adopt new metrics: ones tied to quality (i.e., Patient Safety Indicators (PSI) and readmissions), Risk Adjustment Factor score, and denial/appeal rate, among others. This paper sketches an overview of the shifting reimbursement landscape, offers strategies for working more directly with quality, and provides ideas to get started.

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## Introduction

Historically, CDI efforts prioritized revenue capture of services paid under the inpatient prospective payment system (IPPS). CDI departments were implemented with the expectation of increasing the organizational CMI, resulting in a focus on capturing diagnoses classified as CCs or MCCs. The basic mission was diagnosis-related group (DRG) optimization and CMI improvement.

As the profession matured, many CDI departments recognized the need to capture additional diagnoses beyond CCs or MCCs, so CDI reviews expanded to include diagnoses that reflect the patient’s severity of illness (SOI) and risk of mortality (ROM) under the All-Patient Refined (APR) DRG methodology. SOI and ROM provide a positive correlation with an organization’s mortality index, which was used as an early measure of healthcare quality. Because APR-DRG methodology is sensitive to patient acuity and considers the interaction and totality of diagnoses, the focus on SOI and ROM also supported Medicare Severity DRG (MS-DRG) maximization efforts. Hence, revenue followed “quality” under this strategy.

But since these first tentative steps, the relationship between performance on quality measures and reimbursement has grown increasingly complex, mainly driven by CMS’ changes in its inpatient payment methodology from volume-based to value-based. The concept of quality healthcare has continued to evolve due to mandates within the Patient Protection and Affordable Care Act (ACA), which was signed into law in March 2010. It required the Department of Health and Human Services to operationalize the “Triple Aim” of better health (i.e., population health); better healthcare, including improved patient experience; and reduced costs. Reduced costs plus improved quality equals better value. As mandated under the ACA, the National Quality Strategy was developed and released in early

2011, operationalizing the Triple Aim into Better Care, Healthy People/Healthy Communities, and Affordable Care. CMS complied with these mandates by implementing three value-based quality programs:

- Hospital Value-Based Purchasing Program (HVBP)
- Hospital Readmissions Reduction Program (HRRP)
- Hospital-Acquired Condition Reduction Program (HACRP)

By 2014, CMS reported that reforms under the ACA and other changes resulted in 20% of Medicare payments being linked to the health and well-being of their patients. Perhaps in response to this success, CMS announced in January 2015 an aggressive timetable for quality-driven initiatives that pay providers for value as opposed to volume.<sup>1</sup> Specifically, CMS plans to link 90% of Medicare fee-for-service payments to quality by FY 2018 as well as to reimburse 50% of healthcare through Alternative Payment Models (APM), which are methodologies that include a quality component.

The way CMS defines and measures quality is also changing. The two most familiar quality reporting programs are core measures and PSIs. “Core measures” is shorthand for a set of quality measures developed in 2004 by The Joint Commission and CMS to monitor healthcare quality as part of the accreditation process. These measures were later adopted as part of the Hospital Inpatient Quality Reporting Program (IQR) under the Medicare Prescription Drug Improvement and Modernization Act of 2003 and updated with the Deficit Reduction Act of 2005. The Hospital IQR requires hospitals paid under IPPS to submit data for specific quality measures associated with health conditions common among the Medicare population that typically result in hospitalization.

Historically, failure to report data resulted in a reduction of the Medicare Annual Payment Update. Each year a sample of hospitals is selected for data validation (the list of selected hospitals is available at [qualitynet.org](http://www.qualitynet.org) ([www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1138115987129](http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1138115987129)). The Office of Inspector General conducted a study to evaluate the effectiveness of this validation process (you can access the report at [oig.hhs.gov/oei/reports/oei-01-15-00320.asp](http://oig.hhs.gov/oei/reports/oei-01-15-00320.asp)). The goal of the Hospital IQR is not to monitor performance, but to collect data. It is intended to provide consumers with quality-of-care information to help them make more informed decisions. Consumers can view hospital performance on the Hospital Compare website

<sup>1</sup>Better Care. Smarter Spending. Healthier People: Paying Providers for Value, Not Volume. Retrieved from <https://www.cms.gov/newsroom/mediareleasedatabase/fact-sheets/2015-fact-sheets-items/2015-01-26-3.html>

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([www.medicare.gov/hospitalcompare/search.html](http://www.medicare.gov/hospitalcompare/search.html)). The Hospital IQR's framework forms the basis of current CMS value-based initiatives.

**The shift to value-based care has not been easy for providers. Organizations struggle with modernizing their approach to quality measures.**

PSIs are measures created by the Agency for Healthcare Research and Quality (AHRQ), first released in 2003, that monitor the safety of the healthcare environment by identifying potential adverse events. They represent one type of Quality Indicator developed by AHRQ to highlight potential quality concerns and track changes over time. Traditionally, performance on PSIs has been used for comparative public reporting but has not been linked to reimbursement. However, a subset of PSIs is included in a composite measure affecting performance under HVBP and HACRP, creating a financial incentive for improvement.

Hospital quality departments are typically responsible for collecting and reporting the data associated with these quality measures. Data is collected through an abstraction process occurring up to three months following discharge. Historically, quality and HIM/coding departments have had limited interaction except when “coding errors” were discovered, which would happen when the sample cohort differed from the expected cohort based on principal diagnosis assignment, thus leading to a “failed” measure. Most commonly, the issue would involve a failure to give discharge instructions to the patient who was admitted with fluid volume overload with a history of congestive heart failure. In this instance, according to *AHA Coding Clinic*, the case would have a principal diagnosis of heart failure, not fluid volume overload, and might not have been “caught” by concurrent quality reviews.

However, CMS is moving away from abstraction as the primary means of data collection in favor of administrative data (i.e., claims data). This shift can be seen within the changing structure of the HVBP. In FY 2013, traditional “core measures,” which are classified as process measures, contributed 70% of the total score. By FY 2018, the process domain will be eliminated from HVBP with only one abstraction measure remaining, PC-01: Elective Delivery Prior to 39 Completed Weeks Gestation.

The shift to value-based care has not been easy for providers. Organizations struggle with modernizing their approach to quality measures. Success requires collaboration between clinical and financial leadership and an understanding of how claims data is created. Many CDI professionals have already cultivated relationships that bridge both clinical and coding gaps. However, measuring success

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remains a challenge. Measuring the impact of CDI efforts—where success is still broadly defined by CMI improvement or by tracking the financial impact of queries issued—ignores payment adjustments associated with value-based reimbursement strategies. Additionally, these traditional means of demonstrating ROI can be tedious; they also ignore the dividends associated with physician documentation behavior changes that eliminate the need for some queries.

As quality measures become increasingly sophisticated, the direct relationship between quality and reimbursement has grown more difficult to quantify. In fact, the pursuit of CCs and MCCs without context may lead to negative performance under these value-based measures, resulting in financial losses. Traditionally, diagnosis sequencing that increases reimbursement also increases the volume of cases within the quality measure cohorts, which are based on the conditions most common among the Medicare population. For example, if both heart failure and acute respiratory failure are present on admission, traditional CDI and coding efforts would sequence heart failure as the principal diagnosis to allow the acute respiratory failure to be captured as an MCC, leading to an MS-DRG with a higher relative weight. While this appears to be a positive result for the hospital, this sequencing decision may place the case within cohorts associated with mortality and readmission measures. It also makes the claim more vulnerable to denials related to medical necessity of setting (i.e., the patient should have been treated as an outpatient rather than an inpatient) and clinical validation.

CDI departments need to restructure to meet the challenges associated with value-based reimbursement and APMs as fee-for-service payments dwindle. This requires an examination of current practices including staffing, training, workflow, and metrics. Many of the metrics currently reported by CDI departments fail to reflect the changing reimbursement structure and may limit future opportunities for improvement. The remainder of this white paper will explore these concepts.

### Shifting from volume to value

Most CDI professionals have heard of the phrase “pay-for-performance”; however, many are unaware of how CMS implements this concept. Pay-for-performance is defined by a 2012 Health Affairs article as “an umbrella term for initiatives aimed at improving the quality, efficiency, and overall value of healthcare.”<sup>2</sup> However, CMS currently defines its approach as “value-based,” wherein the quality of care affects reimbursement. As discussed in the introduction of this paper, CMS plans

<sup>2</sup> Pay-for-Performance, October 11, 2012. Retrieved from [http://www.healthaffairs.org/healthpolicybriefs/brief.php?brief\\_id=78](http://www.healthaffairs.org/healthpolicybriefs/brief.php?brief_id=78)

**CDI can help identify documentation and coding opportunities as new measures are introduced, before the measure affects value-based performance.**

to impose value-based reimbursement methodologies on 90% of payments in FY 2018. Additionally, CMS is seeking to replace MS-DRGs and is experimenting with APMs through its Center for Medicare & Medicaid Innovation. As previously stated, CMS' goal is for these APMs to account for 50% of Medicare reimbursement (not just in the inpatient setting) by FY 2018. The most promising of these APMs affecting the inpatient setting are bundled payments, which are being rebranded as episode-based payments. Episode-based payment models (EPM) include a quality component in which an entity, such as an accountable care organization, must meet a minimum threshold in order to receive a financial incentive. Consequently, value-based principles apply both to fee-for-service methodologies (e.g., MS-DRGs) and APM methodologies.<sup>3</sup>

Let's look at the specifics. As noted above, Medicare MS-DRG payments can be adjusted based on performance of three value-based programs (the HVBP, the HRRP, and the HACRP). Each of these programs supports an element of healthcare necessary to achieve the Triple Aim.<sup>4</sup> Rather than discuss the details of each program, this paper aims to demonstrate their similarities and how it may be beneficial for CDI and HIM/coding departments to modify current practices to support high achievement within these programs.

One of the best strategies CDI departments can employ to reduce future performance vulnerabilities is to collaborate with the quality department and those reporting data submitted under the Hospital IQR. CDI can help identify documentation and coding opportunities as new measures are introduced, before the measure affects value-based performance.

The Hospital IQR is the basis of all other quality reporting. It and the Hospital Outpatient Quality Reporting Program even form the basis for hospital star ratings on websites such as Hospital Compare. Because this data is increasingly obtained from claims data, those reporting the data may need help interpreting the root causes of performance issues. Many organizations assume their coded data is accurate; however, because there is variability when interpreting coding guidance, and because clinical validation is a relatively new concept, coded data may not accurately reflect the clinical scenario—even when coding guidelines are “accurately” applied. Consequently, it is important to differentiate between documentation issues, coding issues, and clinical performance issues.

<sup>3</sup> Note, however, that CMS recently proposed to cancel the cardiac EPMs, while the Comprehensive Care for Joint Replacement EPM is now voluntary in many markets.

<sup>4</sup> These three programs do not encompass all quality programs. For example, the Hospital Outpatient Quality Reporting Program and the Deficit Reduction Act-Hospital Acquired Condition program are also impacted by physician documentation. In addition, the meaningful use program contained Electronic Clinical Quality Measures. Finally, there are many non-Medicare quality initiatives, including Medicaid, managed care, and private insurers.

**CDI departments may need to modify their chart review processes to consider the impact of risk adjustment, but there may also be the need for an additional type of CDI review focused on quality measure performance.**

It is also important to understand the differing sources of quality data. Abstracted data uses a dictionary to scan for objective data elements within the health record. Data derived from codes, meanwhile, is based solely on provider documentation, which may not exactly correlate with objective data. For example, data reflecting organizational performance on hospital-associated infections, such as central line–associated bloodstream infection and catheter-associated urinary tract infection rates, are obtained from surveillance data reported by the infection control team to the Centers for Disease Control and Prevention, and not from coding/claims data. Additionally, most infection control teams are staffed by nurses, whose documentation cannot be used to assign diagnosis codes. Marrying these data sources and their reporting requirements can be a challenge due to the documentation requirements associated with reporting complication codes and the different standards used by the infection control team and providers.

The shift to value-based CDI efforts requires organizational investment. CDI specialists using a traditional review process can easily identify HACs because they are limited in number and already within the scope of a CDI review (i.e., they are already classified as CCs or MCCs). However, each of the measure types have different cohorts, inclusion and exclusion criteria, and risk adjustment data and methodology. Incorporating a value-based approach requires a paradigm shift in CDI operations, including staffing, workflow, and performance metrics. CDI departments may need to modify their chart review processes to consider the impact of risk adjustment, but there may also be the need for an additional type of CDI review focused on quality measure performance.

CDI departments need to clearly operationalize and define the broad concept of “quality” when adapting a value-based approach. The work of CDI should not duplicate coding or quality functions; rather, these departments should collaborate to identify gaps in current processes as quality data acquisition moves from abstraction to claims. For example, CDI staff can identify cases that may fall within a measure cohort and refer them to the quality department, or they can refer the cases to CDI staff who specialize in value-based reviews. Alternatively, a CDI department may require each CDI specialist to perform a value-based review.

Value-based reviews are labor-intensive. They require a specific skill set to identify cases that could be included in the measure cohort; validate inclusion in the measure cohort through clinical validation and identification of exclusion criteria; and predict performance with augmentation as necessary through risk adjustment,

when possible. As previously mentioned, risk adjustment is tricky because different methodologies are used for different measures. The claims-based measures currently affecting organizational reimbursement and susceptible to documentation practices include the following:

- 30-day risk-standardized mortality (HVBP)
- 30-day risk-standardized readmission (HRRP)
- Patient Safety and Adverse Events Composite (modified PSI 90) (HVBP and HACRP)
- Hospitalized-Level Risk-Standardized Complication Rate Following Elective Primary THA/TKA (Comprehensive Care for Joint Replacement Model)

**CDI can affect the expected outcome risk by obtaining documentation that accurately reflects patients' overall complexity.**

The most prominent of these measures are 30-day mortality and 30-day readmissions. These measures can be condition-specific, such as heart failure, chronic obstructive pulmonary disease, or pneumonia; or procedure-specific, such as coronary artery bypass graft or elective hip/knee replacement. Identifying CCs and MCCs during the admission is unlikely to affect risk adjustment and overall performance because these outcome measures are risk-adjusted by a patient's health status at the time of the index admission (CMS does not adjust for possible complications during the admission) and 12 months prior. Therefore, to account for the chronic disease burden of the population under study, CMS extends risk adjustment beyond acute disease manifestations (i.e., CCs and MCCs).<sup>5 6</sup>

In short, when performing value-based reviews, CDI staff needs to understand each measure, including how and when it is impacted by documentation and coding efforts.

### Aligning CDI departments to adapt to VBP

CDI departments can improve the accuracy of patient risk scores and diagnosis coding regardless of the patient setting. Striving for complete and accurate documentation of diagnoses in the medical record helps ensure success across payment methodologies. CDI can affect the expected outcome risk by obtaining documentation that accurately reflects patients' overall complexity. This requires focusing on chronic conditions (rather than acute manifestations) and obtaining greater diagnosis specificity. Furthermore, the CDI team can help ensure the accuracy of the present-on-admission status for reported diagnoses.

<sup>5</sup> CMS FY 2017 IQR Risk Standardized Outcome and Payment Measures, April 2016. Retrieved from [www.qualitynet.org](http://www.qualitynet.org)

<sup>6</sup> Frequently Asked Questions (FAQs) Implementation and Maintenance of CMS Mortality Measures for AMI & HF. Retrieved from [https://www.cms.gov/medicare/quality-initiatives-patient-assessment-instruments/hospitalqualityinits/downloads/hospitalmortalityaboutami\\_hf.pdf](https://www.cms.gov/medicare/quality-initiatives-patient-assessment-instruments/hospitalqualityinits/downloads/hospitalmortalityaboutami_hf.pdf)

**CDI should strive to communicate and collaborate with departments like quality, HIM, and case management/utilization management. This will help break the silos in the healthcare organization and reduce conflicting messages to providers.**

With the expansion of its review scope, CDI must establish itself as its own department with a clear mission statement that defines its job duties and objectives using relevant performance improvement metrics. Without a mission statement, CDI professionals risk having their duties blend into utilization review, case management, coding, or quality responsibilities. Worse, CDI may become the documentation “police” responsible for any documentation issue associated with the health record, regardless of its relevancy to coded data. Asking CDI professionals to perform multiple roles will set them up for failure and prevent them from demonstrating a return on investment.

This does not mean that CDI should build walls around itself. CDI should strive to communicate and collaborate with departments like quality, HIM, and case management/utilization management. This will help break the silos in the healthcare organization and reduce conflicting messages to providers. To discuss common themes related to documentation and coded data, invite these departments to attend your meetings, or send a CDI representative to attend theirs.

For example, if the quality department is seeing an increase in postoperative respiratory failure (PSI 11), CDI can monitor how this condition is being documented and determine if additional documentation education is required, including the importance of clinical validity. Additionally, coding professionals can identify the impact of reporting mechanical ventilation times on PSI 11.

Industry polling indicates that CDI departments report to various departments, such as HIM/coding, quality, finance, or case management. The 2016 CDI Week Industry Overview Survey issued by ACDIS asked the following question:

To which department does your CDI department report??

■ Nursing	2.5%
■ Quality	13.2%
■ Finance	18.7%
■ Case management	19.1%
■ HIM/coding	42.4%
■ Other	4.1%

*(Note: Respondents who indicated “other” commonly wrote in utilization management, chief medical officer, revenue integrity, or medical staff affairs)*

<sup>7</sup>2016 CDI Week Industry Overview Survey. Retrieved from <https://acdis.org/resources/2016-cdi-week-industry-overview-survey>

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As seen, just over 13% of CDI departments presently report to quality. The same survey also asked respondents to identify whom their CDI department collaborates with. Only 6% answered quality, but another 10.4% said that they wished to collaborate with quality.

One health system recently implemented a process to ensure it properly reports various quality measures. This effort started with the formation of an executive team that:

- Designed query tools that support quality measures
- Devised metrics for monitoring select quality measures
- Designed physician documentation tips for select scenarios
- Developed strategies to focus on efforts where CDI could be most effective
- Designed a feedback and notification loop between the coding, CDI, and quality teams

Today, this health system has implemented a process whereby various HAC/PSI/readmission cases are referred to CDI for review and reconciliation. When staff identify a PSI requiring attention (see Exhibit A in the Appendix for examples of which PSIs can impact a hospital quality rating) or a HAC (see Exhibit B), it implements the following plan of attack:

- Establishes definitions and data source (Exhibit C)
- Develops feedback loop (Exhibit D)
- Performs education (Exhibit E)
- Designs query form(s) (Exhibit F)
- Monitors performance (Exhibit G)

This approach has led to an overall improvement in the hospital's quality scores.

This shift to quality review is becoming more common. The 2016 CDI Week Industry Overview Survey asked the following question related to quality-focused reviews by CDI; below are the highest-rated responses:

**Which of the following quality measures and/or quality-related items does your CDI program review on a concurrent basis?**

- |   |     |
|---|-----|
| ■ SOI/ROM concurrent mortality            | 64% |
| ■ HACs                                    | 55% |
| ■ PSIs                                    | 49% |
| ■ SOI/ROM retrospective mortality         | 45% |
| ■ CMS inpatient quality (“core”) measures | 26% |
| ■ We don't review quality measures        | 21% |

As the survey reveals, nearly 80% of CDI departments nationally (in 2016) are involved in some form of quality-related review.

### The importance of understanding metrics and data

Advancing CDI beyond DRGs requires four fundamental initiatives:

1. Enhancing leadership awareness regarding the vital link between provider documentation, claims-based outcome performance, and reimbursement
2. Securing the resources necessary to expand the scope and mission of CDI
3. Developing population validation and risk adjustment expertise within CDI through a collaborative organizational approach
4. Developing a CDI infrastructure that interacts collaboratively with both clinical and financial leadership, supporting a cross-continuum vision

Where to start? Strategic data analysis at each step.

Fostering leadership awareness drives CDI expansion. As discussed in the introduction to this paper, CDI performance has historically been equated to CMI enhancement and CC/MCC capture rates. Although CMI remains a common statistic for an organization's cash flow, it certainly is not the entire picture in today's performance-based reimbursement model. The impact of value-based penalties is often hidden with CMI-focused programs, because the relative weight associated with the billed MS-DRGs is unaffected. Penalties are applied to the hospital's individual operating/base rate, or imposed on the total payment. Additionally, CMI is an abstract value that no longer correlates with profits. Although organizations often seek an increased CMI, how high should it be? How valuable is a rising CMI if the acuity of the patient is also rising, requiring the expenditure of more resources?

Another factor in the overall decline of the importance of CMI is a decline in inpatient admissions. Care is increasingly being provided in the outpatient setting. The shift in patient volumes (as lower relative weights are removed from the inpatient equation and are paid under the outpatient prospective payment system) has increased overall CMI by 4.8% since 2011, according to MedPAR data. However, because the overall volume of inpatient cases is declining, the net result, even with an increasing CMI, is less total revenue.<sup>8</sup>

<sup>8</sup> For a visual representation of this trend, see the *American Hospital Association Trendwatch Chartbook 2016*, Table 4.2: Distribution of Inpatient vs. Outpatient Revenues, 1994–2014, available at <http://www.aha.org/research/reports/tw/chartbook/2016/2016chartbook.pdf>

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**For example, an organization that receives \$341 million in payments for the Medicare population can sustain a \$1.7 million penalty with a mere 0.5% readmission reduction adjustment.**

Relying on CC/MCC capture rates as a CDI performance metric carries the risk of incentivizing incorrect sequencing (i.e., emphasizing the reporting of a CC or MCC over accurately assigning the principal diagnosis). Many erroneously interpret the *Official Guidelines for Coding and Reporting* as justifying the selection of a chronic condition as the principal diagnosis. Doing so allows the acute condition to be reported as a CC or MCC, but at the cost of clinical accuracy. The coding of a claim must reflect the clinical scenario and support the medical necessity of the admission. Consider those conditions present on admission—and which ones will be resolved during the admission—to identify the true focus of treatment. Often chronic conditions present on admission are comorbid conditions, and should not be sequenced as the principal diagnosis. For example, a patient will still have heart failure after an inpatient admission, but that patient will not be discharged until his or her acute respiratory failure is resolved. Principal diagnosis assignment also establishes the population from which measure cohorts are selected. As the inpatient population shrinks, every dollar counts, so CDI efforts should extend beyond monitoring the billed DRG to considering the impact of quality performance and a claim's vulnerability to denials.

Both organizational and CDI leadership need to understand what, if any, penalties or incentives are adjusting anticipated revenue based on CMI. This is available using public data located at [data.medicare.gov](http://data.medicare.gov) as well as data available to organizations on hospital-specific reports. The impact of penalties under value-based programs extends beyond the specific case identified as the outcome of interest, such as the readmission or mortality. The cumulative effect of penalties is an adjustment across all Medicare DRG payments in the applicable fiscal year. For example, an organization that receives \$341 million in payments for the Medicare population can sustain a \$1.7 million penalty with a mere 0.5% readmission reduction adjustment.

The HVBP is essentially a “buyback” program under which CMS withholds 2% of hospitals' annual base operating DRG payments. CMS pays money back to hospitals based on the quality of care they provide. The amount a hospital receives depends on its ranking compared with all other hospitals. A hospital with average performance gets back the 2% withheld (a net change of zero). Those below average get back less than the 2% withheld (0% back for the very worst performance—a net loss of 2%). Those above average get back an additional amount up to 2% above the 2% withheld. Therefore, the risk/opportunity ranges from -2% to +2% of DRG payments.<sup>9</sup>

<sup>9</sup> The 2018 *Outpatient CDI Pocket Guide*, by Richard Pinson and Cynthia Tang.

**By identifying current and potential future penalties, CDI professionals can broaden executive leadership's understanding of CDI's ROI.**

Another component of the HVBP that tends to be ignored, but is also partially impacted by documentation, is the Medicare Spending Per Beneficiary (MSPB) measure. For example, one hospital reported that MSPB accounted for 80% of its HVBP penalty. The MSPB measure is adjusted based on patient risk, which documentation directly affects.

With added penalties across the three programs (HVBP, HRRP, HACRP), an organization could see penalties as high as 6% of annual Medicare DRG payments, equating to \$20 million at risk without a change in CMI or even with an increased CMI. By identifying current and potential future penalties, CDI professionals can broaden executive leadership's understanding of CDI's ROI. Beyond financial considerations, enhancing the integrity of coded data will directly impact clinical outcomes through population identification and targeted care delivery. A key point CDI should make with leadership is that quality-adjusted reimbursement extends beyond Medicare—for example, today 70% of American health insurance plans are participating in the “Core Quality Measure Collaborative.”<sup>10</sup>

To develop claims-based quality measure expertise, CDI leadership must reach across departments, taking a global approach to documentation management by considering how CDI efforts affect not only reimbursement, but also performance on quality measures. Data analysis, including that within the AHRQ specifications and toolkits on PSIs and claims-based program specifications on QualityNet and *cms.gov*, supports an integrated approach between inpatient and outpatient efforts. Integrated approaches improve patient outcomes and offer methods for accurate capture of the care provided.

Regardless of the inpatient claims-based measure under study, CDI directly impacts the cohort through correctly identifying inclusions and exclusions impacted by diagnosis sequencing. CDI departments should ensure data accuracy for the entire population under study, not just the outcome of interest. For example, rather than focusing solely on mortality cases (the numerator), the CDI department should look at the entire cohort (the denominator) used to assess each death.

More importantly, and just as critical, is CDI's impact on risk adjustment methodologies. Risk adjustment must use a data-driven approach to prioritize and realize CDI impact. Again, risk adjustment should occur for the entire cohort under study and not just the outcome of interest. The risk adjustment methodology varies by the type of measure. For example, the CMS model for risk adjustment of AHRQ (PSI 90) measures uses the Elixhauser comorbidity index. CMS 30-day outcome

<sup>10</sup> The Core Quality Measures Collaborative: A Rationale and Framework for Public-Private Quality Measures Alignment. Retrieved from <http://healthaffairs.org/blog/2015/06/23/the-core-quality-measures-collaborative-a-rationale-and-framework-for-public-private-quality-measure-alignment/>

measures are risk-standardized with CMS condition categories (version 22). With thousands of ICD codes that roll up to risk adjustment variables, a data-driven approach is mandatory. CDI advancement requires not only identification of the most impactful diagnoses or risk adjustment variables within the measure, but also identifying which of those represent the greatest opportunity within the organization.

**Because this calls for an expanded review scope, CDI departments may need additional staff, training, and software as well as support from the organizational data analytics team.**

CDI departments developing quality-based review strategies must balance capture of these risk adjustment variables with the traditional role of CC/MCC capture and perhaps even capitated projections in alternative payment models. For example, severe malnutrition impacts risk adjustment for 20 cohorts, serves as an MCC, and drives Hierarchical Condition Category (HCC) 21 in a capitated payment model. Translating DRG weights and risk score coefficients into financial impact, coupled with percentage of diagnosis capture, certainly defines the value of a CDI department. Data analysis of hospital-specific reports can align the efforts of CDI with institutional needs. Chronic disease burden extends across the continuum beyond an isolated inpatient case review, and in fact, some risk can only be captured in the ambulatory setting. Attaining quality measure expertise through strategic analysis and study will foster the success of CDI professionals. Because this calls for an expanded review scope, CDI departments may need additional staff, training, and software as well as support from the organizational data analytics team.

Success is only possible with leadership support and quality measure expertise. CDI infrastructure depends upon a data-driven approach using prior and concurrent performance statistics, holistic documentation assessment, and continuumwide reviews, as well as collaborative care team documentation with technological integration. Every successful program hinges upon monitoring program metrics and subsequent refinement. Just as in healthcare, CDI must define its value to the organization and to the patient population. Value may be defined by new metrics, including accurate cohort identification by focusing on outcome exclusions/inclusions through documentation and coding; percentage change of risk adjustment variable capture with derived financial impact of MCC/CC capture or capitated payment rates; and indirect measurement of care team collaboration with enhanced disease management.

Some examples of CDI-driven quality improvement objectives include the following:

- Reducing medical errors and complications
- Improving the mortality rate (observed to expected ratio)
- Improving UHC overall ranking among peers (mortality and safety domains)
- Improving Leapfrog hospital score
- Improving performance on the AHRQ PSI 90 measure
- Improvement under the HACRP (total HAC score and PSI 90 safety measures)

**The success of CDI in quality improvement hinges on the engagement of providers via organized education, establishment of respectful relationships, and an understanding of how publicly reported data is gathered and disseminated.**

One immediate opportunity for CDI is increasing the expected rate by capturing additional diagnoses/comorbidities. You can obtain the specific diagnosis list for each of the mortality or readmission measures from the yearly Hospital Specific Report (HSR) file. CDI specialists can validate the patient-level case data on each HSR.

With the common goal of complete and accurate documentation and coding, coupled with integrative care management, CDI will be at the helm, leading the way for improved mortality rates, complication rates, and readmission rates.

### Getting started and tackling challenges

The success of CDI in quality improvement hinges on the engagement of providers via organized education, establishment of respectful relationships, and an understanding of how publicly reported data is gathered and disseminated. CDI departments must streamline the many quality initiatives and align them with clear explanations of documentation conundrums during educational sessions with providers.

Most providers will simply want to know what is expected of them because their primary focus will always be patient care. CDI specialists can engage providers by educating them on how their documentation practices impact their patients' overall care and risk across the continuum. Historically, providers are trained to investigate why a patient exhibits certain symptoms and to find the underlying causes. If a provider is educated to understand the root cause of a query, he or she is more than likely to participate in the query process. Gear the education to the audience. Cardiologists, for example, are not interested in what orthopedic surgeons are omitting from their documentation. When provided with specific examples from their actual case mix, providers are more likely to become engaged because they will best relate to their own patient population.

## CDI and the Evolution From Finance to Quality

CDI departments suffer from competing priorities and failure to align with organizational expectations. For example, if a facility falls short on PSI 90, CDI specialists can perform a deep dive on targeted cases to determine whether unclear documentation played a role. It is essential to employ a multidisciplinary approach that works hand-in-hand with the providers as well as departments like coding and quality to ensure everyone understands the impact provider documentation has on specific quality metrics.

**For example, if a facility falls short on PSI 90, CDI specialists can perform a deep dive on targeted cases to determine whether unclear documentation played a role.**

Along with competing priorities, many CDI departments find themselves unable to achieve their overall goals due to day-to-day limitations of staffing and technology. Often they struggle with accomplishing their assigned tasks due to turnover within the department. If it is not realistic to maintain a consistent staffing model and/or increase the number of staff, it may be helpful to collaborate with other departments by educating them on specific documentation that may impact quality metrics. This helps departments like quality and/or utilization management understand the importance of accurate documentation, and they may become liaisons in alerting the CDI team regarding cases to review. For example, case managers in the ED may be able to help CDI flag cases involving a recent admission for congestive heart failure. In many facilities, however, a lack of technology will limit an organization's ability to promptly identify these high-priority cases for CDI specialists.

Technology limitation may also cause CDI reviews to be delayed or omitted, which can impact quality metrics. Many facilities lack a reliable CDI tracking tool that can communicate with other departments. Having such a tool can facilitate communication between CDI, coding, quality, and utilization management, allowing CDI to better strategize and assist in documentation improvement to meet the needs of coding and quality while reducing the likelihood of duplicative efforts.

As CDI continues to expand into a quality-driven focus, the need for additional CDI education and training becomes more evident. For many organizations, incorporating a value-based CDI approach requires implementation of a CDI career ladder where value-based reviews are assigned to CDI specialists who have received additional training and/or have different skill sets. CDI departments may wish to create a new position, such as a CDI quality specialist, as defined in the ACDIS white paper "Keep Your Staff Growing and Engaged With a CDI Career Ladder."<sup>11</sup>

<sup>11</sup> Keep Your Staff Growing and Engaged With a CDI Career Ladder. Retrieved from [acdis.org/resources/white-paper-keep-your-staff-growing-and-engaged-cdi-career-ladder](http://acdis.org/resources/white-paper-keep-your-staff-growing-and-engaged-cdi-career-ladder)

Advanced opportunities for CDI departments may also be attained by engaging key stakeholders at your organization with data. For example, if a CDI team's efforts lead to a decrease in an organization's PSI 90 rate and an improvement in mortality scores, this data can help validate the need for an additional hire. Because additional diagnoses beyond those classified as CCs or MCCs can impact risk adjustment, consider creating specialized tip sheets to help with quality-focused reviews.

**Because additional diagnoses beyond those classified as CCs or MCCs can impact risk adjustment, consider creating specialized tip sheets to help with quality-focused reviews.**

CDI departments can create a spreadsheet of diagnoses that risk-adjust by principal diagnosis (quality cohort), or common diagnoses across mortality models by body system. For example, circulatory diagnoses requiring CDI review and clarification that might not already be obvious CDI targets include the following:

- Type of tachycardia (paroxysmal, PSVT)
- Reentry arrhythmia
- Premature depolarization (atrial, ventricular, junctional, other)
- Bradycardia
- Other specified arrhythmia
- Cardiac valve disorders and etiology
- Cardiomyopathy (specify type/etiology)
- Vasopressor infusion (and timing)
- Atherosclerosis
- Hypotension
- Any thrombus and specified location
- Aneurysm and specified sites
- Any arterial or venous occlusion
- Vena cava syndrome

CDI specialists can direct their queries to impact quality measures. Following are some of the "quality interventions" a quality-focused CDI department might issue:

- Query to capture a comorbidity (O/E impact)
- Query to clarify an exclusion criterion (process or outcomes measure impact)
- Query to qualify a diagnosis for principal diagnosis (bundled payment trigger)
- Query to clarify present-on-admission status
- Query to clarify operative report of other clinical condition (PSI impact)
- Query for HCC

## CDI and the Evolution From Finance to Quality

### Conclusion

As CDI continues to diversify, the profession must evolve from its legacy mindset of reviewing a chart for a specific diagnosis target, and instead expand its body of knowledge to see the overall impact of documentation. CDI can lead in transforming the one common denominator that impacts all payment methodologies and quality initiatives—documentation. CDI professionals are the liaisons between the clinical and coding/reporting world. Seize the opportunity to communicate with your providers and quality department and improve documentation beyond fee-for-service reimbursement.

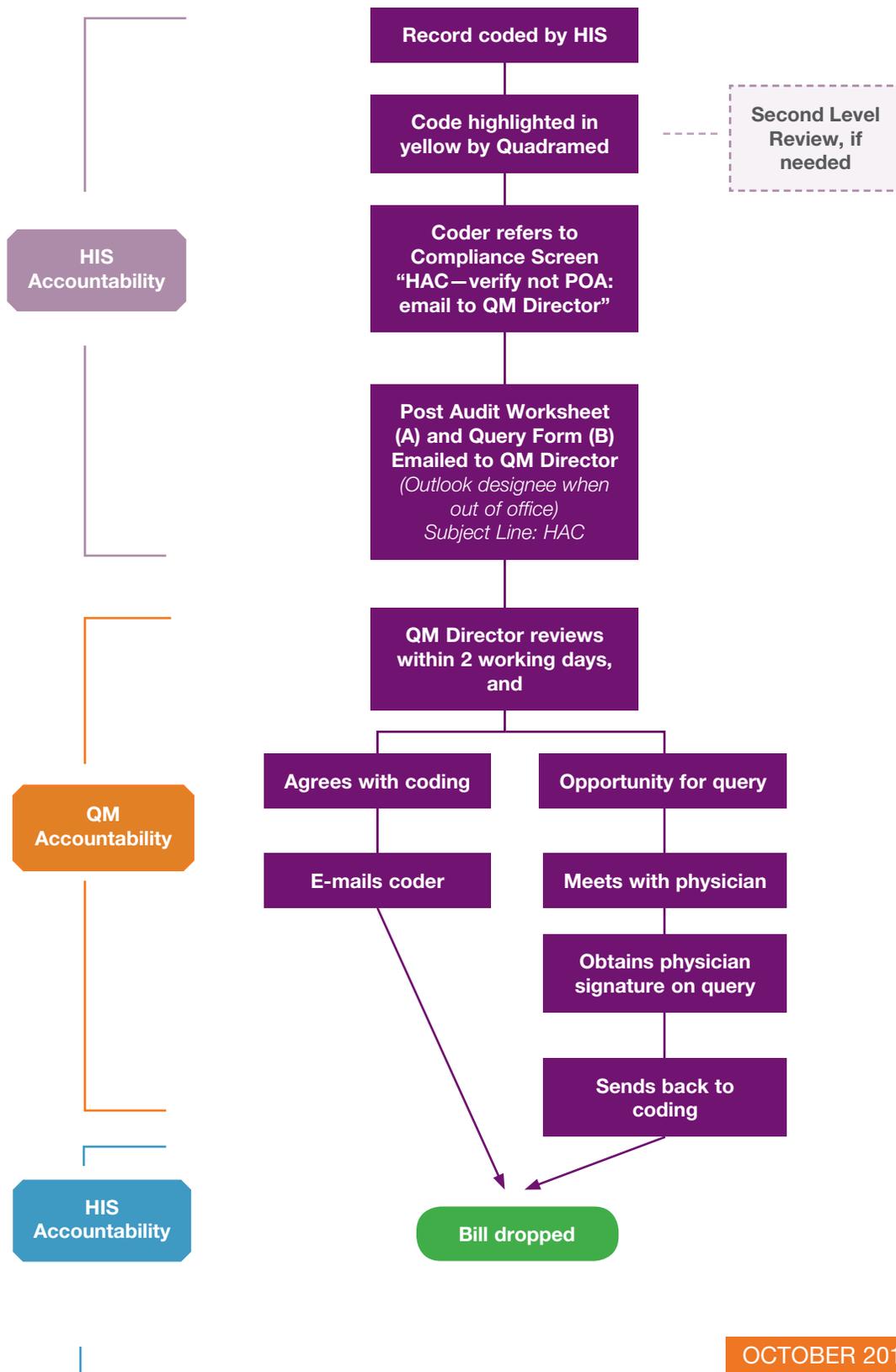
It's a challenging but exciting period in the evolution of CDI.

### APPENDIX

#### Exhibit A: Impact of PSI measures on hospital ratings systems

PSI Measures	Leapfrog	Truven	US News	VBP (PSI 90)	Consumer Reports
3 Pressure ulcer	X	X	X	X	
4 Death in surgical inpatients with serious complications	X	X	X		X
6 Iatrogenic pneumothorax	X	X	X	X	
7 Central Venous Catheter Infection		X			
8 In hospital fall with hip fracture	X			X	
9 Postop hemorrhage or hematoma		X	X	X	
10 Postop physiologic/metabolic derangement (acute kidney injury)		X		X	
11 Postoperative respiratory failure	X	X	X	X	
12 Perioperative pulmonary embolism or DVT	X	X		X	
13 Postoperative sepsis		X		X	
14 Postoperative wound dehiscence	X	X	X	X	
15 Accidental puncture or laceration	X		X	X	

Exhibit B: Hospital Acquired Conditions: Sample Pre-Bill Process



### Exhibit C: Example of PSI measure requiring attention

**Example:** Review of metrics indicates reporting of CAUTI exceeds internal standards  
Establish measure definitions, data source, measurement calculation, goals, and targets

#### **Hospitalwide Catheter-Associated Urinary Tract Infection Standardized Infection Ratio (CAUTI SIR)**

**Definition:** The CAUTI Standardized Infection Ratio (SIR) is the standardized rate of CAUTIs for inpatients for a rolling 12-month period.

**Numerator:** Total number of observed healthcare-associated CAUTIs among inpatients. This number includes adult and pediatric ICU patients, NICU patients, as well as adult and pediatric patients in medical, surgical, and medical/surgical wards.

**Denominator:** Total number of expected CAUTIs, which is calculated by multiplying the number of urinary catheter days for each location under surveillance for CAUTI during the period by the CAUTI rate for the same types of locations obtained from the standard population. These expected numbers are summed across locations and used as the denominator of this measure. The National Healthcare Surveillance Network (NHSN) applied 2015 national data for baseline calculation.

**Measurement calculation:** Observed CAUTIs divided by expected CAUTIs; SIR national benchmark = 1.

**Data source:** NHSN; Centers for Disease Control and Prevention (CDC). For the data before 2017, NHSN applied its 2009 data as baseline for expected infections and SIR calculation; for the data from 2017, NHSN has been using its 2015 data as baseline for expected infections and SIR calculation. Please check detailed information at <https://www.cdc.gov/nhsn/2015rebaseline/>

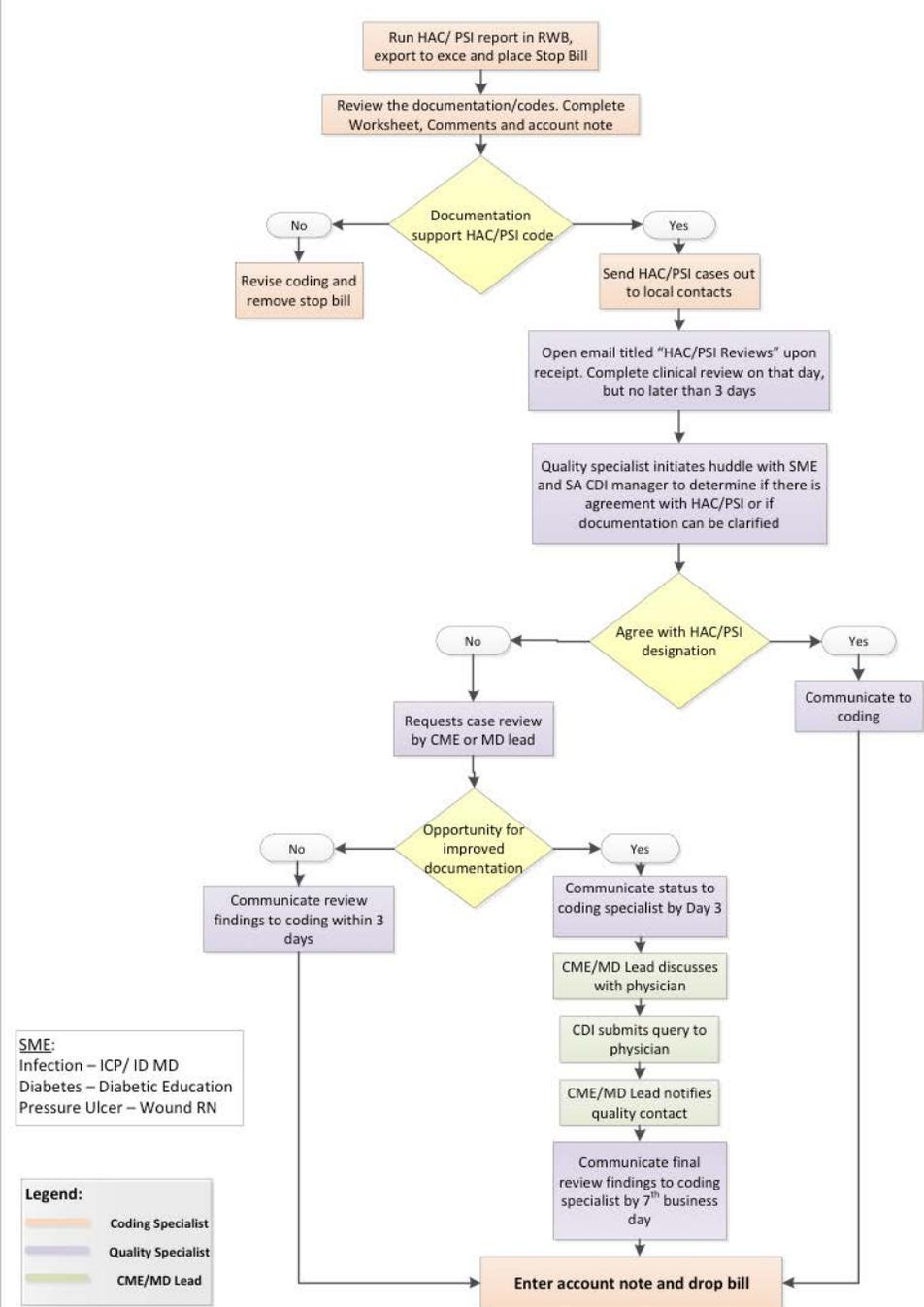
**Benchmark goal source:** FY 2019 VBP achievement threshold, per CMS technical update 2/24/2017.

**Threshold:** 0.822.

**Target:** 0.000. (Lower is better.)

Exhibit D: Sample feedback and notification loop

HAC and PSI 2<sup>nd</sup> Level Review Algorithm



### Exhibit E: CAUTI documentation tip card

#### Quality and Patient Safety

#### Appropriate documentation of CAUTI

#### TO KNOW:

Catheter-associated urinary tract infections (CAUTI) are being reported to government agencies as well as being posted on consumer websites. This data can negatively impact our organization and physicians when documentation is imprecise and inconsistent. The National Healthcare Surveillance Network (NHSN) publishes specific criteria to determine when a CAUTI has occurred and when it should be considered present on admission.

#### **CAUTI – Patient must meet 1, 2, and 3 below:**

1. Patient has an indwelling urinary catheter in place for greater than 2 days that is either still present or was removed no earlier than the day before the date of the event.
2. Patient has at least one of the following:
  - Fever (38.0 C)
  - Suprapubic tenderness
  - Costovertebral angle pain or tenderness
  - Urinary urgency (only counts if the catheter has been removed)
  - Urinary frequency (only counts if the catheter has been removed)
  - Dysuria (only counts if the catheter has been removed)
3. Patient has a urine culture with no more than two species of organisms, at least one of which is a bacteria of  $\geq 10^5$  CFU/ml.

#### **Documentation tip:**

Please note that documentation of “asymptomatic bacteriuria” or “pyuria” will be coded as CAUTI in ICD-10.

#### **POA tip:**

NHSN states a CAUTI is considered present on admission when the event occurs on the day of or the day following admission.

#### TO DO:

1. Refer to these NHSN guidelines before documenting a CAUTI.
2. Consider documenting “urinary colonization” as alternative wording for asymptomatic patients.
3. Provide documentation of CAUTI present-on-admission status when appropriate.
4. Document when a possible or suspected CAUTI has been ruled out.

#### TO SHARE:

Share with medical staff and colleagues.

## Exhibit F: Sample quality query tool

### Query:

On [DATE] documentation in the [NOTE TYPE] section of the medical record documents \_\_\_\_\_.

Treatment, evaluation and monitoring includes \_\_\_\_\_.

Please clarify which, if any, of the following diagnoses, either confirmed or suspected, are being monitored or treated during this admission.

**You may answer this query by marking the checkbox(es) below or using free text at the ( \* ) if appropriate.**

### Provider Query Response: \*

- Urinary tract infection due to indwelling catheter, present on admission
- Urinary tract infection due to indwelling catheter, not present on admission
- Urinary tract infection unrelated to indwelling catheter (please specify other etiology)
- Urinary colonization, only, without active infection
- None of the above
- Other (please specify)
- Unable to determine

The purpose of this query is to ensure accurate coding, severity of illness, and risk of mortality compilation. When responding to this query, please exercise your independent professional judgment. The fact that a question is asked does not imply that any particular answer is desired or expected.

### Definitions:

The National Healthcare Surveillance Network (NHSN) publishes specific criteria to determine when a catheter-associated urinary tract infection (CAUTI) has occurred and when it should be considered present on admission.

## CDI and the Evolution From Finance to Quality

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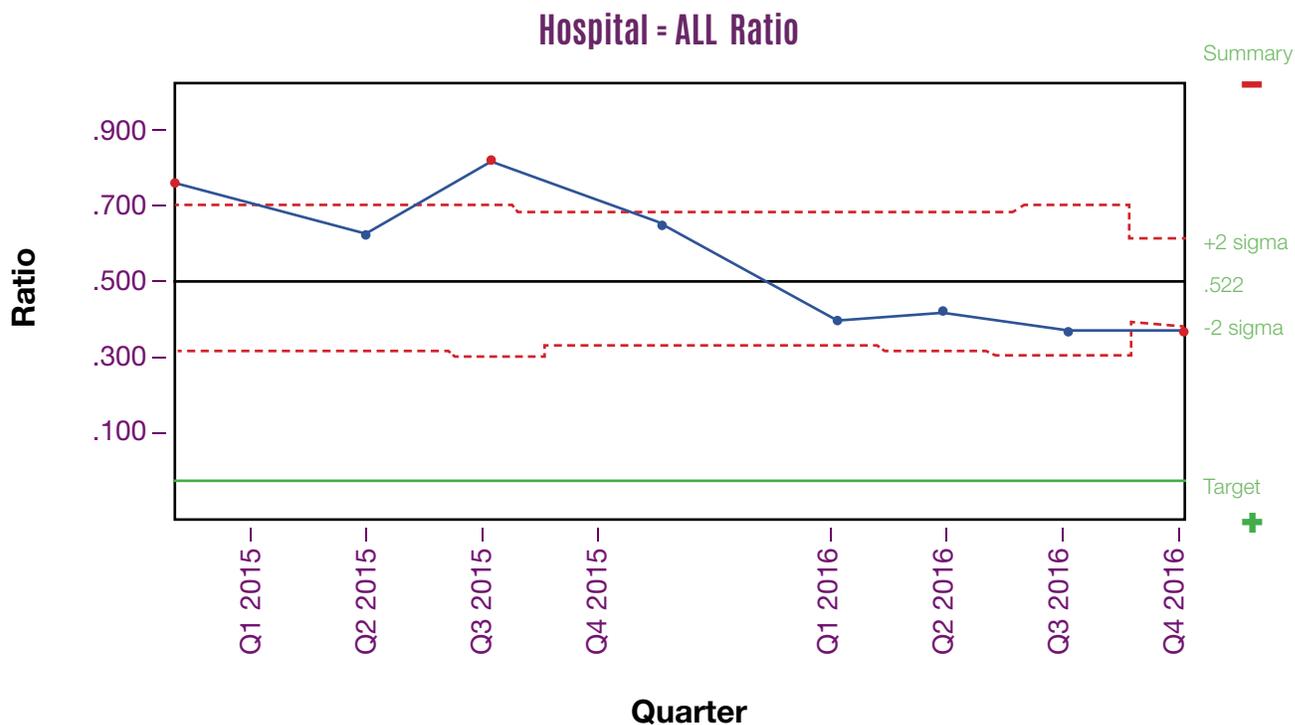
### **CAUTI – Patient must meet 1, 2, and 3 below:**

Symptomatic catheter-associated urinary tract infection (SUTI) is defined by CDC as all three of the below-listed elements, constituting CAUTI infection criteria.

- A) Patient had an indwelling urinary catheter that had been in place for > 2 days on the date of the event AND was either:
  - b. Present for any portion of the calendar day on the date of the event†, OR
  - c. Removed the day before the date of the event
- B) Patient has at least one of the following signs or symptoms:
  - a. Fever (>38.0°C)
  - b. Suprapubic tenderness (with no other recognized cause)
  - c. Costovertebral angle pain or tenderness (with no other recognized cause)
  - d. Urinary urgency (cannot use this if catheter still in place)
  - e. Urinary frequency (cannot use this if catheter still in place)
  - f. Dysuria (cannot use this if catheter still in place)
- C) Patient has a urine culture with no more than two species of organisms identified, at least one of which is a bacterium of  $\geq 100,000$  colony count.

Exhibit G: Sample quality performance monitor

HAI Inpatient CAUTI Rate



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**WHAT IS AN ACDIS WHITE PAPER?**

An ACDIS white paper discusses CDI best practice, advances new ideas, increases knowledge, or offers administrative simplification. It can be written by an ACDIS Advisory Board member or a smaller subset of the board, or written by external sources subject to board approval. It is less formal than a position paper.