Penn LDI
Leonard Davis Institute of Health Economics

Interdisciplinary Nursing Quality Research Initiative

**POLICY BRIEF**
*November 2015*

# How Nursing Affects Medicare's Outcome-based Hospital Payments

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Improving value is one of the central aims of recent and ongoing health care reform. In our LDI/INQRI Brief last month, we reviewed the evidence of the role of nurses in increasing the value of health care. In this companion brief, we dig deeper into the three reimbursement strategies that Medicare uses to align hospital financial incentives with quality of care, and we calculate the potential effects of nursing-sensitive quality indicators on hospital payments.

## Three Medicare programs link hospital quality to payments

The Affordable Care Act (ACA) authorized Medicare to change the way it pays hospitals to reward high-quality, high-value care. Three programs now link Medicare reimbursement to the outcomes and costs of inpatient care: the Value-Based Purchasing (VBP) program, the Hospital-Acquired Conditions (HAC) Reduction Program, and the Hospital Readmissions Reduction Program (HRRP). Each adjusts Medicare payments according to how well hospitals perform on quality measures, and lays the foundation for increased provider accountability and greater value in hospital care.

*The Value-Based Purchasing (VBP) program* rewards acute-care hospitals with incentive payments, based either on how well the hospitals perform on certain quality measures or how much they improve from their baseline performance. *Hospital VBP Performance Scores* are based on a set of 19 performance measures in four domains – Process of Care, Patient Experiences, Outcomes and Safety, and Efficiency. The set of measures included in each of the domains is evolving, as are domains themselves, to gradually place more emphasis on patient experiences, outcomes, and efficiency of care, and less emphasis on the process of care measures (**Appendix A**).

The VBP program operates in two steps. First, hospitals' base operating Diagnosis-Related Groups (DRG) Medicare payments (per-discharge amounts, excluding adjustments for teaching, disproportionate share, and other policy adjustments) are reduced by 1.5 percent for all hospitals to create an aggregate incentive payment pool. Second, the aggregate incentive payment pool is redistributed to hospitals based on VBP Performance Scores. The highest performing hospitals can earn up to twice the amount of the reduction, that is, 3 percentage points (from -1.5 percent to 1.5 percent). The reduction to base operating DRG payments will increase from 1.5 percent to 1.75 percent in 2016 and to 2.0 percent in FY2017 and subsequent years, raising the stakes (and risk) for hospitals. In FY2015, 1,714 hospitals will



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receive a positive payment adjustment, with an average adjustment of 0.45 percent approximately equivalent to $24,750 incentive payment per each 1,000 Medicare discharges (assuming average base operating DRG payment of $5,500 per Medicare discharge); 1,375 hospitals will receive a penalty, with an average penalty of -0.30 percent, approximately equivalent to $16,500 per 1,000 Medicare discharges.

*The Hospital Acquired Condition (HAC) Reduction Program* scores hospitals based on their *total HAC Score*, which can range from 1 to 10, with a higher score indicating poorer performance. The score is based on the hospital's reported rates of selected HACs and the hospital's AHRQ Patient Safety Indicator (PSI 90) score. There are 14 categories of HACs (**Appendix B**), but currently the program only tracks the rates of Central Line-Associated Blood Stream Infections (CLABSI) and Catheter-Associated Urinary Tract Infections (CAUTI). In future years the set of performance measures will expand to include additional HACs and increase the weight of HACs relative to the PSI 90 measure in the total HAC Score (**Appendix C**). Hospitals with the highest HAC scores face a 1 percent reduction in their total DRG payment amount, or approximately $55,000 per 1,000 Medicare discharges, and possibly up to $74,000 depending on the hospital's DRG payment structure (adjustments for teaching, disproportionate share, etc.). In FY2015, 721 out of 3,284 participating hospitals were penalized, for an aggregate penalty of over $330 million.

*The Hospital Readmissions Reduction Program (HRRP)* penalizes hospitals with excess 30-day readmissions for patients with acute myocardial infraction (AMI), heart failure (HF), pneumonia (PN), total hip arthroplasty and total knee arthroplasty (THA/TKA), and chronic obstructive pulmonary disease (COPD). Excess readmissions are measured by comparing a hospital's risk-adjusted actual readmissions with the national average for that hospital's case and service mix. Since FY2014, hospitals with excess readmissions are penalized up to 3 percent of their aggregate operating base DRG payments applied to all Medicare discharges. The dollar amount of the readmission penalty is determined by the proportion of the hospital's Medicare operating DRG payments for these excess readmissions relative to the aggregate operating DRG payments for all discharges. In FY2014, 2,638 out of 3,476 participating hospitals were penalized for excess readmissions, with an average excess readmission penalty of 0.63 percent of the base operating DRG payment, or approximately $34,650 per 1,000 Medicare discharges; 39 hospitals were subject to the maximum readmission penalty of 3 percent.

## Contribution of nurses to quality inpatient care

Hospital nurses contribute to creating value in their roles as providers of affordable, high-quality patient care and leaders in delivering novel interventions and models of care. Based on the body of evidence on the relationship between nursing and patient outcomes, the National Quality Forum (NQF) compiled the National Database of Nursing Quality Indicators (NDNQI), which includes nursing-sensitive structure, process, and outcome measures (**Appendix D**). These indicators include, for example, skill mix and education of nursing staff (structure indicators), and CLABSI and CAUTI rates (outcomes indicators).

There is some overlap between NDNQI indicators and Medicare's incentive programs. For example, CLABSI and CAUTI are in the NDNQI database as nurse-sensitive outcomes, and they are also directly targeted under the VBP program and under the HAC reduction program. Other nurse-sensitive outcomes can influence hospital performance scores indirectly through their impact on the relevant targeted outcomes. For example, pressure ulcer (PU) prevalence and ventilator-associated pneumonia (VAP) rate, both NDNQI nurse-sensitive outcomes, are not directly targeted by the incentive programs. However, PU prevalence is included as part of the PSI 90 composite measure, and VAP contributes to pneumonia mortality, both of which are directly targeted by the incentive programs.

**Table 1** summarizes the NDNQI indicators within each incentive program and their potential impact on the hospital's performance scores. We classified the NDNQI indicators as having a *direct impact* if they are included as individual measures in the formula for the total performance score under an incentive programs. NDNQI indicators that are used as sub-scores of individual performance measures (e.g., PU prevalence) and those known to directly correlate with individual performance measures or their sub-scores (e.g., VAP) were classified as having an "indirect impact" on a hospital's performance rating. Nursing-sensitive care with a direct impact on the hospital's performance scores has the strongest potential for improving the hospital's performance and financial bottom line.

The total contribution of an outcome to the performance score depends on the value of the performance domain that includes the outcome and the number of outcomes comprising the domain (**Appendix A**). We calculated the individual contributions of each of the NDNQI nurse-sensitive indicators in the total performance scores, using the weight of the corresponding domain and the number of measures included in the domain, for FY2015 and FY2016. For example in FY2015, CLABSI is included as one of the five outcome measures in the VBP's Outcomes and Safety Domain, thus directly accounting for 6 percent of the performance score (the domain weight, 30%, divided by five measures comprising the domain); it is also included indirectly as one of the indicators in the PSI 90 composite score, which increases its total contribution to the total hospital VBP performance score by another 0.55 percent (PSI 90 weight, 6%, divided by 11 measures comprising PSI90 score), for a total 6.55 percent contribution of the CLABSI outcome to the total hospital VBP performance score. These numbers will change for FY2016 (and subsequent years) as the weight of the Outcomes and Safety domain increases and the domain is expanded to include additional outcomes.

Summary Table 1. **NDNQI nurse-sensitive measures and their inclusion in Medicare hospital incentive programs**

| NDNQI indicator | VBP Program | HAC Reduction Program | Hospital Readmission Reduction Program |
|---|---|---|---|
| **Direct impact** | | | |
| Central Line-Associated Blood Stream Infection (CLABSI) Rates | FY 2015: 6 percent (direct measure, Outcome and Patient Safety Domain) + 0.55 percent (indirect as part of PSI 90) = 6.55 percent of total VBP Performance Score<br><br>FY 2016: 6.23 percent of total VBP Performance Score (direct as part of Patient Safety Domain and indirect as part of PSI90) | FY 2015: 32.5 percent (direct measure, Domain 2) + 3.18 percent (as part of PSI 90, Domain 1) = 35.68 percent of total HAC Performance Score<br><br>FY 2016: 27.27 percent of total HAC Performance Score | |
| Catheter-Associated Urinary Tract Infection (CAUTI) Rates | FY 2015: not included<br><br>FY 2016: 5.71 percent of total VBP Performance Score (direct as part of Patient Safety Domain) | FY 2015: 32.5 percent (direct measure, Domain 2) of total HAC Performance Score<br><br>FY 2016: 25 percent of total HAC Performance Score | |
| **Indirect impact** | | | |
| Pressure Ulcer Rates from Electronic Health Records | FY 2015: 0.55 percent (indirect as part of PSI 90, Outcome and Patient Safety Domain) of total VBP Performance Score<br><br>FY 2016: 0.52 percent of total VBP Performance Score | FY 2015: 3.18 percent (as part of PSI 90, Domain 1) of total HAC Performance Score<br><br>FY 2016: 2.27 percent of total HAC Performance Score | |
| Ventilator-Associated Pneumonia Rates | Related to "30-day pneumonia mortality rate" (Outcome and Patient Safety Domain) accounting for 6 percent of total VBP Performance Score in FY 2015 and 5.71 percent of total VBP Performance Score in FY 2016 | | |
| Hospital Readmission Rates (overall) | | | Related to excess readmissions for select DRGs (AMI, HF, PN, total knee/ hip replacement, COPD) |

*NDNQI indicators directly affecting performance rating.* Considering the direct and indirect impacts, the two nurse-sensitive measures with the most significant potential for influencing the hospital's performance rating are 1) incidence of Central Line-Associated Blood Stream Infections (CLABSI) and 2) the incidence of Catheter-Associated Urinary Tract Infections (CAUTI). These indicators are included in the hospital's performance rating under two payment incentive programs – the VBP Program and the HAC Reduction Program. Starting in FY2016, CLABSI and CAUTI will jointly account for nearly 12 percent of the hospital's total VBP Performance Score (CLABSI at 6.2% and CAUTI at 5.7%), with CLASBI weighing in slightly more than CAUTI because it is included directly as a targeted outcome measure and indirectly as part of the PSI 90 composite measure. Both CLABSI and CAUTI are also targeted outcome measures under the HAC reduction program, jointly accounting for over two-thirds of the hospital's total HAC score. Therefore, efforts to lower the rates of CLABSI and CAUTI through quality nursing care are a top priority for hospitals.

*NDNQI indicators indirectly affecting performance ratings.* Three nurse-sensitive outcomes can indirectly affect the hospital's

performance rating: pressure ulcer (PU) prevalence, ventilator-associated pneumonia (VAP) rate, and 30-day readmission rate. PU prevalence is one of the components of the PSI 90 composite measure, which in turn is part of the hospital performance score under the VBP and HAC Reduction programs. Although the weight of PU prevalence is nominally small, accounting for less than 1 percent of the VBP Performance score and only 2–3 percent of the HAC Performance score, it could have financial implications for hospitals around the cut-off threshold for the HAC penalty.

Another nurse-sensitive outcome with indirect implications for value-based purchasing is ventilator-associated pneumonia (VAP) which has an attributable mortality rate of 13 percent in the ICU according to a recent meta-analysis. While VAP is not an independent outcome measure in any of the incentive programs, reducing VAP can be expected to improve the hospital's 30-day pneumonia mortality measure under the VBP Program (although the exact relationship between ventilator-associated pneumonia and 30-day pneumonia mortality is unclear).

Lastly, HRRP targets excess readmissions for AMI, HF, PN, knee/hip replacement surgery, and COPD. While the NDNQI indicator of all-cause 30-day readmissions is broader than that (the HRRP-targeted conditions jointly account for close to 20 percent of all readmissions among Medicare patients), it is likely that nursing-related interventions to reduce all-cause readmission will also reduce readmissions targeted by HRRP.

## Hospital performance and NDNQI's nursing-sensitive outcomes measures

Nurses are uniquely positioned to influence many of the processes around prevention of HACs and reducing readmissions.

*Leveraging nurses to reduce HACs*. Johns Hopkins University's Comprehensive Unit-Based Safety Program (CUSP) recommends evidence-based bundles for CLASBI and CAUTI that have been shown to significantly reduce the incidence of the targeted HACs. Effective prevention strategies include performing hand hygiene before and after accessing a central line or catheter, disinfecting skin with appropriate antiseptic, and using a particular type of sterile dressing at the insertion site. Large randomized controlled trials, funded by the Agency for Healthcare Research and Quality (AHRQ), demonstrated a 41 percent reduction in the risk of CLABSI and a 6–14 percent reduction in the risk of CAUTI following the implementation of the respective CUSP care bundles.

For an average hospital, based on the FY2015 HAC thresholds and benchmarks, the reductions of 41 percent for CLABSI and 14 percent for CAUTI would be equivalent to achieving close to a perfect score on the CLABSI and CAUTI measures under the VBP program, with the potential of increasing the total hospital performance score by full 12 percentage points. Because the VBP performance scores close-to-linearly translate into increased payment adjustments, a 12 percentage point increase in the VBP performance score could increase VBP incentive payments by $19,800 annually per 1,000 Medicare discharges, for an average hospital.

Evidence-based prevention bundles also exist for VAP and PU; however, their effectiveness is debatable. A recent study suggested that emphasis in VAP prevention should be placed on select elements of the bundle that include reducing the duration of mechanical ventilation and oral decontamination of intubated patients with an antiseptic, which could lead to a 40 percent reduction in the odds of VAP in critically ill patients. PU-reduction strategies that have shown to be effective include identifying and improving nutritional deficiencies and proper skin care to prevent dry skin, friction and shearing on bedsheets and emphasizing mobility. All of these interventions involve nursing-sensitive care processes or basic nursing care and point to the importance of promoting evidence-based nursing practice to improve patient outcomes and promote high-value hospital care.

Despite the proven effectiveness of many HAC prevention strategies, the adoption and adherence of such strategies remains suboptimal. A recent national survey of infection control practices in 1,534 ICUs at 975 hospitals showed that adoption of the CLABSI bundle ranged from 87–97 percent (depending on the measure), the presence of policies for VAP prevention ranged from 69 to 91 percent, and policies for CAUTI lagged even further behind with only 27–68 percent adoption rates among the study hospitals. Additionally, even in hospitals that adopted these bundles, adherence to the prevention policies ranged from 37–71 percent for CLABSI, 45 to 55 percent for VAP, and only 6–27 percent for CAUTI. Therefore, a broad-scale effort to improve adoption of and adherence to evidence-based HAC-reduction protocols by hospital nursing staff has a significant potential to improve performance scores and increase financial returns for hospitals.

A range of nursing interventions can be successful in promoting adoption and adherence to evidence-based HAC prevention bundles. In the summary report, AHRQ noted several key initiatives for successful adoption of the CUSP interventions: 1) educating all physician and nursing staff on evidence-based practices; 2) implementing and empowering nurses to ensure compliance with the checklist, and 3) providing feedback on infection rates at the nursing unit level. Of particular importance for adherence was a shared approach to ownership and knowledge of infection rates between infection prevention specialists and clinicians (nurses and physicians) responsible for providing patient care. Engaged and supportive physician and nurse champions were vital to the success of the program – physician champions were critical to empowering nurses to hold physicians accountable for not following evidence-based practice.

*Leveraging nurses to reduce readmissions*: Successful nursing interventions to reduce readmissions have largely centered on care coordination prior to and during the transition period from hospital to home-based care. Large scale initiatives to improve the discharge transition have produced significant reductions in readmissions and lower costs of care. Discharge preparation encompasses the integrated functions of discharge planning, coordination of discharge services, and discharge teaching. High quality discharge preparation initiates a cascade of positive outcomes at discharge and in the post-hospitalization period – improved patient readiness for discharge, fewer problems in managing care at home, and reduced risk of readmission and post-discharge emergency department visits.

A number of transitional care initiatives focus on care coordination in the immediate post-discharge period (Transitional Care Model, Re-Engineered Discharge Project, Care Transitions Program, Better Outcomes by Optimizing Safe Transitions Project). For example, the Transitional Care Model (TCM) uses a coordinated, nurse-led approach to overcome common breakdowns in care during the transition from hospital to home-based or other care settings. Key elements of the TCM include the use of transitional care nurses as primary coordinators of care, assessing patients care needs, designing evidence-based care plans, conducting home visits, and promoting positive patient and family engagement. Naylor et al. (2011) show that the TCM, when embedded into a Medicare health plan, can reduce hospital readmissions for at-risk elders by 25 percent, with costs savings at 12 months of $3,000 to $5,000 per Medicare beneficiary.

The impact of adoption of key elements of these transitional care initiatives will soon expand beyond HRRP. In FY2018, Medicare plans to include several care transition measures (online Appendix A) in the VBP Program under the Patient Experiences of Care Domain. Given the significant potential of transitional care in reducing readmissions and costs of care, and its upcoming role as a quality indicator in the VBP model, implementation of a coordinated approach like the TCM should be one of the high-priority objectives for hospitals in the new incentive-based payment environment.

## Hospital performance and NDNQI's nursing structure measures

The NQF endorses several structural nursing quality measures, such as nurse staffing, skill mix, education, and turnover (Online Appendix D). Each of these quality measures has been linked to an array of improved patient outcomes, among which are several high-value outcomes targeted by CMS's incentive-based payment models. Specifically, better nurse staffing, characterized by a higher Registered Nurse (RN) hours per patient day and a higher proportion of baccalaureate-prepared nurses on hospital staff, is linked to lower mortality, reduced 30-day readmissions, and lower rates of pressure ulcers.

Of particular interest is the emerging body of evidence on the link between nursing structure characteristics and costs of care. Average cost per Medicare beneficiary is one of the performance domains under the VBP Program, where it accounts for nearly a third of the total hospital performance score. Several recent studies linked improved nurse staffing, increased nurse education, and greater nurse expertise, to lower costs of care. For example, a study of nurse staffing and patient outcomes from medical-surgical units at four hospitals in the Midwest found that increasing registered nurse staffing by 45 minutes per patient-day could reduce per-patient costs of care by $400, after accounting for increased staffing costs. Another study linking nurse education to patient outcomes and costs at a large urban teaching hospital projected a cost saving of over $5 million, annually, from increasing the proportion of Baccalaureate-educated staff nurses to 80 percent.

Given the robust evidence of the link of nurse structure variables to improved outcomes, and the emerging evidence of cost savings, a commitment to a quality nursing structure is essential to optimizing the contribution of nurses to value-based hospital care. This requires increasing investment in highly-skilled and educated nursing workforce, and a focus on fostering a positive work environment where nurses can be equal partners, with physicians and other health care professionals, in providing high-value patient care.

## Conclusion

Achieving improved hospital performance and financial returns in Medicare's new incentive-based payment systems requires investments in evidence-based nursing practices that target nursing-sensitive outcomes with the largest impact on a hospital's performance ranking. Increasing the adoption of and adherence to evidence-based practices to prevent high-priority HACs (CLABSI and CAUTI) is critical and requires that nurses share ownership and accountability for patient outcomes with physicians and infection-control specialists. Additionally, a focus on adoption of a robust evidence-based transition care approach has a two-fold importance of reducing excess readmissions and preparing for the future when the VBP program incorporates transitional care measures. A comprehensive approach, one that combines an emphasis on evidence-based nursing interventions with continued investments in training and education of hospital nurses, and a commitment to a positive nurse practice environment, are key to becoming a high-value provider of patient care in a policy environment that rewards quality and penalizes low performance.

*The authors are grateful to Maureen Dailey, PhD, RN, CWOCN Senior Policy Advisor—Quality, American Nurses Association Department of Health Policy, whose policy expertise greatly informed this discussion.*

Appendix A. **Summary Table of Final Hospital VBP measures and Domains for FY 2014, 2015, 2016, 2017, and 2018**

| Measure ID | Measure Description | FY 2014 | FY 2015 | FY 2016 | FY* 2017 | FY* 2018 |
|---|---|---|---|---|---|---|
| **Process of Care Domain** | | **45 percent** | **20 percent** | **10 percent** | **5 percent** | **Phased out** |
| AMI-7a | Fibrinolytic Therapy Received Within 30 Minutes of Hospital Arrival | X | X | X | X | |
| AMI-8a | Primary PCI Received Within 90 Minutes of Hospital Arrival | X | X | X | | |
| IMM-2 | Influenza Immunization | | | X | X | |
| HF-1 | Discharge Instructions | X | X | | | |
| PN-3b | Blood Cultures Performed in the ED Prior to Initial Antibiotic Received in Hospital | X | X | | | |
| PN-6 | Initial Antibiotic Selection for CAP in Immunocompetent Patient | X | X | X | | |
| SCIP-Inf-1 | Prophylactic Antibiotic Received Within One Hour Prior to Surgical Incision | X | X | | | |
| SCIP-Inf-2 | Prophylactic Antibiotic Selection for Surgical Patients | X | X | X | | |
| SCIP-Inf-3 | Prophylactic Antibiotics Discontinued Within 24 Hours After Surgery End Time | X | X | X | | |
| SCIP-Inf-4 | Cardiac Surgery Patients with Controlled 6AM Postoperative Serum Glucose | X | X | | | |
| SCIP-Inf-9 | Urinary Catheter Removal on Post-Operative Day 1 or 2 | X | X | X | | |
| SCIP–Card-2 | Surgery Patients on a Beta Blocker Prior to Arrival That Received a Beta Blocker During the Perioperative Period | X | X | X | | |
| SCIP-VTE-1 | Surgery Patients with Recommended Venous Thromboembolism Prophylaxis Ordered | X | | | | |
| SCIP-VTE-2 | Surgery Patients Who Received Appropriate Venous Thromboembolism Prophylaxis Within 24 Hours Prior to Surgery to 24 Hours After Surgery | X | X | X | | |
| | Perinatal Care: Elective Delivery < 39 completed weeks of gestation | | | | X | Move to outcomes |

Appendix A. **Summary Table of Final Hospital VBP measures and Domains for FY 2014, 2015, 2016, 2017, and 2018** (Continued)

| Measure ID | Measure Description | FY 2014 | FY 2015 | FY 2016 | FY* 2017 | FY* 2018 |
|---|---|---|---|---|---|---|
| **Patient Experience of Care Domain** | | **30 percent** | **30 percent** | **25 percent** | **25 percent** | **25 percent** |
| **Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) 8 dimensions:**<br>■ Communication with Nurses<br>■ Communication with Doctors<br>■ Responsiveness of Hospital Staff<br>■ Pain Management<br>■ Communication About Medicines<br>■ Cleanliness and Quietness of Hospital Environment<br>■ Discharge Information<br>■ Overall Rating of Hospital | | X | X | X | X | X |
| **3-Item Care Transition Measure**<br>■ Patient/family preferences taken into account in post-discharge planning<br>■ Patient had good understanding of self-management after leaving hospital<br>■ Patient had clear understanding of medications after leaving hospital | | | | | | X |
| **Outcomes and Safety Domain** | | **25 percent** | **30 percent** | **40 percent** | **45 percent**<br>**(Outcomes 25 & safety 20)** | **50 percent**<br>**(Outcomes 25 & safety 25)** |
| MORT-30-AMI | Acute Myocardial Infarction (AMI) 30-Day Mortality Rate | X | X | X | X | X |
| MORT-30-HF | Heart Failure (HF) 30-Day Mortality Rate | X | X | X | X | X |
| MORT-30-PN | Pneumonia (PN) 30-Day Mortality Rate | X | X | X | X | X |
| CLABSI | Central Line-Associated Blood Stream Infection | | X | X | X | X |
| CAUTI | Catheter-Associated Urinary Tract Infection | | | X | X | X |
| SSI | Surgical Site Infection (Colon, Abdominal Hysterectomy) | | | X | X | X |
| MRSA | Methicillin-Resistant Staphylococcus aureus Bacteremia | | | | X | X |
| CDI | Clostridium Difficile Infection | | | | X | X |
| PSI 90 | Patient safety for selected indicators(composite) | | X | X | X | X |
| **Efficiency and Cost Reduction Domain** | | **0 percent** | **20 percent** | **25 percent** | **25 percent** | **25 percent** |
| Medicare Spending per Beneficiary | | | X | X | X | X |

*Proposed
Source

Appendix B. **Hospital-Acquired Conditions FY 2015**

| HAC Category | Sub-categories |
|---|---|
| Foreign Object Retained After Surgery | |
| Air Embolism | |
| Blood Incompatibility | |
| Stage III and IV Pressure Ulcers | |
| Falls and Trauma | ■ Fractures<br>■ Dislocations<br>■ Intracranial Injuries<br>■ Crushing Injuries<br>■ Burn<br>■ Other Injuries |
| Manifestations of Poor Glycemic Control | ■ Diabetic Ketoacidosis<br>■ Nonketotic Hyperosmolar Coma<br>■ Hypoglycemic Coma<br>■ Secondary Diabetes with Ketoacidosis<br>■ Secondary Diabetes with Hyperosmolarity |
| CAUTI | |
| CLABSI | |
| Surgical Site Infection, Mediastinitis, Following Coronary Artery Bypass Graft (CABG): | |
| Surgical Site Infection Following Bariatric Surgery for Obesity | ■ Laparoscopic Gastric Bypass<br>■ Gastroenterostomy<br>■ Laparoscopic Gastric Restrictive Surgery |
| Surgical Site Infection Following Cardiac Implantable Electronic Device (CIED) | |
| Deep Vein Thrombosis (DVT)/Pulmonary Embolism (PE) Following Certain Orthopedic Procedures | ■ Total Knee Replacement<br>■ Hip Replacement |
| Iatrogenic Pneumothorax with Venous Catheterization | |

Source

Appendix C. **Summary Table of Final HAC performance measures and Domains for FY 2015, FY 2016, FY 2017**

| Measure | FY 2015 | FY 2016 | FY 2017 |
|---|---|---|---|
| **Domain 1 – AHRQ PSI 90 Measure (Score 1–10)** | **35 percent** | **25 percent** | **25 percent** |
| ■ PSI 03 Pressure Ulcer Rate<br>■ PSI 06 Iatrogenic Pneumothorax Rate<br>■ PSI 07 Central Venous Catheter-Related Blood Stream Infection Rate<br>■ PSI 08 Postoperative Hip Fracture Rate<br>■ PSI 09 Perioperative Hemorrhage or Hematoma Rate<br>■ PSI 10 Postoperative Physiologic and Metabolic Derangement Rate<br>■ PSI 11 Postoperative Respiratory Failure Rate<br>■ PSI 12 Perioperative Pulmonary Embolism or Deep Vein Thrombosis Rate<br>■ PSI 13 Postoperative Sepsis Rate<br>■ PSI 14 Postoperative Wound Dehiscence Rate<br>■ PSI 15 Accidental Puncture or Laceration Rate | X | X | X |
| **Domain 2 – CDC National Healthcare Safety Measures (Average Score 1–10)** | **65 percent** | **75 percent** | **75 percent** |
| CLABSI Central Line Associated Blood Stream Infection rate | X | X | X |
| CAUTI Catheter-Associated Urinary Tract Infection rate | X | X | X |
| SSI Surgical Site Infection (Colon, Abdominal Hysterectomy) | | X | X |
| MRSA Methicillin-resistant Staphylococcus aureus rate | | | X |
| CDI Clostridium Difficile Infection rate | | | X |

Source

Appendix D. **National Database of Nursing Quality Indicators (NDNQI) nurse-sensitive indicators**

| Indicator | Sub-Indicator |
|---|---|
| **Structure** | |
| 1. Nursing Staff Skill Mix | a. Registered Nurses (RN)<br>b. Licensed Practical/Vocational Nurses (LPN/LVN)<br>c. Unlicensed Assistive Personnel (UAP) |
| 2. Nursing Hours per Patient Day | a. RN's<br>b. LPN/LVN's<br>c. UAP<br>d. percent of total nursing hours supplied by Agency Staff |
| 3. Nurse Turnover Rate | |
| 4. RN Education/Certification | a. percent of total nursing hours supplied by BSN trained nurses |
| 5. Nursing Hours in Emergency Departments, PeriOperative Units and Perinatal Units | a. RN's<br>b. LPN/LVN's<br>c. UAP<br>d. percent of total nursing hours supplied by Agency Staff |
| 6. Assault/Injury Assault Rates | |
| 7. Skill Mix in Emergency Departments, PeriOperative Units and Perinatal Units | a. Registered Nurses (RN)<br>b. Licensed Practical/Vocational Nurses (LPN/LVN)<br>c. Unlicensed Assistive Personnel (UAP) |
| **Process** | |
| 1. Pain Assessment/Intervention/Reassessment Cycles Completed | |
| **Outcomes** | |
| 1. CAUTI Catheter-Associated Urinary Tract Infection Rates | |
| 2. CLABSI Central Line-Associated Blood Stream Infection Rates | |
| 3. Pressure Ulcer Incidence Rates from Electronic Health Records | a. Community Acquired<br>b. Hospital Acquired<br>c. Unit Acquired |
| 4. Hospital/Unit Acquired Pressure Ulcer Rates | |
| 5. Ventilator-Associated Pneumonia Rates | |
| 6. Fall/Injury Fall Rates | a. Injury Level |
| 7. Peripheral IV Infiltration Rate | |
| 8. Physical Restraint Prevalence | |
| 9. Falls in Ambulatory Settings | |
| 10. Hospital Readmission Rates | a. All-cause 30-day readmission rate |

Source

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