How Predictive Analytics Will Prevent the Cost of Harm:

A Practical Approach for Hospital Management Systems.

Douglas B. Dotan, MA, CQIA
Kerry J. Koski, MBA, CPHQ
www.pegwin.io
Team@pegwin.io
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Summary

The technology is available today to use predictive analytics for preventing patient harm and avoiding the subsequent negative financial impact. 'An ounce of prevention is worth a pound of cure' – this mindset is a must for any hospital to reach high-reliability given the complexity of today's healthcare setting. Failure to recognize preventable adverse events (PAE) has a significant impact on a healthcare provider's bottom line. In reviewing the 2014 National Medicare inpatient DRG reimbursements,[1] it's clear that even a 1% penalty translates into a $3.5 billion unfavorable financial impact to the industry. This cost can be avoided by integrating predictive analytics into hospital management systems, a logical next step in the continual improvement of patient safety and quality of care. To achieve this next step and ultimately a healthier population, hospital leadership must create and sustain a Just Culture environment where organizational core values are demonstrated everyday by everyone. This requires a systematic approach of utilizing available information technology with evidenced-based clinical pathways to anticipate threats (preventable adverse events) and mitigate the likelihood of occurrence. Just improving the readmissions penalty, which will reach an all-time high[2] of +$500M in FY 2017, should justify an industry-wide focus on prevention. Patient safety/quality improvement projects are not only justified from a patient care perspective, but may also be cost-justified in terms of the negative impact on the bottom line. The publicly reported Medicare metrics[3] (Appendix A) are key determinants of a hospital's bottom line and financial viability. Understanding the factors that drive these metrics and proactively preventing adverse events from occurring must be on every organization's critical pathway to care effectiveness.

Background

Healthcare and the mandates of the 2010 Affordable Care Act (ACA) are now major topics of conversation. The discussion has become quite controversial and complex, and is rife with political partisanship. The eventual success of this mandate remains to be seen. While it's true that some 10 to 20 million[4] more Americans are now covered with healthcare insurance, this coverage has come at significant added cost and complexity. Prior to the ACA our healthcare system was fragmented with little connection between healthcare providers. In 2010 U.S. per capita healthcare costs were 251%[5] of the average for counties identified by the Organization for

Economic Cooperation and Development (OECD). In 2015 the OECD statistics reflect the U.S. per capita cost at 253%[5] of the average, and yet we rank in the lower third of the reporting countries in 6 of the 9 OECD defined Quality of Care indicators. Additionally, the interoperability of our healthcare information technology is still behind the curve and is not expected to meet stated objectives for another 5 years according to the 2015 Roadmap[6] from the Office of the National Coordinator (ONC) for Health Information Technology.

The unintended consequences of the mandate are also seen in a recent 2016 Medscape survey[7]. In this survey 15,800 physicians from over 25 specialties responded, indicating that burnout among US physicians has reached a critical level and that "too many bureaucratic tasks" was a prevailing factor in the burnout. The bureaucratic overload deprives care providers from patient time and erodes the effectiveness of care. This care erosion manifests itself in medical errors. According to the British Medical Journal[8] medical errors are now the third leading cause of death in the US.

The key challenge in the US Healthcare system is the ability to deliver quality care at an affordable cost. As stated earlier, providing more individuals with healthcare insurance is a good thing and certainly a noble cause. However, we should expect continued erosion in the timeliness and in the quality of care as we inject another 10-20 million patients into the system in the coming years as per the ACA mandated objectives. Saddling our doctors and care providers with more bureaucratic tasks is counterproductive and must be reassessed going forward.

An initial step in rethinking our approach is to use available health information technology (HIT) to capture predictive data elements and thereby provide the medical team with real-time analytical capability to prevent preventable harm. This initial step is a priority (safety first), but not sufficient to achieve optimized care which is effective, timely, and affordable. The optimization is realized when the analytics are integrated into an overall hospital management system that ensures accountability, clarity of requirements, and zero-defect capable processes. This thinking must stem from senior leadership and needs to be cascaded through every facet of the organization and care continuum.

Senior leaders must articulate organizational core values that include thinking about prevention – it is this mindfulness that shapes a 'Just Culture' and a focus on patient safety. Without this cultural foundation in place the desired organizational behaviors and positive changes will not be created and sustained. Competent care teams recognize unsafe conditions (threats/hazards) when they are encountered in daily clinical workflows. If 'Prevention Thinking' is a part of an organization's culture, documenting these adverse events – potential or actual – is less problematic because teams understand that without the record of events and a system of review, the unsafe condition is likely to reoccur. For instance, an 85-year old underwent a diagnostic cardiac-cath, utilizing a device previously unused at the facility or by the physician to stitch the vessel instead of traditional packing and compression of the insertion site. Within minutes a large hematoma developed at the site indicating a collection of blood. Patient was immediately returned to surgery where it was found that the stitches had torn through the vessel which was friable. With predictive analytics the care team would have been able to identify in advance the potential threats and risks associated with using a medical device with low familiarity. Documentation provides details for predictive analytics which in turn deepens the organizational understanding of causal factors. It is through this learning that prevention is incorporated into workflows and future patient harm is prevented.

An effective hospital management system, by nature of its design, is an ideal vehicle to integrate core values, workflows, and analytics. An effective system provides clearly defined process accountability, measurable requirements, and the structured continual improvement needed for sustainability. As such, the hospital management system becomes a critical enabler in the cultural transition from the status quo of 'fixing and forgetting' problems to that of a High Reliability Organization (HRO) that prevents adverse events from occurring.

Structuring a hospital management system and transitioning to an HRO must be done within regulatory constraints. While conceptually important and fiscally mandated, many of the current regulatory reporting requirements tend to be barriers of effective care delivery. One example is the recent release of the Hospital Quality Star Rating (HQSR) system from the Centers for Medicare and Medicaid Services (CMS). The rating system objective is "to help millions of patients

and their families learn about the quality of hospitals, compare facilities in their area side-by-side, and ask important questions about care quality when visiting a hospital or other healthcare provider." This is also a noble cause but the ranking system is receiving significant push-back as evidenced in commentaries[9] from 60 senators and 225 members of the House of Representatives urging CMS to delay releasing the star ratings. A typical comment was that "We have heard from hospitals in our districts that they do not have the necessary data to replicate or evaluate CMS's work to ensure that the methodology is accurate or fair." From the same article, Dr. Janis Orlowski, an executive at the Association of American Medical Colleges, said the fact that so many prestigious hospitals fare poorly in the star ratings is a signal that Medicare's methods are flawed. "These are hospitals that everyone in the know tries to get into, so we need to be careful about the consequences, that this star rating can be misleading," Orlowski said. "Putting the information out at this time is not in the patient's interest."

The active threats in healthcare are many and current regulatory reporting requirements are focused on key measures from which CMS will levy reimbursement penalties against the hospitals (Appendix A). The Star Rating system of CMS may be perceived as flawed but it has the real potential of significantly impacting the financial wellbeing of a hospital. An unfavorable publicly reported rating can easily drive current and future patients to another site whether that site is truly a better source of care or not.

Recognizing the constraints of mandated reporting does not preclude using the derived metrics as effectiveness measures in an organization's journey to develop a culture to eliminate preventable patient harm. Understanding these measures and the elements that drive unfavorable metrics will ensure patient centric care and hospital financial viability.

Approach

The key question is how to integrate predictive analytics into a hospital management system without overwhelming an already busy care team. We have identified six critical building blocks that need to be honestly assessed for this next step to work. This isn't a 'go-no-go' assessment of

the next step but rather an indication of where you are in the journey of ensuring safety, quality of care, and bottom line effectiveness.

1. Safety/Quality Culture

The integration of predictive analytics into the hospital management system, like any other continual improvement effort, needs to evolve from the organization's core purpose and values. Leadership must have the conviction to recognize and reward those who are committed to living the core values on a day-by-day basis. Published research across multiple industries over the past decades indicates that Leadership behavior is pivotal in cultivating a culture of safety and quality. Evidence of leadership conviction includes:

a. Allocation of sufficient resources in safety, quality, and risk functions
b. Recognizing and rewarding personnel who are living the core values and focusing on prevention rather than 'fixing and forgetting' problems
c. Strategy deployment and accountability for the integrated use of predictive analytics and hospital management systems
d. A clearly defined and communicated Just Culture policy

2. Management System Cohesion/Consistency

The hospital management system must provide cohesion and consistency and assimilate these key elements: Purpose, Core Values, Accountability, Clarity of Requirements, Zero-defect Capable Processes, Measured Outcomes, and Continual Improvement. The hospital system should be certified using recognized standards either by internal auditors or by an accredited third-party registrar. Certification of the system to nationally recognized standards helps leadership prevent a check-the-box exercise solely for a certification plaque on the wall. Evidence of high-reliability industries that leverage certified management systems can be found in the nuclear and aerospace sectors. Both sectors incorporate a system certification using a national standard: the nuclear industry uses NQA-1 and 10CFR50 Part B and aerospace incorporates AS9001 – all of which are similar to the National Integrated Accreditation for Healthcare Organizations (NIAHO) requirements. Evidence of a consistent and cohesive management system includes:

a. Administrative and clinical processes are documented (policies/procedures) with assigned functional accountability for process adherence and effectiveness
b. Process requirements/outputs are clearly defined and measurable
c. Certification and periodic compliance audits are conducted
d. Processes are executed per defined methods on a daily basis, not just for audit preparation

3. Chartered Safety/Quality Network

Cohesion and consistency in the management system enables an organization to charter and sustain an effective patient safety/quality network without 'reorganizing' or creating a new administrative department. The safety/quality network provides the process accountability/requirements for documenting adverse events, coordinating the analysis of facts and the environment surrounding the event, and, most importantly, collaborating with the affected participants on the how-who-when regarding the implementation of preventative actions. Evidence of an effective safety/quality network includes:

a. Chartered with clearly defined roles and accountability
b. Utilized to provide collaboration and guidance for predicting/preventing adverse events and not just 'fixing and forgetting'
c. Cross-functional membership with active participation of staff and patients as appropriate in analyzing workflow

4. Documenting Adverse Events

Ideally, there won't be any preventable adverse event documentation requirements once the events are predicted and prevented. It will take time to reach this level of reliability in healthcare given the unique characteristics of each patient. The Patient Safety and Quality Improvement Act (PSQIA) of 2005 established a framework by which information voluntarily reported or discussed by doctors, hospitals, and other health care providers regarding patient safety events and quality of care is protected from disclosure. The Act provides specific legal protections for privileged and confidential event-level data voluntarily submitted by health care providers to PSOs (Patient Safety Organizations) and

allows shared learning to enhance quality and safety nationally[10]. The use of the right information technology to capture and document adverse events will reduce the bureaucratic nature of current reporting while providing critical data for predictive analytics. The technology is available but we still need to work on the 'prevention thinking' and inculcating the belief that documenting adverse events can be less onerous and more value-add. Reducing the burden of recording promotes capturing both actual events and near misses, i.e., those events that don't reach the patient or cause harm. Near misses provide insight into workflow weaknesses that, when analyzed and addressed, truly builds process reliability and removes patients from vulnerability. Today there are 82 PSO's that healthcare providers voluntarily submit Patient Safety Work Product (PSWP) for expert advice on preventing adverse events[11]. The voluntary aspect of reporting events to PSO's is about to change. Beginning January 2017, Section 1311(h)(1) of the Affordable Care Act specifies that a qualified health plan issuer *may contract* with health care providers and hospitals with more than 50 beds *only if they meet* certain patient safety standards, including *use of a patient safety evaluation system* (PSES), a comprehensive hospital discharge program, and implementation of health care quality improvement activities[12]. Evidence of effective adverse event documentation includes:

a. Clearly defined and measurable process requirements to evaluate on-going conformance
b. Implementation of an adverse events database and operation of a PSES
c. Participation in a PSO to process PSWP for collaboration and expert advice when analyzing adverse events
d. Metrics on the number/type of adverse events and a comparative assessment with similar sites at the health system or national/regional level
e. Percentage of adverse events with defined preventive actions/accountability and number of preventive actions validated for effectiveness
f. Implementation costs for using adverse event documentation and predictive analytics are offset by the reduction in penalties and additional clinical care related to treating the harm.

5. Integrating Predictive Analytics

'Seeing is believing'. Chartering the patient safety/quality network to help guide care teams on using the right IT to capture events, conducting real-time analytics, and collaborating on preventative actions doesn't require an act of Congress. The technology is available to connect patient demographics, plan-of-care, and prior events so that the care team is able to see where the threats lie as the patient traverses through the care continuum. This isn't 'cook book' medicine. It's the ability to see in real-time the causal factors that determine effective care and prevent harm – it is the essence of patient safety and quality of care. Evidence of using predictive analytics includes:

a. Platform and application software in place
b. Caregiver awareness of and belief in the use of predictive analytics to improve decision making
c. Performance metrics tracking the number of adverse events prevented

6. Knowledge Sharing

Knowledge sharing between patient safety/quality networks is the catalyst for predictive capabilities to grow exponentially. Healthcare providers have a common goal – patient safety, quality, affordability – so sharing shouldn't be met with organizational barriers. The networks should be structured by unit, site, health system, and region in order to ensure the cross-pollination of knowledge and efficient use of resources. Evidence of effective sharing between patient safety/quality networks include:

a. Sharing networks and members are identified and chartered with clearly defined accountability
b. Processes are defined to address/resolve/elevate conflicts regarding proprietary matters or turf-protection
c. Performance metrics are utilized to track the number of shared improvements, e.g. implementation of evidenced-based best practices from a shared source

Conclusion:

With predictive analytic systems that are currently being developed, there is an opportunity to significantly improve patient safety by predicting and preventing harmful events. This is not only

the right thing to do clinically but is also favorable from an economic perspective. Committed leadership is required to change culture and implement this important technology.

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Appendix A: Measures Impacting a Hospital's Financial Viability

			Percent Financial Penalty Based on Periodic Reporting (2018)		
			1%	2%	3%
Identifier	**Definition**	**Hospital Compare 5-Star**	**Hospital Acquired Conditions**	**Value Based Purchasing**	**Readmissions**
ACS-REGISTRY	Multispecialty Surgical Registry				
AMI-7a	Heart attack patients who got drugs to break up blood clots within 30 minutes of arrival			X	
AMI-8a	Heart attack patients given a procedure to open blocked blood vessels within 90 minutes of arrival				
CAC-3	Children and their caregivers who received a home management plan of care document while hospitalized for asthma	Measured			
COMP-HIP-KNEE	Rate of complications for hip/knee replacement patients	Measured			
ED-1b	Average (median) time patients spent in the emergency department, before they were admitted to the hospital as an inpatient	Measured			
ED-2b	Average (median) time patients spent in the emergency department, after the doctor decided to admit them as an inpatient before leaving the emergency department for their inpatient room	Measured			
EDV	Emergency department volume				
HAI-1	Central line-associated bloodstream infections (CLABSI) in ICUs and select wards	Measured	X	X	
HAI-1a	Central line-associated bloodstream infections (CLABSI) in ICUs only				
HAI-2	Catheter-associated urinary tract infections (CAUTI) in ICUs and select wards	Measured	X	X	
HAI-2a	Catheter-associated urinary tract infections (CAUTI) in ICUs only				
HAI-3	Surgical site infections from colon surgery (SSI: Colon)	Measured	X	X	
HAI-4	Surgical site infections from abdominal hysterectomy (SSI: Hysterectomy)	Measured	X	X	
HAI-5	Methicillin-resistant*Staphylococcus Aureus* (MRSA) Blood Laboratory-identified Events (Bloodstream infections)	Measured	X	X	
HAI-6	*Clostridium difficile*(C.diff.) Laboratory-identified Events (Intestinal infections)	Measured	X	X	
H-CLEAN-HSP-A-P	Patients who reported that their room and bathroom were "Always" clean	Measured		X	

			Percent Financial Penalty Based on Periodic Reporting (2018)		
			1%	2%	3%
Identifier	Definition	Hospital Compare 5-Star	Hospital Acquired Conditions	Value Based Purchasing	Readmissions
H-CLEAN-HSP-SN-P	Patients who reported that their room and bathroom were "Sometimes" or "Never" clean				
H-CLEAN-HSP-U-P	Patients who reported that their room and bathroom were "Usually" clean				
H-COMP-1-A-P	Patients who reported that their nurses "Always" communicated well	Measured		X	
H-COMP-1-SN-P	Patients who reported that their nurses "Sometimes" or "Never" communicated well				
H-COMP-1-U-P	Patients who reported that their nurses "Usually" communicated well				
H-COMP-2-A-P	Patients who reported that their doctors "Always" communicated well	Measured		X	
H-COMP-2-SN-P	Patients who reported that their doctors "Sometimes" or "Never" communicated well				
H-COMP-2-U-P	Patients who reported that their doctors "Usually" communicated well				
H-COMP-3-A-P	Patients who reported that they "Always" received help as soon as they wanted	Measured		X	
H-COMP-3-SN-P	Patients who reported that they "Sometimes" or "Never" received help as soon as they wanted				
H-COMP-3-U-P	Patients who reported that they "Usually" received help as soon as they wanted				
H-COMP-4-A-P	Patients who reported that their pain was "Always" well controlled	Measured		X	
H-COMP-4-SN-P	Patients who reported that their pain was "Sometimes" or "Never" well controlled				
H-COMP-4-U-P	Patients who reported that their pain was "Usually" well controlled				
H-COMP-5-A-P	Patients who reported that staff "Always" explained about medicines before giving it to them	Measured		X	
H-COMP-5-SN-P	Patients who reported that staff "Sometimes" or "Never" explained about medicines before giving it to them				
H-COMP-5-U-P	Patients who reported that staff "Usually" explained about medicines before giving it to them				
H-COMP-6-N-P	Patients who reported that NO, they were not given information about what to do during their recovery at home				
H-COMP-6-Y-P	Patients who reported that YES, they were given information about what to do during their recovery at home	Measured			
H-COMP-7-A	Patients who “Agree” they understood their care when they left the hospital	Measured		X	
H-COMP-7-D-SD	Patients who “Disagree” or “Strongly Disagree” they understood their care when they left the hospital				
H-COMP-7-SA	Patients who "Strongly Agree" they understood their care when they left the hospital				
HF-2	Heart failure patients given an evaluation of left ventricular systolic (LVS) function				

			Percent Financial Penalty Based on Periodic Reporting (2018)		
			1%	2%	3%
Identifier	Definition	Hospital Compare 5-Star	Hospital Acquired Conditions	Value Based Purchasing	Readmissions
H-HSP-RATING-0-6	Patients who gave their hospital a rating of 6 or lower on a scale from 0 (lowest) to 10 (highest)				
H-HSP-RATING-7-8	Patients who gave their hospital a rating of 7 or 8 on a scale from 0 (lowest) to 10 (highest)				
H-HSP-RATING-9-10	Patients who gave their hospital a rating of 9 or 10 on a scale from 0 (lowest) to 10 (highest)	Measured		X	
H-QUIET-HSP-A-P	Patients who reported that the area around their room was "Always" quiet at night	Measured		X	
H-QUIET-HSP-SN-P	Patients who reported that the area around their room was "Sometimes" or "Never" quiet at night				
H-QUIET-HSP-U-P	Patients who reported that the area around their room was "Usually" quiet at night				
H-RECMND-DN	Patients who reported NO, they would probably not or definitely not recommend the hospital				
H-RECMND-DY	Patients who reported YES, they would definitely recommend the hospital	Measured			
H-RECMND-PY	Patients who reported YES, they would probably recommend the hospital				
IMM-2	Patients assessed and given influenza vaccination	Measured		X	
IMM-3-OP-27-FAC-ADHPCT	Healthcare workers given influenza vaccination	Measured			
MORT-30-AMI	Death rate for heart attack patients	Measured		X	
MORT-30-CABG	Death rate for CABG surgery patients	Measured			
MORT-30-COPD	Death rate for COPD patients	Measured			
MORT-30-HF	Death rate for heart failure patients	Measured		X	
MORT-30-PN	Death rate for pneumonia patients	Measured		X	
MORT-30-STK	Death rate for stroke patients	Measured			
MSPB-1	Medicare Spending per Beneficiary			X	
OP-10	Outpatient CT scans of the abdomen that were “combination” (double) scans. If a number is high, it may mean that too many patients have a double scan when a single scan is all they need.	Measured			
OP-11	Outpatient CT scans of the chest that were “combination” (double) scans. If a number is high, it may mean that too many patients have a double scan when a single scan is all they need.	Measured			
OP-12	Able to receive lab results electronically				
OP-13	Outpatients who got cardiac imaging stress tests before low-risk outpatient surgery. If a number is high, it may mean that too many cardiac scans were done prior to low-risk surgeries.	Measured			

			Percent Financial Penalty Based on Periodic Reporting (2018)		
			1%	2%	3%
Identifier	Definition	Hospital Compare 5-Star	Hospital Acquired Conditions	Value Based Purchasing	Readmissions
OP-14	Outpatients with brain CT scans who got a sinus CT scan at the same time. If a number is high, it may mean that too many patients have both a brain and sinus scan, when a single scan is all they need.	Measured			
OP-17	Able to track patients' lab results, tests, and referrals electronically between visits				
OP-18b	Average (median) time patients spent in the emergency department before leaving from the visit	Measured			
OP-2	Outpatients with chest pain or possible heart attack who got drugs to break up blood clots within 30 minutes of arrival				
OP-20	Average (median) time patients spent in the emergency department before they were seen by a healthcare professional	Measured			
OP-21	Average (median) time patients who came to the emergency department with broken bones had to wait before getting pain medication	Measured			
OP-22	Percentage of patients who left the emergency department before being seen	Measured			
OP-23	Percentage of patients who came to the emergency department with stroke symptoms who received brain scan results within 45 minutes of arrival	Measured			
OP-25	Uses outpatient safe surgery checklist				
OP-29	Percentage of patients receiving appropriate recommendation for follow-up screening colonoscopy	Measured			
OP-30	Percentage of patients with history of polyps receiving follow-up colonoscopy in the appropriate timeframe	Measured			
OP-3b	Average (median) number of minutes before outpatients with chest pain or possible heart attack who needed specialized care were transferred to another hospital	Measured			
OP-4	Outpatients with chest pain or possible heart attack who received aspirin within 24 hours of arrival or before transferring from the emergency department	Measured			
OP-5	Average (median) number of minutes before outpatients with chest pain or possible heart attack got an ECG	Measured			
OP-8	Outpatients with low-back pain who had an MRI without trying recommended treatments first, such as physical therapy. If a number is high, it may mean the facility is doing too many unnecessary MRIs for low-back pain.	Measured			
OP-9	Outpatients who had a follow-up mammogram, ultrasound, or MRI of the breast within the 45 days following a screening mammogram. A follow-up rate near zero may indicate missed cancer; a rate higher than 14% may mean there is unnecessary follow-up.				

			Percent Financial Penalty Based on Periodic Reporting (2018)		
			1%	2%	3%
Identifier	Definition	Hospital Compare 5-Star	Hospital Acquired Conditions	Value Based Purchasing	Readmissions
PAYM-30-AMI	Payment for heart attack patients				
PAYM-30-HF	Payment for heart failure patients				
PAYM-30-PN	Payment for pneumonia patients				
PC-01	Percent of mothers whose deliveries were scheduled too early (1-2 weeks early), when a scheduled delivery was not medically necessary	Measured		X	
PN-6	Pneumonia patients given the most appropriate initial antibiotic(s)			X	
PSI-12-POSTOP-PULMEMB-DVT	Serious blood clots after surgery		X	X	
PSI-13-POST-SEPSIS	Blood stream infection after surgery		X	X	
PSI-14-POSTOP-DEHIS	A wound that splits open after surgery on the abdomen or pelvis		X	X	
PSI-15-ACC-LAC	Accidental cuts and tears from medical treatment		X	X	
PSI-3-ULCER	Pressure sores		X	X	
PSI-4-SURG-COMP	Deaths among patients with serious treatable complications after surgery	Measured			
PSI-6-IAT-PTX	Collapsed lung due to medical treatment		X	X	
PSI-7-CVCBI	Infections from a large venous catheter		X	X	
PSI-8-POST-HIP	Broken hip from a fall after surgery		X	X	
PSI-90-SAFETY	Serious complications	Measured			
READM-30-AMI	Rate of readmission for heart attack patients	Measured			X
READM-30-CABG	Rate of readmission for coronary artery bypass graft (CABG) surgery patients	Measured			X
READM-30-COPD	Rate of readmission for chronic obstructive pulmonary disease (COPD) patients	Measured			X
READM-30-HF	Rate of readmission for heart failure patients	Measured			X
READM-30-HIP-KNEE	Rate of readmission after hip/knee replacement	Measured			X
READM-30-HOSP-WIDE	Rate of readmission after discharge from hospital (hospital-wide)	Measured			
READM-30-PN	Rate of readmission for pneumonia patients	Measured			X
READM-30-STK	Rate of readmission for stroke patients	Measured			
SCIP-CARD-2	Surgery patients who were taking heart drugs called beta blockers before coming to the hospital, who were kept on the beta blockers during the period just before and after their surgery			X	

			Percent Financial Penalty Based on Periodic Reporting (2018)		
			1%	2%	3%
Identifier	Definition	Hospital Compare 5-Star	Hospital Acquired Conditions	Value Based Purchasing	Readmissions
SCIP-Inf-1a	Surgery patients who were given an antibiotic at the right time (within one hour before surgery) to help prevent infection				
SCIP-Inf-2a	Surgery patients who were given the right kind of antibiotic to help prevent infection			X	
SCIP-Inf-3a	Surgery patients whose preventive antibiotics were stopped at the right time (within 24 hours after surgery)			X	
SCIP-INF-9	Surgery patients whose urinary catheters were removed on the first or second day after surgery			X	
SCIP-VTE-2	Patients who got treatment at the right time (within 24 hours before or after their surgery) to help prevent blood clots after certain types of surgery			X	
SM-PART-CARD	Cardiac Surgery Registry				
SM-PART-GEN-SURG	General Surgery Registry				
SM-PART-NURSE	Nursing Care Registry				
SM-SS-CHECK	Uses inpatient safe surgery checklist				
STK-1	Ischemic or hemorrhagic stroke patients who received treatment to keep blood clots from forming anywhere in the body within 2 days of hospital admission	Measured			
STK-10	Ischemic or hemorrhagic stroke patients who were evaluated for rehabilitation services				
STK-2	Ischemic stroke patients who received a prescription for medicine known to prevent complications caused by blood clots at discharge				
STK-3	Ischemic stroke patients with a type of irregular heartbeat who were given a prescription for a blood thinner at discharge				
STK-4	Ischemic stroke patients who got medicine to break up a blood clot within 3 hours after symptoms started	Measured			
STK-5	Ischemic stroke patients who received medicine known to prevent complications caused by blood clots within 2 days of hospital admission				
STK-6	Ischemic stroke patients needing medicine to lower bad cholesterol, who were given a prescription for this medicine at discharge	Measured			
STK-8	Ischemic or hemorrhagic stroke patients or caregivers who received written educational materials about stroke care and prevention during the hospital stay	Measured			
VTE-1	Patients who got treatment to prevent blood clots on the day of or day after hospital admission or surgery	Measured			

			Percent Financial Penalty Based on Periodic Reporting (2018)		
			1%	2%	3%
Identifier	Definition	Hospital Compare 5-Star	Hospital Acquired Conditions	Value Based Purchasing	Readmissions
VTE-2	Patients who got treatment to prevent blood clots on the day of or day after being admitted to the intensive care unit (ICU)	Measured			
VTE-3	Patients with blood clots who got the recommended treatment, which measured using two different blood thinner medicines at the same time	Measured			
VTE-4	Patients with blood clots who were treated with an intravenous blood thinner, and then were checked to determine if the blood thinner caused unplanned complications				
VTE-5	Patients with blood clots who were discharged on a blood thinner medicine and received written instructions about that medicine	Measured			
VTE-6	Patients who developed a blood clot while in the hospital who *did not* get treatment that could have prevented it	Measured			