DEPARTMENT OF PATIENT SAFETY AND QUALITY
2016 QUALITY AND SAFETY ANNUAL REPORT

May 2, 2017

To the Denver Healthcare Community:

During a year of remarkable change, the family of Denver Health employees, volunteers, trainees, and students remained committed to continuous improvements in the quality and safety of care we provide to all those who seek better health in our integrated delivery system. We are proud to present our 2016 Quality and Safety Annual Report, a summary of key initiatives and associated outcomes. We hope it will serve as a valuable resource to those seeking a better understanding of the complex landscape of both internal and external quality and safety measures. Most importantly, we hope the report will drive ongoing efforts to improve the value of the services we provide.

— Tom, Allison, Mary Ann, and Amber

Department of Patient Safety and Quality Mission:

To eliminate patient harm and maximize healthcare quality and value.

Department of Patient Safety and Quality Goals:

1. Foster a culture that supports continuous quality improvement, safety event learning, and waste reduction.
2. Use health system data to drive care improvements and high reliability.

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1. EXECUTIVE SUMMARY

The list below represents a summary of key quality and safety initiatives and outcomes in 2016.

- Denver Health and Hospital Authority (DHHA) underwent the largest "Big Bang" electronic health record installation and associated go-live event in its 156 year history. By most measures of quality and safety, the Epic go-live was very successful.

- In October 2016, DHHA was recognized as one of the top 5 academic medical centers in the U.S. for quality and safety in the ambulatory care setting with the Vizient Ambulatory Care Quality and Accountability Scorecard Award. This award is focused on quality, access, and appropriate utilization of specialty, primary, and emergency care.

- DHHA formalized its commitment to the reduction in preventable adverse events through the Target Zero initiative which was formally launched in December 2016. For the second year in a row, DHHA achieved its target of reducing the Target Zero events by more than 10% annually.

- After having been recognized by the Rocky Mountain Performance Excellence evaluation team in 2012 with their Peak Award, DHHA was again recognized with the 2016 Peak Award. This represents the regional equivalent to the Baldrige award.

- Despite national penalties to 80% of U.S. hospitals for excess readmissions totaling $528M for the federal fiscal year (FFY) 2017 CMS Readmissions Reduction Program, DHHA was among the best 20% of U.S. hospitals to experience excellent performance resulting in no financial penalty.

- For the FFY 2017 CMS Hospital Acquired Conditions Reduction Program, DHHA experienced a 1% Medicare FFS payment reduction for higher than expected rates of hospital acquired infections and selected post-operative complications.

- The Ambulatory Care Services (ACS) Department orchestrated improvements in all three of the key enterprise quality and safety measures—Well Child Care, Post-Partum Care, and Tobacco Interventions, achieving ambitious targets in 2 of the 3 measures.

- DHHA underwent comprehensive Joint Commission surveys in both the primary care and ambulatory lab services. Both components of the survey resulted in full accreditation.

- DHHA demonstrated a substantial improvement in inpatient hand hygiene adherence rate from 74% (monthly average) in 2015 to 77% (monthly average) in 2016. The end of year performance reached 85%. Observations by the Infection Prevention Team as well as by nursing unit leadership increased from 4,254 in 2015 to 4,977 In 2016.

- DHHA's performance on the state of Colorado's Hospital Quality Incentive Payment Program (HQIP) in 2016 resulted in an estimated payment of $4,612,904. The award includes measures of emergency department processes of care, perinatal care, patient satisfaction, and readmissions.

- Based on performance in 2013—2015 on multiple publically reported measures of quality and safety, DHHA was recognized with the 2017 Distinguished Hospital Award for Clinical Excellence by Healthgrades, placing it among the top 5% of U.S. hospitals.

- After an extensive week-long evaluation in 2016, DHHA was recognized by the Joint Commission for achieving the "Primary Care Medical Home" standards at all DHHA primary care clinics.

2. DHHA STRATEGIC PILLARS

2.1 Department of Patient Safety and Quality (DPSQ) Pillar Metrics

In 2016, Patient Safety and Quality remained as one of DHHA's seven strategic pillars. DHHA annually establishes enterprise-wide goals for each pillar with associated metrics. The Patient Safety and Quality pillar goal remained the same as in prior years: To optimize patient safety and continuously improve clinical quality. The strategic priorities for driving this goal are listed below and cover the broad areas of ambulatory care, culture of safety, and inpatient care.

Figure 2.2-1: 2016 DHHA Strategic Pillars

Figure 2.2-2: 2016 DPSQ Pillar Metrics

Strategic Priorities			Performance			Targets	
			2015	2016		2016	2020
Ambulatory Care—Quality Improvement	Improve tobacco counseling/advice	% current smokers who received counseling /advice	23%	39%	🟢	24%	50%
	Increase postpartum visits	% deliveries with a postpartum visit at 21-56 days	54%	57%	🔴	62%	70%
	Increase well-child checks	% children receiving at least one well-child check over the last 12 months.	71%	71%	🔴	74%	81%
Culture of Safety Results	Improve employee perception of patient safety culture	% employees who agree or strongly agree with the following statement: "Employees will freely speak up if they see something that may negatively affect patient care."	81%	88%	🟢	82%	85%
		% employees who agree or strongly agree with the following statements: "I can report patient safety mistakes without fear of punishment."	85%	84%	🟡	85%	88%
Harm Events Reduction and Inpatient Quality Improvement	Reduce Target Zero adverse events	Total number of adverse events	230	194	🟢	207	137
	Improve inpatient/ED hand hygiene	% of hand hygiene opportunities with observed hand hygiene	74%	85%	🟢	80%	90%
	Improve inpatient medication reconciliation	% of hospital discharges with completed medication reconciliation	93%	95%	🟢	90%	95%

Source: DHHA 2016 Organizational Scorecard

3. HARM EVENTS REDUCTION & INPATIENT QUALITY IMPROVEMENT

3.1 Target Zero

Target Zero is an enterprise-wide initiative to protect our patients from preventable harm due to infections, falls, and medication events. For the second year in a row, DHHA achieved its target of reducing the Target Zero events by more than 10% annually. The Target Zero Metric is a bundled measure of patient harm in the hospital, based on a raw count of the following events.

Falls with Injury
Falls voluntarily reported in Safety Intelligence (SI) which lead to major injury or death. The Nursing Department reviews the fall events and determines whether they meet the National Database of Nursing Quality Indicators (NDNQI) criteria.

Medication Safety Events
Ambulatory or Inpatient events voluntarily reported in SI with a high harm score which indicates temporary or permanent harm or death. Pharmacy and DPSQ review each event to determine if it qualifies for Target Zero.

Surgical Site Infections (SSI)
Infection Preventionists (IP) identify SSI after colon, breast, hip arthroplasty, knee arthroplasty, and abdominal hysterectomy procedures using National Healthcare Safety Network (NHSN) criteria from the Centers for Disease Control and Prevention (CDC). Because it takes up to 90 days to identify an SSI, this metric is reported with a 3 month delay, e.g. SSI for procedures performed in January are reported in April.

***Clostridium difficile* Infections (*C. difficile*)**
Hospital-acquired *C. difficile* infections are identified by IPs using the CDC's National Healthcare Safety Network (NHSN) criteria, i.e. diagnosed in inpatients after at least two hospital days.

Catheter Associated Urinary Tract Infections (CAUTI)
Hospital-acquired CAUTIs are identified by IPs using the CDC's NHSN criteria, i.e. inpatients with a urinary catheter who have a fever and positive urine culture.

Central Line Associated Blood Stream Infections (CLABSI)
Hospital-acquired CLABSIs are identified by IPs using the NHSN definition.

The Goals / Target for this initiative:
- Every hospital employee can identify Target Zero as a major hospital safety initiative.
- Every inpatient unit staff member can name at least one component of the Target Zero Metric.
- Every inpatient unit manager regularly accesses unit-specific performance to share with teams.
- Visual management boards reflect local performance on Target Zero components.
- Safety measures designed to prevent harm are followed 100% of the time.
- DHHA experiences sustained year-over-year decline in preventable adverse events.

More information, including current data, may be found on the Target Zero Pulse Site.

Figure 3.1-1: Total Target Zero Events 2015-2016

Source: DHHA DPSQ

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3. HARM EVENTS REDUCTION & INPATIENT QUALITY IMPROVEMENT

3.1 Target Zero

TARGETZERO
at Denver Health

Figure 3.1-2: 2016 Cumulative Target Zero Events
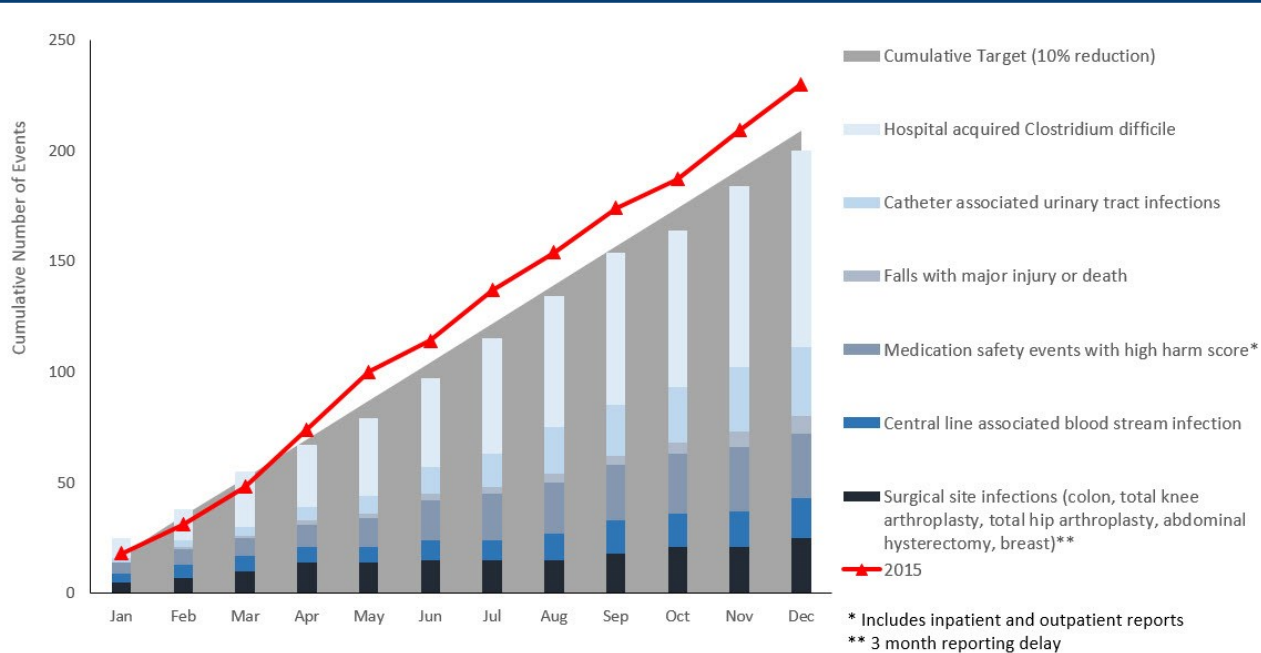
Source: DHHA DPSQ

Figure 3.1-3: Target Zero Events 2015—2016
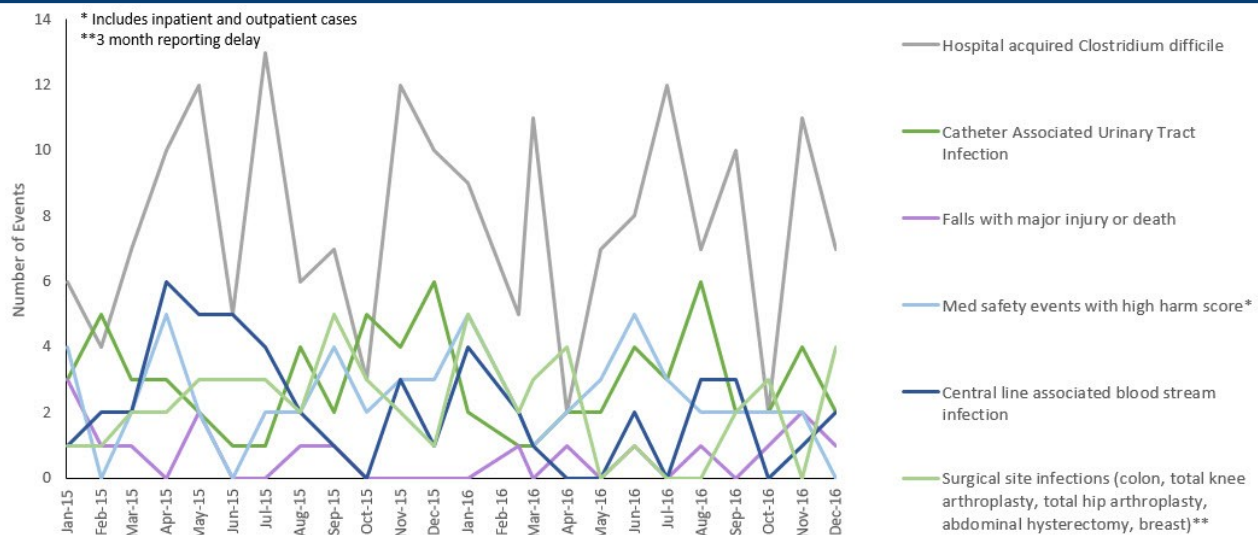
Source: DHHA DPSQ

3. HARM EVENTS REDUCTION & INPATIENT QUALITY IMPROVEMENT

3.2 Inpatient Medication Reconciliation

Medication Reconciliation is a National Patient Safety Goal and improves continuity of care and safety for patients. Every hospitalized patient who is going home on medications is provided with a list of reconciled medications at discharge. The inpatient metric excludes patients who die, leave against medical advice, or are discharged from the neonatal intensive care unit or newborn nursery. DHHA exceeded our goal of 90% consistently throughout the year. In 2016, DHHA was able to sustain the excellent performance during and after the April launch of the new electronic health record.

Figure 3.2-1: Monthly Discharge Medication Reconciliation 2015—2016

Current Methodology:

Discharge medication reconciliation is expected on all patients who occupy a hospital bed either in observation status or inpatient status except for patients discharged on no medications or who leave against medical advice. Medication Reconciliation is considered as complete if it was performed in SOARIAN LLC. Action must have taken place at some time during the patient's stay; before discharge took place. Patients were included in the report if they were discharged during the reporting month. Patients were excluded if they A) expired during their stay, B) were discharged AMA, or C) were discharged from either the nursery or neonatal service.

Source: DHHA DPSQ

4. RECOGNITION

4.1 Healthgrades

Based on quality and safety performance from 2013-2015, DHHA received the 2017 Distinguished Hospital Award for Clinical Excellence™ by performing in the top 5% nationally for overall quality of care. Unlike other hospital quality comparisons, Healthgrades evaluates quality based solely on clinical outcomes after risk-adjusting at the patient level. DHHA was also awarded Healthgrades' Specialty Excellence Awards in Critical Care, Gastrointestinal Care, and Pulmonary Care. The treatment of common in-hospital procedures and conditions was recognized through 5-Star Ratings (see figure 4.1-1).

Figure 4.1-1: Healthgrades 2016-2017 Clinical Achievements

Hospital Wide
Distinguished Hospital Award for Clinical Excellence™ in 2017
Specialty Excellence Awards
Critical Care Excellence Award™ in 2015, 2016, 2017
Gastrointestinal Care Excellence Award™ in 2017
Pulmonary Care Excellence Award™ in 2015, 2016, 2017
Five-Star Recipient
Treatment of Heart Failure for 5 Years in a Row (2013-2017)
Treatment of Chronic Obstructive Pulmonary Disease for 8 Years in a Row (2010-2017)
Treatment of Pneumonia for 9 Years in a Row (2009-2017)
Colorectal Surgeries (2017)
Treatment of GI Bleed for 2 Years in a Row (2016-2017)
Treatment of Sepsis for 5 Years in a Row (2013-2017)
Treatment of Pulmonary Embolism for 2 Years in a Row (2016-2017)
Treatment of Respiratory Failure for 4 Years in a Row (2014-2017)

Source: Healthgrades

4.2 Med Assets

DHHA was recognized by MedAssets with the 2015 Excellence in Quality, Safety and Reliability Award at the 2016 Healthcare Business Summit. DHHA exemplified the highest quality clinical outcomes that were safely and reliably delivered every day.

4. RECOGNITION

4.3 Rocky Mountain Performance Excellence Peak Award

DHHA received the 2016 Peak Award granted by Rocky Mountain Performance Excellence. The Peak Award is described as the regional equivalent of the prestigious Malcolm Baldrige Quality Award, which recognizes organizations that achieve and sustain the highest national levels of patient safety and loyalty, patient outcomes, physician and staff satisfaction, revenue and market share, and community services. DHHA received the award for utilizing Lean tools in numerous ways to design and improve work, support processes, and improve the quality of its health care services. This is the second time that DHHA has received this prestigious award.

4.4 Joint Commission Primary Care Medical Home

DHHA Primary Care Clinics were awarded certification in 2016. This certification is based on the Agency for Healthcare Research and Quality (AHRQ) definition of a medical home. The Joint Commission's Primary Care Medical Home (PCMH) Certification focuses on care coordination, access to care, and how effectively a primary care clinician and interdisciplinary team work in partnership with the patient (and when applicable, their family). This accreditation demonstrates that our primary care clinics provide high quality health care services, improve the patient experience, and improve health outcomes and safety.

4. RECOGNITION

4.5 Vizient Ambulatory Quality and Accountability (Q&A) Leadership Award

The Vizient Ambulatory Q&A Scorecard provides a holistic view of ambulatory performance to enable institutions to deliver high-quality, accessible, and cost efficient care. Forty-seven academic medical centers and their affiliate physician organizations participated in the study. Organizations were ranked on six domains composed of 141 metrics, see figure 4.5-1. DHHA was ranked #6 in 2015 and improved to be the 4th top performer in 2016 (Figure 4.5-3). DHHA performed best in the domain of Quality and Efficiency with a #2 ranking. In 2017, DHHA will focus on Capacity Management and Throughput, the only domain in the study with a score below the Vizient median.

Figure 4.5-1: 2016 Ambulatory Quality and Accountability (Q&A) Performance Scorecard

Star Rating	Overall Rank	Overall Score
★★★★★	4	60.69 %

Domain Performance

Access to Care 17.43 of 30 %
Equity 3.20 of 5 %
Continuum of Care 5.94 of 10 %

Overall Score 60.69 %

Capacity Management & Throughput 15.81 of 30 %
Quality & Efficiency 18.31 of 25 %

Color based on domain rank
01 - 05 | 05 - 10 | 11 - 15 | 16 - 20 | 21 - 25 | 26 - 30 | 31 - 35 | 36 - 40 | 41 - 45 | 46 - 47

Domain Performance Table

Domain	Rank	Weight	Score	Weighted Score	Vizient Median	Vizient Top Performer
Overall	4	100 %	60.69 %	60.69 %	57.32 %	65.54 %
Access to Care	15	30 %	58.09 %	17.43 %	56.91 %	66.32 %
Continuum of Care	20	10 %	59.38 %	5.94 %	59.38 %	75.00 %
Quality & Efficiency	2	25 %	73.25 %	18.31 %	56.81 %	76.33 %
Capacity Management & Throughput	41	30 %	52.70 %	15.81 %	56.50 %	63.48 %
Equity	10	5 %	64.00 %	3.20 %	64.00 %	100.00 %

Source: Vizient

Figure 4.5-2: 2016 Vizient Q&A Leadership Award Team

Source: Vizient

Figure 4.5-3: Ambulatory Q&A Historical Rank
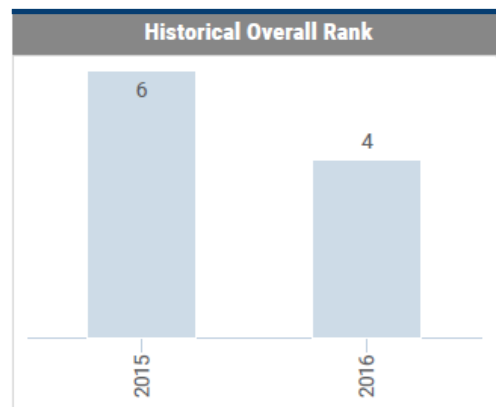
Source: Vizient

5. PUBLIC REPORTING & INCENTIVES

5.1 CMS Hospital Readmissions Reduction Program—FFY 2017

The Affordable Care Act established the Hospital Readmissions Reduction Program requiring the Centers for Medicare and Medicare Services (CMS) to reduce payments to inpatient hospitals with excess readmissions starting in federal fiscal year (FFY) 2013. CMS utilizes claims data to determine readmissions within 30 days of discharge from the same or another inpatient hospital.

- Applicable Conditions — acute myocardial infarction (AMI), heart failure (HF), pneumonia (PN), acute exacerbation of chronic obstructive pulmonary disease (COPD), elective total hip and total knee arthroplasty (THA/TKA) and coronary artery bypass graft (CABG) surgery. CABG surgery was added FFY2017.
- Inclusion Criteria — Medicare Fee-For-Service (FFS) beneficiaries with Part A and Part B coverage who have continuous enrollment for the 12 months prior to admission to at least one month after discharge. Beneficiaries must be 65 years or older at admission. The pneumonia cohort was expanded to include patients with aspiration pneumonia and patients with sepsis or respiratory failure with pneumonia present on admission.
- Exclusion Criteria — length of stay over 365 days, in-hospital death, left against medical advice, transferred to another acute care hospital, planned readmissions.
- Excess readmission ratios are risk-standardized for clinically relevant factors, such as patient demographic characteristics, comorbidities, and patient frailty.
- **Financial Impact**
   ◊ 3% maximum payment reduction , i.e. potential $425,000 loss for DHHA.
   ◊ Reduction applies to the Base Operating DRG payment amount (including wage-adjustment and new technology amounts) for discharges of Medicare FFS patients.
   ◊ Actual reimbursement reduction for FFY 2017 discharges at DHHA (10/1/16—9/30/17) is 0%. This is an improvement over a 0.03% reduction in FFY 2016.

Figure 5.1-1: Hospital Readmissions Reduction Program Results FFY2017*

Condition	Number of Eligible Discharges	Excess Readmission Ratio
Acute Myocardial Infarction	44	0.9756
Heart Failure	78	0.9529
Pneumonia	79	0.9360
Chronic Obstructive Pulmonary Disease	60	0.9623
Total Hip and Total Knee Arthroplasty	14	1.0259
Coronary Artery Bypass Graft Surgery	0	n/a

Performance period 7/1/12-6/30/15
Source: CMS
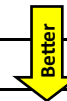
- **Next Steps:**
   ◊ DHHA embarked on an enterprise-wide patient flow initiative with executive oversight targeting all aspects of patient flow.
   ◊ Educate the coding staff to utilize the planned readmission discharge status options if applicable.
   ◊ Focus on elective total hip and total knee arthroplasty patients since this is the only cohort with higher than expected readmission rates.
- **Future Impact:**
   ◊ FFY 2018: no proposed changes.

5. PUBLIC REPORTING & INCENTIVES

5.2 CMS Hospital-Acquired Conditions (HAC) Reduction Program — FFY 2017

The Affordable Care Act established the Hospital-Acquired Conditions (HAC) Reduction Program to encourage hospitals to reduce preventable conditions that patients did not have upon admission to the hospital, but which developed during the hospital stay. Hospitals that rank in the lowest-performing quartile with respect to risk-adjusted HAC quality measures received a payment reduction beginning in FFY 2015. CMS publicly reports hospital-specific results on its website Hospital Compare.

- Patient Safety Domain — Agency for Healthcare Research and Quality (AHRQ) Patient Safety Indicator Composite measure (PSI 90) is a weighted average of the risk- and reliability-adjusted versions of eight PSIs. CMS is using version 5.0.1 (recalibrated) of the AHRQ PSI software, and hospitals' Medicare FFS claims for discharges during the performance period.

Figure 5.2-1: AHRQ PSI 90 Composite

PSI 03—Pressure Ulcer	PSI 06—Iatrogenic Pneumothorax
PSI 07—Central Venous Catheter-Related Bloodstream Infections	PSI 08—Postoperative Hip Fracture
PSI 12—Perioperative Pulmonary Embolism or Deep Vein Thrombosis	PSI 13—Postoperative Sepsis
PSI 14—Postoperative Wound Dehiscence	PSI 15—Accidental Puncture or Laceration

- Healthcare-Associated Infections (HAI) Domain—Centers for Disease Control and Prevention (CDC) National Healthcare Safety Network (NHSN) uses chart-abstracted surveillance data reported by our Infection Prevention department for infections occurring during the performance period. Standardized infection ratios (SIRs) provide risk-adjustment at the hospital-level and patient-care unit level. MRSA bacteremia and *C. difficile* were added FFY 2017.

- **Financial Impact**
  ◊ 1% maximum payment reduction in FFY 2017 if total HAC Score above 75th percentile (i.e. 6.57 points).
  ◊ Reduction applies to the Base Operating DRG payment amount after adjustments have occurred for the Hospital Value-Based Purchasing and Readmissions Reduction Programs for discharges of Medicare FFS patients.
  ◊ Projected reimbursement reduction for FFY 2017 (discharges 10/1/16—9/30/17) is -$300,000.

Figure 5.2-2: Hospital-Acquired Conditions Reduction Program Results FFY17

Patient Safety Domain (15% of score) Performance period 07/01/13—06/30/15	Result	Decile
AHRQ PSI 90 Composite	1.1414	10th
Healthcare-Associated Infections Domain (85% of score) Performance period 01/01/14—12/31/15		
Central Line-Associated Bloodstream Infection (CLABSI) SIR	0.795	9th
Catheter-Associated Urinary Tract Infection (CAUTI) SIR	1.032	7th
Surgical Site Infection - colon and abdominal hysterectomy SIR	1.964	10th
Methicillin-resistant *Staphylococcus aureus* (MRSA) bacteremia	0.462	3rd
Clostridium difficile infections	0.930	7th
Total HAC Score		**7.62**

1st decile is best

1% reduction

Source: CMS
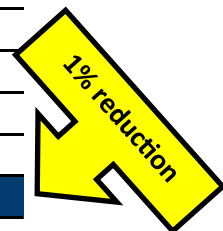
- **Next Steps:**
  ◊ DHHA's Clinical Documentation Improvement (CDI) team reviews all PSI events to determine if the event was due to a coding error, inaccurate documentation, or true HAC. For efforts to reduce HAIs, see the Infection Prevention section of this report.

- **Future Impact:**
  ◊ FFY 2018: program further expands to include CAUTI/CLABSI in non-ICU units. Adoption of Modified PSI 90—Patient Safety and Adverse Events Composite. Changed time period for Patient Safety Domain to 15 months to account for ICD-10 implementation. Changed scoring methodology to Winsorized z-score method.

5. PUBLIC REPORTING & INCENTIVES

5.3 CMS Hospital Value-Based Purchasing (VBP) Program—FFY 2017

In October 2012, Medicare began incentivizing hospitals to provide high-quality care through the Hospital Value-Based Purchasing (VBP) Program. Hospitals earn an achievement score and an improvement score for each measure, and the higher of these two scores determines total points. There is a maximum of 10 points per measure.

- **Financial Impact**
  - ◊ 2% payment withholding with the ability to earn back up to 3% based on performance.
  - ◊ Payment reduction applies to the Base Operating DRG payment amount for Medicare FFS discharges.
  - ◊ DHHA will receive a 0.10% bonus for FFY 2017 discharges which is estimated at $15,000. This is an improvement over the 0.52% reduction in FFY 2016 (-$75,000).

Figure 5.3-1: Value Based Purchasing Program

| Clinical Care: Process Subdomain (5%) Data Source: CMS Core Measures		Baseline Rate (01/01/13-12/31/13)	Performance Rate (01/01/15-12/31/15)	Achievement Threshold	Points*	Domain Score
AMI-7a	Fibrinolytic therapy received within 30 minutes of hospital arrival	—	—	—	—	
IMM-2	Influenza immunization	88.7%	95.7%	95.2%	6 (I)	**55**
PC-01	Elective delivery prior to 39 completed weeks gestation	0.0%	1.6%	3.1%	5 (A)	
Clinical Care: Outcomes Subdomain (25%) Data Source: CMS Claims		Baseline Rate (10/01/10-06/30/12)	Performance Rate (10/01/13-06/30/15)	Achievement Threshold	Points*	Domain Score
MORT-30-AMI	Acute Myocardial Infarction (AMI) 30-day mortality rate	0.853	0.873	0.851	10 (A)	
MORT-30-HF	Heart Failure (HF) 30-day mortality rate	0.887	0.886	0.882	2 (A)	**60**
MORT-30-PN	Pneumonia (PN) 30-day mortality rate	0.880	0.885	0.883	—	
Patient & Caregiver Centered Experience of Care / Care Coordination Domain (25%) Data Source: HCAHPS		Baseline Rate (01/01/13-12/31/13)	Performance Rate (01/01/15-12/31/15)	Achievement Threshold	Points*	Domain Score
Communication with nurses		74.6%	76.2%	78.2%	1 (I)	
Communication with doctors		78.0%	78.6%	80.5%	0	
Responsiveness of hospital staff		58.8%	58.4%	65.1%	0	
Pain management		65.1%	67.0%	70.3%	1 (I)	**24** (9 base points + 15 consistency points)
Communication about medicines		64.4%	66.9%	62.9%	4 (A)	
Cleanliness and quietness of hospital environment		61.1%	62.8%	65.3%	0	
Discharge information		85.6%	87.2%	85.9%	3 (A)	
Overall rating of hospital		68.2%	69.8%	70.0%	0	
Safety Domain (20%) Data Source: AHRQ Patient Safety Indicators, NHSN		Baseline Rate (AHRQ 10/1/10-6/30/12 NHSN 1/1/13-12/31/13)	Performance Rate (AHRQ 10/1/13-6/30/15 NHSN 1/1/15-12/31/15	Achievement Threshold	Points*	Domain Score
PSI-90	AHRQ complication/patient safety composite	0.831	0.772	0.778	2 (I)	
CAUTI	Catheter-Associated Urinary Tract Infection	0.791	0.816	0.845	1 (A)	
CLABSI	Central Line-Associated Blood Stream Infection	0.287	1.174	0.457	0	
CDI	*Clostridium difficile* Infection	0.672	0.999	0.750	0	**15**
MRSA	Methicillin-Resistant *Staphylococcus aurerus* Bacteremia	1.071	0.425	0.799	6 (A)	
SSI-AbdHyst	Surgical Site Infection—Abdominal Hysterectomy	—	—	—	—	
SSI-Colon	Surgical Site Infection—Colon Surgery	1.793	2.026	0.751	0	
Efficiency and Cost Reduction Domain (25%) Data Source: CMS Claims		Baseline Rate 01/01/13-12/31/13)	Performance Rate (01/01/15-12/31/15)	Achievement Threshold	Points*	Domain Score
MSPB	Medicare spending per beneficiary	0.916	0.952	0.988	3 (A)	**30**

* (A) Achievement score higher. (I) Improvement score higher.

Source: CMS

0.10% Bonus
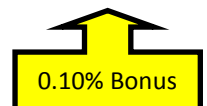
- **Future Impact:**
  - ◊ FFY 2018: Process domain removed. PC-01 moved to Safety domain and Safety domain weight increased to 25%. 3-Item Care Transition measure added to HCAHPS Survey Dimension.

5. PUBLIC REPORTING & INCENTIVES

5.4 CMS Physician Quality Reporting System (PQRS)—PY 2016

The Physician Quality Reporting System (PQRS) is a CMS program that uses a combination of incentive payments and payment adjustments to promote reporting of quality information by eligible professionals (EPs) in outpatient settings. As a group practice, DHHA reports one set of quality measures for all EPs using the Registry reporting option. Incentives and penalties are applied to payments during the program year (PY) and future years.

- **Inclusion Criteria**—Medicare FFS beneficiaries who received care covered by Physician Fee Schedule (PFS) services
- **Financial Impact**
  - ◊ -2.0% payment reduction to services performed in calendar year (CY) 2018 for not successfully reporting PQRS measures in PY 2016 (i.e. 2016 PQRS Penalty).
  - ◊ Payment reductions apply to the total Part B PFS allowed charges for covered professional services.
  - ◊ Quality and cost performance for PY 2016 measures will determine the 2018 Value-Based Modifier Payment.
  - ◊ DHHA participated in PY 2016 and hence avoided approximately $100,000 in payment reduction in CY 2018.

Figure 5.4-1: PQRS Program Year 2016

Measure Number	Measure Name	Eligible Cases	Performance Rate	National Rate (mean ± std dev)
Effective Clinical Care				
51	Chronic Obstructive Pulmonary Disease: Spirometry Evaluation	142	73.9% 🟡	79.5% ± 26.2%
111	Pneumonia Vaccination Status for Older Adults	1,432	74.2% ⚪	53.5% ± 27.1%
204	Ischemic Vascular Disease: Use of Aspirin or Another Antithrombotic	259	88.8% ⚪	81.7% ± 18.0%
Community and Population Health				
110	Preventive Care and Screening: Influenza Immunization	2,189	50.4% ⚪	44.3% ± 27.0%
Patient Safety				
145	Radiology: Exposure Time Reported for Procedures Using Fluoroscopy	388	85.8% ⚪	83.6% ± 20.7%
192	Cataract Surgery: Complications within 30 Days Requiring Additional Surgical Procedures*	75	0.0%* 🟢	0.8% ± 2.7%
388	Cataract Surgery: Intra-Operative Complications*	122	0.0%* 🟢	0.3% ± 1.8%
Communication and Care Coordination				
225	Radiology: Reminder System for Screening Mammograms	547	100% 🟢	90.2% ± 22.6%
Efficiency and Cost Reduction				
146	Radiology: Inappropriate Use of "Probably Benign" Assessment in Mammography Screening*	547	0.0%* 🟢	1.6% ± 6.6%

* Inverse measure

Source: PQRS Solutions

- **Future Impact:**
  - ◊ This is the final year of PQRS. Its incentives and penalties will be consolidated into the Quality Payment Program (QPP).

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5. PUBLIC REPORTING & INCENTIVES

5.5 CMS Value-Based Payment Modifier and Quality Tiering (VM)—PY 2015

CMS created the Value-Based Payment Modifier (VM) to provide differential payments based on the quality of care furnished compared to cost. CMS provides a Quality and Resource Use Report (QRUR) each fall based on the prior year's data.

- **Inclusion Criteria**—Medicare FFS beneficiaries who received the plurality of their primary care services at DHHA
- **Exclusion Criteria**—Encounters at Federally Qualified Health Centers since they do not participate in PFS services
- **Financial Impact** (applied to total Part B PFS allowed charges for covered professional services):
  ◊ -4% automatic payment reduction to services performed in CY 2017 for not participating in PQRS program in PY 2015 (i.e. 2017 Value Modifier Penalty).
  ◊ -4% to 5% payment adjustment in CY 2017 based on quality and cost performance during 2015 (i.e. 2017 Quality Tiering Adjustment).
  ◊ DHHA was in the most favorable cost/quality quadrant and yet was neither penalized nor rewarded for the Quality Tiering program.

Figure 5.5-1: 2017 Value-Based Payment Modifier

Figure 5.5-2: Quality Composite

Domain	Measure Name	Eligible Cases	Performance Rate	Benchmark*
Effective Clinical Care	Screening or Therapy for Osteoporosis	693	45.2%	44.3%
	Breast Cancer Screening	819	54.2%	54.6%
	Colorectal Cancer Screening	1,675	52.2%	47.6%
Community/ Population	Influenza Immunization	1,778	59.5%	47.8%
	Pneumonia Vaccine for Older Adults	1,298	72.8%	50.2%
Patient Safety	Fluoroscopy Exposure Time Reported	229	83.4%	77.9%
	Cataract complications within 30 days of surgery requiring additional procedures**	52	0.0%	2.0%
	Cataract Surgery with Intra-Operative Complications (Unplanned Vitrectomy)**	113	0.0%	—
Communication & Care Coordination	Mammogram Reminder System	382	100%	88.3%
	Hospitalization Rate per 1,000 Beneficiaries—Acute Conditions**	234	2.28	6.90
	Hospitalization Rate per 1,000 Beneficiaries—Chronic Conditions**	53	0.00	54.6

Figure 5.5-3: Cost Composite

Measure Name	Eligible Cases	Performance Rate	Benchmark*
Per Capita Costs**			
All Attributed Beneficiaries	234	$8,323	$12,326
Beneficiaries with Diabetes	32	$12,208	$18,273
Beneficiaries with CAD	30	$11,702	$21,900
Medicare Spending per Beneficiary**	760	$19,846	$20,599

*Benchmark: National Mean
**Inverse Measures
Source: 2015 QRUR

Future Impact:

- PY 2016: No change in financial adjustments. Expands providers to include Nurse Practitioner, Physician Assistant, Certified Nurse Anesthetist, Nurse Specialist, and Certified Nurse Midwife.
- CMS sunsetted the VM program after PY 2016. Its incentives and penalties will be consolidated into the Quality Payment Program (QPP).

5. PUBLIC REPORTING & INCENTIVES

5.6: CMS Electronic Health Record (EHR) Incentive Program (a.k.a. Meaningful Use)

The American Recovery and Reinvestment Act (ARRA) of 2009 established incentive payments to eligible hospitals (EHs) and eligible providers (EP) to promote the adoption and meaningful use (MU) of interoperable health information technology (HIT) and qualified electronic health records (EHRs). All participants are required to attest to a single set of objectives and measures. Successful participation in the program is based on meeting the thresholds for all objective measures and electronic submission of clinical quality measures (eCQMs). The criteria for successful participation in the EHR Incentive Program differs for EHs and EPs (Figure 5.6-1).

Hospitals can participate in both the Medicare and Medicaid EHR Incentive Programs whereas providers must select either the Medicare or Medicaid program (depending on their patient population). When possible, DHHA will select Medicaid for EPs because it provides incentive payments for participation whereas Medicare only penalizes for lack of participation. DHHA's EPs can successfully demonstrate meaningful use for the first time in 2016. In prior years, the EPs had only been able to show "adoption, implementation and upgrade" (AIU). The EPs then filed for hardship annually because our legacy ambulatory EHR was not ONC certified.

Figure 5.6-1: EHR Incentive Program CY 2016

	Eligible Hospital	Eligible Provider
Objective Measures required	9	10
eCQMs required	16 if report via attestation or 4 if report electronically via IQR program	9 covering at least 3 National Quality Strategy domains
Program(s) selected by DHHA	Medicare and Medicaid	Medicaid only
DHHA Participation in 2016	Returning participant	First-time participant

Source: DHHA DPSQ

- **PY 2016 Participation**
  - ◊ Hospital—DHHA met the thresholds for all EH Objective measures and successfully submitted four eCQMs through the Inpatient Quality Reporting (IQR) program.
  - ◊ Providers—Colorado's submission portal for Medicaid MU is expected to open in summer 2017. Almost all DHHA EPs will meet the Objective measures thresholds and have nine qualifying eCQMs.

- **Financial Impact**
  - ◊ There has been a major shift away from incentive payments and towards penalties for the EHR Incentive Program.
  - ◊ Due to our participation in all three programs in PY 2015, DHHA received incentive payments of $1,600,000 in FY 2016 and avoided penalties of -$409,000 in FY 2017 (Figure 5.6-2).
  - ◊ By participating in PY 2016, DHHA estimates incentive payments of $3,275,000 in FY 2017 and avoidance of penalties of -$632,000 in FY 2018 (Figure 5.6-2).

Figure 5.6-2: EHR Incentive Estimated Financial Impact by Program Year

Eligible Hospital—Medicare			Eligible Provider—Medicare			Eligible Provider—Medicaid		
	Incentive	Penalty		Incentive	Penalty		Incentive	Penalty
PY 2014	$865,555 (FY'15)	n/a	PY 2014	n/a	n/a	PY 2014	$2,231,250 (FY'15)	n/a
PY 2015	$600,000 (FY'16)	$359,000 (FY'17)	PY 2015	n/a	$50,000 (FY'17)	PY 2015	$1,000,000 (FY'16)	n/a
PY 2016	$300,000 (FY'17)	$532,600 (FY'18)	PY 2016	n/a	$100,000 (FY'18)	PY 2016	$2,975,000 (FY'17)	n/a
PY 2017	n/a	$532,600 (FY'19)	PY 2017	n/a	$200,000 (FY'19)	PY 2017	$2,975,000 (FY'18)	n/a
PY 2018	n/a	$532,600 (FY'20)	PY 2018	n/a	$250,000 (FY'20)	PY 2018	$2,975,000 (FY'18)	n/a

5. PUBLIC REPORTING & INCENTIVES

5.6: CMS Electronic Health Record (EHR) Incentive Program (a.k.a. Meaningful Use)

- **PY 2016 Eligible Hospital**
    - ◊ **Clinical Quality Measures**
        - The eCQM results will be shown in Section 5.7 along with the other CMS and The Joint Commission CQMs.
    - ◊ **Objective Measures**

Figure 5.6-3: EHR Incentive Eligible Hospital Objective Measures 2016

Modified Stage 2 Objectives		Reporting Period 10/3/2016—12/31/2016 (90 days)		
Objective	Threshold		Score	
Objective 1: Protect Electronic Health Information	Yes		Yes ☑	
Objective 2: Clinical Decision Support				
Measure 1: Implement CDS Interventions	Yes		Yes ☑	
Measure 2: Implement Drug-Drug & Drug-Allergy Checks	Yes		Yes ☑	
Objective 3: Computerized Provider Order Entry				
Measure 1: CPOE—Medications	>60%		97.9% ☑	183,355 of 187,382 Orders
Measure 2: CPOE—Labs	>30%		96.0% ☑	98,466 of 102,618 Orders
Measure 3: CPOE—Imaging	>30%		98.1% ☑	17,945 of 18,308 Orders
Objective 4: E-Prescribing	>10%		90.6% ☑	8,598 of 9,496 Orders
Objective 5: Send Summaries of Care	>10%		48.1% ☑	2,494 of 5,191 Transitions
Objective 6: Patient Education	>10%		97.3% ☑	4,863 of 5,000 Patients
Objective 7: Medication Reconciliation	>50%		90.4% ☑	5,544 of 6,139 Transitions
Objective 8: Patient Electronic Access				
Measure 1: Patient Electronic Access	>50%		98.6% ☑	4,950 of 5,022 Patients
Measure 2: Patients Access Health Information	At least one patient		15.5% ☑	778 of 5,022 Patients
Objective 10: Public Health Reporting				
Immunization Registry Reporting	Yes		Yes ☑	
Syndromic Surveillance Reporting	Yes		Yes ☑	
Specialized Registry Reporting	Yes		Yes ☑	
Reportable Laboratory Result Reporting	Yes		Yes ☑	

- **Future Impact**
    - ◊ CMS is retiring two objectives (Clinical Decision Support and Computerized Provider Order Entry).
    - ◊ DHHA will participate in the Medicare MU program with Modified Stage 2 in PY 2017 and Stage 3 in PY 2018.

5. PUBLIC REPORTING & INCENTIVES

5.6: CMS Electronic Health Record (EHR) Incentive Program (a.k.a. Meaningful Use)

- **PY 2016 Eligible Provider Objective Measures**
  - ◊ **Clinical Quality Measures**

    For the EP MU Program, nine eCQMs must be selected for each provider. The eCQMs may differ between providers because of their patient population, e.g. a pediatrician will not provide care for adult patients with ischemic vascular disease. The eCQM results will be shown in Section 5.7 along with the other CMS and The Joint Commission CQMs.
  - ◊ **Objective Measures**

    Figure 5.6-4 shows the percentage of providers compliant for each measure.

Figure 5.6-4: EHR Incentive Eligible Provider (EP) Objective Measures 2016 (N=279 providers)

Modified Stage 2 Objective	Threshold	Compliant Providers	Number of EPs Failing Measure
Objective 1: Protect Patient Health Information	Yes	100%	0
Objective 2: Clinical Decision Support (CDS)			
Measure 1: Implement CDS Interventions	5	100%	0
Measure 2: Implement Drug-Drug & Drug-Allergy Checks	Yes	100%	0
Objective 3: Computerized Provider Order Entry			
Measure 1: CPOE—Medications	>60%	99%	1
Measure 2: CPOE—Labs	>30%	100%	0
Measure 3: CPOE—Imaging	>30%	100%	0
Objective 4: Electronic Prescribing	>50%	97%	7
Objective 5: Send Summaries of Care—patients transitioned or referred to another setting of care or provider of care	>10%	81%	51
Objective 6: Patient Specific Education	>10%	100%	0
Objective 7: Medication Reconciliation—patients transitioned into the EP's care	>50%	97%	6
Objective 8: Patient Electronic Access			
Measure 1: Patients Provided Electronic Access	>50%	99%	1
Measure 2: Patients Access Health Information	At least 1 patient	100%	0
Objective 9: Secure Messaging	At least 1 patient	100%	0
Objective 10: Public Health Reporting			
Immunization Registry Reporting	At least 2 registries	100%	0
Syndromic Surveillance Reporting			
Specialized Registry Reporting			

Source: DHHA Epic dashboard "EP Meaningful Use"

- **Future Impact**
  - ◊ Medicare's MU EP program ended and its penalties will be consolidated into the Quality Payment Program (QPP).
  - ◊ Medicaid's MU EP program continues and DHHA providers can qualify for incentive payments for up to 5 more years.
  - ◊ EPs will need to submit 9 eCQMs for the Medicaid EHR Incentive program and 6 eCQMs for QPP.
  - ◊ DHHA will participate in Modified Stage 2 in PY 2017 and Stage 3 in PY 2018.

5. PUBLIC REPORTING & INCENTIVES

5.7 Medicare/Medicaid/Joint Commission Clinical Quality Measures

Overview

CMS Inpatient Quality Reporting (IQR) Program
The Hospital Inpatient Quality Reporting (IQR) Program provides consumers with quality of care information so they can make informed decisions about healthcare options. The program offers financial incentives to hospitals to report the quality of their services. Hospitals that fail to report will face a 2 percentage point reduction in the annual market basket update. DHHA has successfully participated in the IQR Program since its inception.

For the FFY 2018 payment determination, there were 47 required measures (9 chart-abstracted, 24 claims-based, 6 NHSN, 1 patient experience survey, 4 structural measures, 4 electronic). Nearly 20% of the measures were new in 2016. For the first time, CMS mandated hospitals report at least four of the 28 electronic clinical quality measures (eCQMs) that align with the Medicare EHR Incentive Program in order to satisfy the IQR Program. A new structural measure on Patient Safety Culture was added. Furthermore, three new claims-based measures were incorporated (Episode-of-Care Payment for Primary Elective Total Hip Arthroplasty and/or Total Knee Arthroplasty, Excess Acute Care Days after Hospitalization for Acute Myocardial Infarction, Excess Acute Care Days after Hospitalization for Heart Failure).

DHHA was randomly selected for the FY 2018 IQR Inpatient Data Validation program. Hospitals that fail validation (<75% agreement) lose the annual market basket update. Chart-abstracted process measure sets (except perinatal care) and healthcare-associated infection measures were reviewed. CLABSI and CAUTI events reported to NHSN were validated along with SSI cases from Medicare claims data for patients who had colon surgeries or abdominal hysterectomies. A CMS contractor validated 18 medical charts per quarter for Q3 2015, Q4 2015, Q1 2016, and Q2 2016. DHHA is passing validation with an overall score of 94% with only one time period awaiting validation.

- **Future Impact**
  - ◊ IQR CY 2017: CMS retires 3 chart-abstracted measures, 13 eCQMs, and 2 structural measures. CMS separates claims-based measures into Outcome and Payment categories and adds 1 outcome and 6 payment measures. CMS requires at least 8 of 15 eCQMs which will also meet CQM requirements for the EHR Incentive Program. For successful participation in the 2017 IQR Program and the FFY 2019 payment determination, 54 measures required (6 chart-abstracted, 20 claims-based outcome, 11 claims-based payment, 6 NHSN, 1 patient experience survey, 2 structural, 8 electronic).
  - ◊ Validation FFY 2018: CMS will finish the validation during the first half of CY 2017.
  - ◊ Validation FFY 2019: DHHA was not selected for Inpatient Data Validation.

The Joint Commission ORYX Initiative
The Joint Commission's ORYX initiative integrates outcomes and other performance measures into the accreditation process. Hospitals have flexibility in meeting the ORYX requirements by selecting their six measure sets and their reporting mechanism (chart-abstracted, electronic, or a combination). In 2016, DHHA selected the combination of chart-abstracted and electronic clinical quality measure (eCQM) option. The chart-abstracted measure sets chosen were Emergency Department, Immunization, Perinatal Care, Stroke, and Venous Thromboembolism. The eCQM measure set was Emergency Department. Chart-abstracted measure sets are reported for the entire year whereas the eCQM measure set is reported for 2016 only. Hospitals that fail to participate will lose their accreditation.

- **Future Impact**
  - ◊ CY 2017: The Joint Commission will eliminate the measure set reporting requirement in favor of reporting on individual measures that include both chart-abstracted and electronic measures. DHHA must report 9 chart-abstracted measures and 6 of 13 available eCQMs. All measures will be reported for the entire year. Chart-abstracted measures will be submitted quarterly whereas eCQMs will be reported annually.

5. PUBLIC REPORTING & INCENTIVES

5.7 Medicare/Medicaid/Joint Commission Clinical Quality Measures

Overview

CMS EHR Incentive Program

A description of the EHR Incentive Program is in Section 5.6. The eCQMs in this program are the same measures used for the IQR program (inpatients) and PQRS program (Outpatient). For the hospital program, DHHA chose to submit quality measures through the IQR program so only four eCQMs were required in 2016. For the provider program, DHHA will submit nine eCQMs per EP once the Colorado Medicaid submission portal opens in summer 2017.

CMS Inpatient Psychiatric Facility Quality Reporting (IPFQR) Program

The Inpatient Psychiatric Facility Quality Reporting (IPFQR) program's goals are to help consumers make more informed decisions about healthcare options and to encourage hospitals to improve the quality of care. IPFs collect aggregate data by quarter and submit to CMS annually. IPFs that do not participate or meet reporting requirements receive a 2.0 percentage point reduction of their annual payment update. The reduction is non-cumulative across payment years. There are 13 measures and 3 sub-measures for the FFY 2018 payment determination.

- **Future Impact**
  - ◊ CY 2017: CMS is adding six new measures:
    - Transition Record with Specified Elements Received by Discharged Patients (IPF-TTR-1).
    - Timely Transmission of Transition Record (IPF-TTR-2).
    - Screening for Metabolic Disorders (IPF-SMD-1).
    - Alcohol and Other Drug Use Disorder Treatment Provided or Offered at Discharge (SUB-3).
    - Alcohol and Other Drug Use Disorder Treatment at Discharge (SUB-3a).
    - 30-Day All-Cause Unplanned Readmission Following Psychiatric Hospitalization in an Inpatient Psychiatric Facility.

CMS Hospital Outpatient Quality Reporting (OQR) Program

The Outpatient Prospective Payment System (OPPS) pays for services furnished to Medicare beneficiaries in hospital outpatient departments and ambulatory surgery centers. Hospitals that fail to meet the outpatient quality reporting (OQR) requirements receive a 2 percentage point reduction in payments. For the CY 2016 program, there were 25 measures (9 chart-abstracted, 9 web-based, 7 claims-based).

DHHA was randomly selected by CMS for Outpatient Data Validation for the CY 2017 annual payment update determination. Hospitals that fail validation (<75% agreement) will lose the annual market basket update. During 2016, a CMS contractor validated 12 medical charts per quarter for Q1 2015, Q2 2015, and Q3 2015. The validation covered three chart-abstracted measures (OP-18, OP-20, and OP-21). DHHA passed the validation with an overall score of 83%.

- **Future Impact**
  - ◊ CY 2017: CMS is adding a new measure: Improvement in Patient's Visual Function within 90 Days Following Cataract Surgery (OP-31).
  - ◊ CY 2018: CMS is adding three new measures:
    - Admissions and Emergency Department Visits for Patients Receiving Outpatient Chemotherapy (OP-35).
    - Hospital Visits After Hospital Outpatient Surgery (OP-36).
    - OAS CAHPS Survey (OP-37). DHHA will need to contract with a CMS-approved vendor to collect survey data monthly at the CMS Certification Number (CCN) level.
  - ◊ Validation CY 2018: DHHA was randomly selected for validation of outpatient chart-abstracted measures.

5. PUBLIC REPORTING & INCENTIVES

5.7 Medicare/Medicaid/Joint Commission Clinical Quality Measures

Hospital Inpatient

Stroke Measures (STK)

STK-4 was a mandatory chart-abstracted measure in 2016 for the CMS IQR program.
eSTK-4 and eSTK-6 were selected as eCQMs for the 2016 CMS IQR program.
eSTK-4 and eSTK-6 were selected as eCQMs for the 2016 CMS EHR Incentive program.
The Stroke Measure set was selected for the 2016 TJC ORYX Program, i.e. STK-4.

- **2016 Overall Results**
  - ◊ 100% of 13 acute ischemic stroke patients who arrived at the hospital within two hours of last know well time received intravenous t-PA within 3 hours of last known well time (STK-4).
  - ◊ In Q1 2016, none of the cases had documentation of time last known well, resulting in a zero denominator for the quarter.
  - ◊ 92% of 13 stroke patients were discharged on statin medication in Q4 2016 (eSTK-6).

Figure 5.7-1: t-PA for Acute Ischemic Stroke Patients (STK-4)
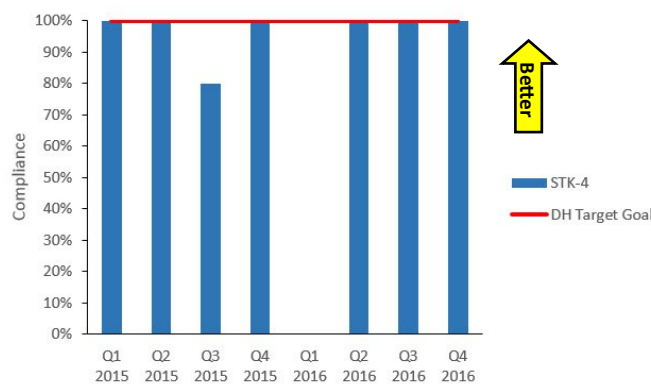
Source: DHHA DPSQ

- **PI Activity**
  - ◊ Clinical Documentation Improvement (CDI) team performed secondary review of cases with potential coding queries.

- **Future Impact**
  - ◊ CY 2017 CMS IQR / EHR Incentive: CMS retires STK-4 as a chart-abstracted and electronic measure. DHHA plans to submit four stroke measures electronically: Discharged on Antithrombotic therapy (eSTK-2), Discharged on Statin Medication (eSTK-6), Stroke Education (eSTK-8), and Assessed for Rehabilitation (eSTK-10).
  - ◊ CY 2017 TJC ORYX: DHHA elected to submit eSTK-6 electronically.

5. PUBLIC REPORTING & INCENTIVES

5.7 Medicare/Medicaid/Joint Commission Clinical Quality Measures

Hospital Inpatient

Venous Thromboembolism (VTE)

VTE-5 and VTE-6 were mandatory chart-abstracted measures in 2016 for the CMS IQR program.
The VTE Measure set was selected for the 2016 TJC ORYX Program, i.e. VTE-5 and VTE-6.

- **2016 Overall Results**
    - ◊ 100% of 60 VTE patients on warfarin received written discharge instructions with warfarin education (VTE-5).
    - ◊ 0% of 52 patients who did not receive VTE prophylaxis developed a VTE during hospitalization (VTE-6).

Figure 5.7-2: Discharged with Warfarin Instructions (VTE-5)
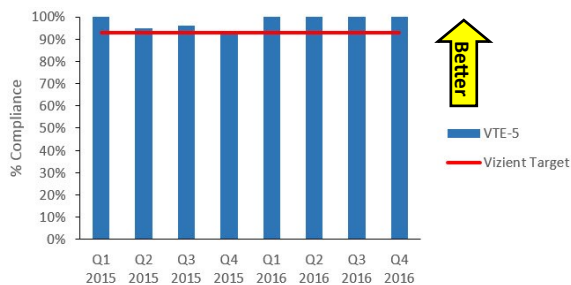
Source: DHHA DPSQ

Figure 5.7-3: Incidence of Potentially-Preventable VTE (VTE-6)
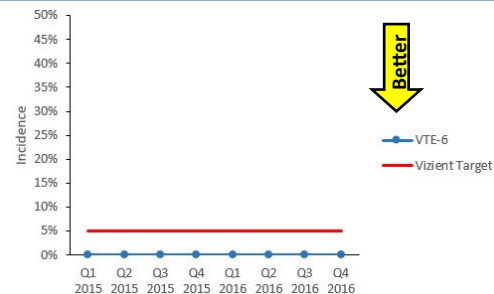
Source: DHHA DPSQ

- **PI Activity**
    - ◊ DPSQ and Epic teams collaborated to automatically include warfarin education in the After Visit Summary when warfarin is listed on the discharge medication list.

- **Future Impact**
    - ◊ CY 2017 CMS IQR program (manual): VTE-6 is the only required chart-abstracted measure.
    - ◊ CY 2017 CMS IQR program (electronic): DHHA selected Venous Thromboembolism Prophylaxis (eVTE-1) and Intensive Care Venous Thromboembolism Prophylaxis (eVTE-2).
    - ◊ CY 2017 TJC ORYX: Same as IQR program (VTE-6 by chart-abstraction, eVTE-1 and eVTE-2 electronically).
    - ◊ CY 2017: Documentation that a formal risk assessment was administered is required if the provider indicates that there is no risk or low risk for VTE.

5. PUBLIC REPORTING & INCENTIVES

5.7 Medicare/Medicaid/Joint Commission Clinical Quality Measures

Hospital Inpatient

Influenza Immunization (IMM)
IMM-2 was a mandatory chart-abstracted measure in 2016 for the CMS IQR program.
The Immunization Measure set was selected for the 2016 TJC ORYX Program, i.e. IMM-2.

- **2016 Overall Results**
    - ◊ During the 2015-2016 flu season, 94% of patients (470/502) received their influenza immunization.
    - ◊ During the first half of the 2016-2017 flu season, 97% of patients (225/232) received their influenza immunization.

Figure 5.7-4: Influenza Immunization (IMM-2)
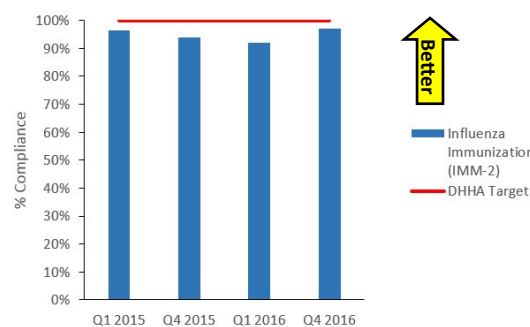
Source: DHHA DPSQ

- **PI Activity**
    - ◊ Epic Inpatient Clinical Documentation Team created real-time, unit-specific worklists which showed patient-level vaccination screening and administration status.
    - ◊ Epic and DPSQ staff collaborated to improve the process of identifying noncompliant cases by updating the worklists to include immunization status at time of discharge. This allowed DPSQ staff to provide immediate feedback to specific units with failed cases.

- **Future Impact**
    - ◊ CY 2017 CMS IQR: IMM-2 remains a required chart-abstracted measure.
    - ◊ CY 2017 TJC ORYX: IMM-2 becomes a required chart-abstracted measure.

5. PUBLIC REPORTING & INCENTIVES

5.7 Medicare/Medicaid/Joint Commission Clinical Quality Measures

Hospital Inpatient

Severe Sepsis and Septic Shock (SEP)
SEP-1 was a mandatory chart-abstracted measure in 2016 for the CMS IQR program.

- **2016 Overall Results**
  - ◊ 24% of patients (32/134) passed all applicable measures in the Sepsis Composite (SEP-1 Composite).
  - ◊ 76% of these cases occurred when the patient was in the Emergency Department.

Figure 5.7-5: Early Management Bundle: Severe Sepsis/Septic Shock
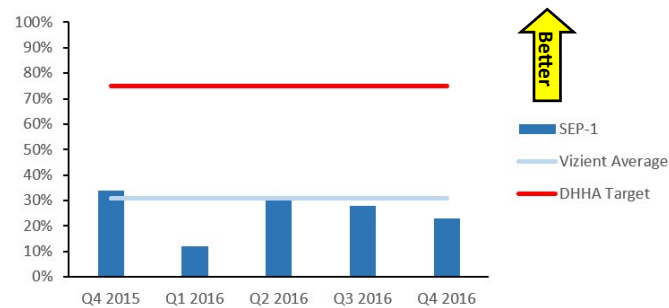
Source: DHHA DPSQ

- **PI Activity**
  - ◊ Due to the Emergency Department (ED) being the primary location of sampled cased (76%), a real time screen is done within the ED for patients who meet severe sepsis and septic shock criteria based off of the Surviving Sepsis Campaign inclusion criteria.
  - ◊ Real time feedback sent to ED leadership to discuss compliance with bundle requirements with bedside clinicians.
  - ◊ Collaboration with lab on correcting phlebotomy draw times documented in Epic and system flow.
  - ◊ Weekly reports of real time screens provided to ED leadership on individual bundle compliance.
  - ◊ Epic "dot sepsis" phrase built to automatically pull needed requirements for physical reassessment, including a checklist of bundle requirements.
  - ◊ Monthly and continuous education of MICU residents and interns on documenting the physical reassessment piece in a "dot sepsis" phrase.

- **Future Impact**
  - ◊ CY 2017 CMS IQR: SEP-1 remains a required chart abstracted measure.
  - ◊ CMS will continue to monitor SEP-1 measure without penalty until 2018.
  - ◊ Development of a Best Practice Alert (BPA) within Epic to electronically detect severe sepsis and septic shock.
  - ◊ Cases failing due to documentation rather than actual care will be escalated to the attending doctors and/or Chief Quality Officer to determine if an addendum can be added to the medical record.
  - ◊ Attending ED physicians will be held accountable for their performance via the Ongoing Professional Performance Evaluation (OPPE) process.

DENVER HEALTH
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5. PUBLIC REPORTING & INCENTIVES

5.7 Medicare/Medicaid/Joint Commission Clinical Quality Measures

Hospital Inpatient

CMS
CENTERS FOR MEDICARE & MEDICAID SERVICES

The Joint Commission

Perinatal Care Conditions (PC)
PC-01 was a mandatory chart-abstracted measure in 2016 for the CMS IQR program.
The Perinatal Care measure set was required for the 2016 TJC ORYX Program, i.e. PC-01, PC-02, PC-03, PC-04, and PC-05.

- **2016 Overall Results**
    - ◊ 1.5% of 65 pregnant women had an elective delivery between 37 and 39 weeks gestation (PC-01).
    - ◊ 13.8% of 189 nulliparous women with a term baby in a vertex position were delivered by cesarean section (PC-02).
    - ◊ 100% of 13 pregnant women at risk of preterm delivery at 24-32 weeks gestation received antenatal steroids prior to delivering the preterm newborn (PC-03).
    - ◊ 100% of 87 high risk newborns diagnosed with septicemia or bacteremia had infection present on admission (PC-04).
    - ◊ 59.1% of 381 newborns were fed breast milk during the inpatient stay following birth (PC-05).

Figure 5.7-6: Elective Delivery (PC-01)
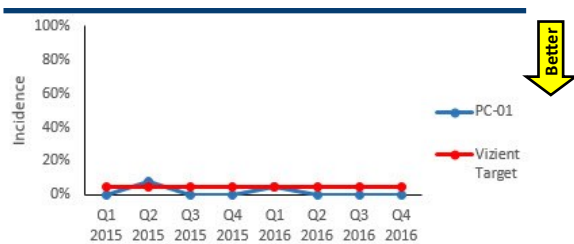
Figure 5.7-7: Cesarean Section (PC-02)
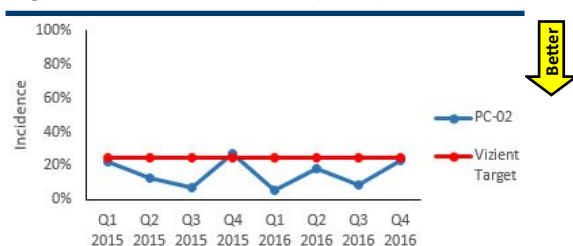
Figure 5.7-8: Antenatal Steroids (PC-03)
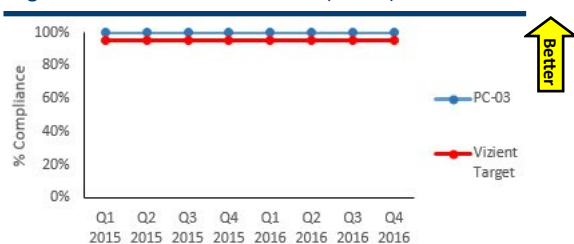
Figure 5.7-9: CLABSI in Newborns (PC-04)
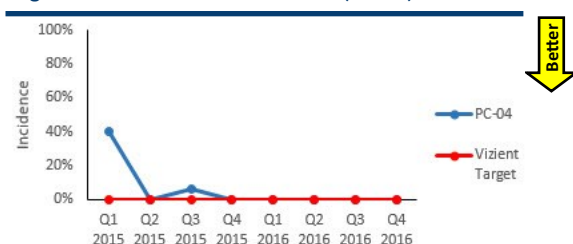
Figure 5.7-10: Exclusive Breast Milk Feeding (PC-05)
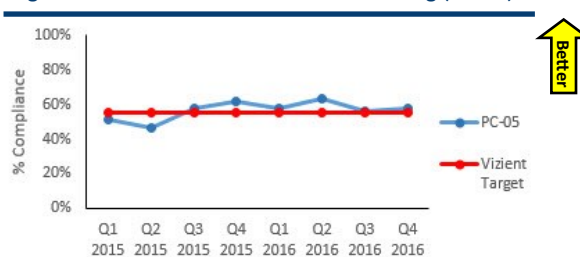
Source: DHHA DPSQ

- **PI Activity**
    - ◊ CDI team performed secondary review on all failed PC-01 cases.
    - ◊ Quarterly data provided to bimonthly Breast Feeding Council.
- **Future Impact**
    - ◊ CY 2017 CMS IQR program (manual): PC-01 remains a required chart-abstracted measure.
    - ◊ CY 2017 CMS IQR program (electronic): DHHA selected PC-05 as an eCQM.
    - ◊ CY 2017 TJC ORYX: PC-01, PC-02, PC-03, PC-04, and PC-05 remain mandatory chart-abstracted measures.

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5. PUBLIC REPORTING & INCENTIVES

## 5.7 Medicare/Medicaid/Joint Commission Clinical Quality Measures

Hospital Outpatient

Chart-Abstracted Measures

In 2016, DHHA had zero cases for the AMI and chest pain measures (OP-1, OP-2, OP-3, OP-4, OP-5). The Emergency Department (ED) measures (OP-18, OP-20, OP-21, OP-23) are shown in the ED section.

Web-Based Measures

These measures are submitted annually. CMS does not provide benchmarks for these measures.

Figure 5.7-11: Web-Based Measures

ID	Measure	DHHA 2015	DHHA 2016
OP-12	Electronically Receive Laboratory Data Directly into EHR System as Discrete Searchable Data	Yes	Yes
OP-17	Ability to Track Clinical Results Between Visits	Yes	Yes
OP-22	ED-Patient Left Without Being Seen	2.6%	3.8%
OP-25	Safe Surgery Checklist Use	Yes	Yes
OP-26	Hospital Outpatient Volume Data on Selected Outpatient Surgical Procedures		
	Cardiovascular	556	TBD
	Eye	1543	TBD
	Gastrointestinal	4347	TBD
	Genitourinary	876	TBD
	Musculoskeletal	2828	TBD
	Nervous System	708	TBD
	Other	88	TBD
	Respiratory	728	TBD
	Skin	2721	TBD
OP-27	Influenza Vaccination Coverage Among Healthcare Personnel	98%	99%
OP-29	Appropriate Follow-up Interval for Normal Colonoscopy in Average Risk Patients	98.5%	96.8%
OP-30	Colonoscopy Interval for Patients with History of Adenomatous Polyps	100%	n/a (zero cases)
OP-33	External Beam Radiotherapy for Bone Metastases	n/a	n/a (zero cases)

Claims-Based Measures

These measures are based on paid Medicare FFS claims. Results are released by CMS approximately six months after a quarter ends. The most recent reporting period for these outpatient imaging efficiency measures are for encounters from third quarter 2015 through second quarter 2016.

Figure 5.7-12: Claims-Based Measures

ID	Measure	DHHA	National
OP-8	MRI Lumbar Spine for Low Back Pain	43.6% of 55 patients	39.8%
OP-9	Mammography Follow-up Rates	9.4% of 588 patients	8.8%
OP-10	Abdomen CT—Use of Contrast Material	0.0% of 579 scans	7.8%
OP-11	Thorax CT—Use of Contrast Material	2.9% of 414 scans	1.8%
OP-13	Cardiac imaging for preoperative risk assessment for non-cardiac low-risk surgery	4.0% of 75 patients	4.8%
OP-14	Simultaneous Use of Brain Computed Tomography (CT) and Sinus CT	0.5% of 432 patients	1.6%

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5.7 Medicare/Medicaid/Joint Commission Clinical Quality Measures

CMS EHR Incentive Program—Eligible Provider

For each provider, a 90-day period will be identified where the EP meets the thresholds of all objectives measures. Nine eCQMs which are appropriate for the EP's patient population during the same 90-day period will be submitted to Medicaid. The eCQMs must also cover 3 of the 4 domains. Figure 5.7-13 shows the percentage of patients compliant for each measure.

Figure 5.7-13: EP MU Electronic Clinical Quality Measures —Percent of Patients in Compliance

Domain	CMS ID	Measure Name	Q4 2016
Effective Use of Healthcare Resources	146	Appropriate Testing for Children with Pharyngitis	88%
	154	Appropriate Treatment for Children with Upper Respiratory Infection	97%
Patient Safety	68	Documentation of Current Medications in the Medical Record	75%
	156	Use of High-Risk Medications in the Elderly:	
		One Medication	40%
		Two Medications	22%
Population and Public Health—Facility	155	Weight Assessment & Counseling:	
		Age 3-10, Body Mass Index (BMI) Percentile, Height, & Weight	98%
		Age 3-10 Counseling for Nutrition	8%
		Age 3-10 Counseling for Physical Activity	7%
		Age 11-16, BMI Percentile, Height, Weight	97%
		Age 11-16 Counseling for Nutrition	7%
		Age 11-16 Counseling for Physical Activity	6%
	138	Tobacco Use: Screening and Cessation Intervention	90%
	153	Chlamydia Screening:	
		Women 16-19 years of age	81%
		Women 20-24 years of age	82%
		Women 16-24 years of age	82%
Clinical Processes and Effectiveness—Facility	75	Children who have Dental Decay or Cavities	6%
	127	Pneumonia Vaccination Status for Older Adults	88%
	165	Controlling High Blood Pressure	56%
	144	Heart Failure: Beta Blocker Therapy for Left Ventricular Systolic Dysfunction (LVSD)	88%
	164	Ischemic Vascular Disease: Use of Aspirin or Another Antithrombotic	84%
	61	Cholesterol—Fasting LDL-C:	
		High Risk Population	45%
		Moderate Risk Population	36%
		Low Risk Population	40%
	124	Cervical Cancer Screening	58%
	125	Breast Cancer Screening	60%
	134	Diabetes: Urine Protein Screening	85%
	163	Diabetes: LDL Management and Control	25%
	182	Ischemic Vascular Disease: Complete Lipid Profile	47%
		Ischemic Vascular Disease: LDL-C < 100 mg/dL	30%

Source: DHHA Epic dashboard "EP Meaningful Use"

- **Future Impact**
  - ◊ In 2017, DHHA will need to submit provider-level eCQMs for Medicaid MU EP, Medicare Quality Payment Program, and Medicare Shared Savings Program.

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5.7 Medicare/Medicaid/Joint Commission Clinical Quality Measures

Emergency Department

CMS does not have a separate payment system or quality reporting program for Emergency Department (ED) encounters. Instead, these visits are incorporated into either the IQR and OQR program depending on a patient's final discharge disposition. Patients who are discharged home from the ED are considered outpatients whereas patients who are admitted are considered inpatients.

- **2016 Overall Results**

ID	Measure	Cases	Median Time (minutes)
ED-1b	ED arrival to ED departure for patients admitted to the hospital	596	312
ED-2b	Admit decision to ED departure for patients admitted to the hospital	593	127
ED-OP-18b	ED arrival to ED departure for patients discharged from the ED	288	250
ED-OP-20	ED arrival to diagnostic evaluation by a qualified medical professional	368	20
ED-OP-21	ED arrival to pain management for ED patients with long bone fracture	246	24

ID	Measure	Cases	Performance Rate
OP-23	Head CT or MRI Scan Interpretation for ED Stroke Patients within 45 Minutes of Arrival	6	67%

Figure 5.7-14: ED Inpatient to Arrival, Admit Decision to Departure, and Outpatient Arrival to Depart
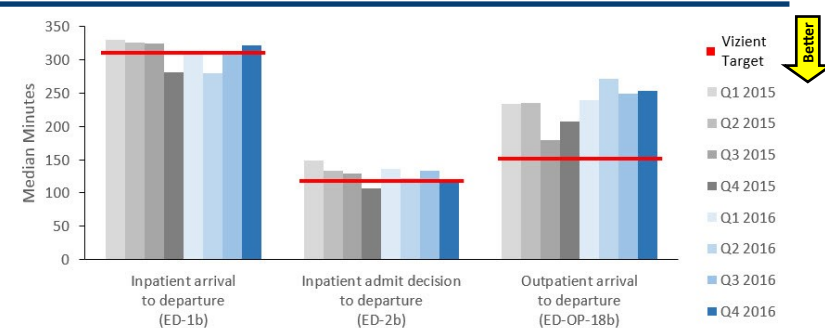
Source: DHHA DPSQ

Figure 5.7-15: ED Arrival to Provider Contact and Arrival to Pain Meds Long Bone Fracture
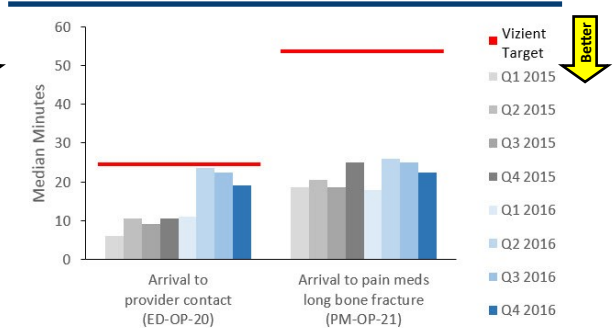
Source: DHHA DPSQ

- **PI Activity**
    - ◊ Quarterly reports provided to emergency room leadership and presented at Gemba walks.
    - ◊ In 2016, the executive leadership of DHHA launched a multi-pronged coordinated improvement effort focused on hospital flow. A primary target of the improvement work that begins in 2017 will target ED wait times.

- **Future Impact**
    - ◊ CY 2017 CMS IQR program (manual): ED-1 and ED-2 are required chart-abstracted measures.
    - ◊ CY 2017 CMS IQR program (electronic): DHHA selected ED-1 and ED-2 as eCQMs.
    - ◊ CY 2017 CMS OQR program (manual): ED-OP-18, ED-OP-20, ED-OP-21 are required chart abstracted measures.
    - ◊ CY 2017 TJC ORYX: DHHA selected both chart-abstraction and electronic submission for ED-1 and ED-2.

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5.7 Medicare/Medicaid/Joint Commission Clinical Quality Measures

Behavioral Health

Hospital-Based Inpatient Psychiatric Services (HBIPS)

- **2016 Overall Results**
  - ◊ 95% of 21 patients discharged on multiple antipsychotic medications had appropriate justification (HBIPS-5).

Figure 5.7-16: Multiple Antipsychotic Meds at D/C
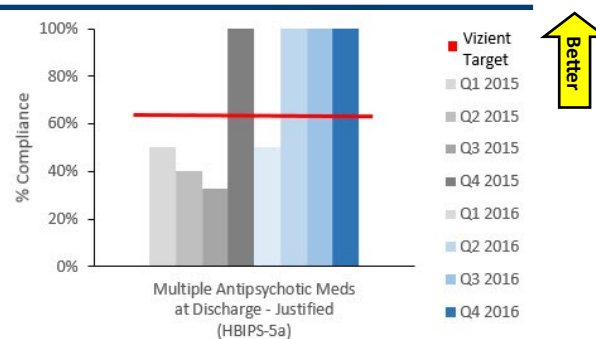
Source: DHHA DPSQ

- **PI Activity**
  - ◊ DPSQ and Epic Inpatient Clinical Documentation teams collaborated to create a drop-down list with allowable justifications for multiple antipsychotic medications in the provider discharge summary.

- **Future Impact**
  - ◊ CY 2017: CMS added three new measures — Transition Record Received by Discharged Patients (IPF-TTR-1), Timely Transmission of Transition Record (IPF-TTR-2), and Screening for Metabolic Disorders (IPF-SMD-1).

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5.7 Medicare/Medicaid/Joint Commission Clinical Quality Measures

Behavioral Health

Alcohol Use (SUB)

- **2016 Overall Results**
  - ◊ 98% (303 of 309) psychiatric inpatients were screened for alcohol use using a validated screening questionnaire within the first three days of admission (SUB-1).
  - ◊ 26% (12 of 46) psychiatric inpatients who screened positive for unhealthy alcohol use, alcohol abuse, or alcohol dependence were offered a brief intervention during the hospital stay (SUB-2).
  - ◊ 15% (7 of 46) psychiatric inpatients who screened positive for unhealthy alcohol use, alcohol abuse, or alcohol dependence received a brief intervention during the hospital stay (SUB-2a).

Figure 5.7-17: Alcohol Use Screening and Intervention Offered/Received
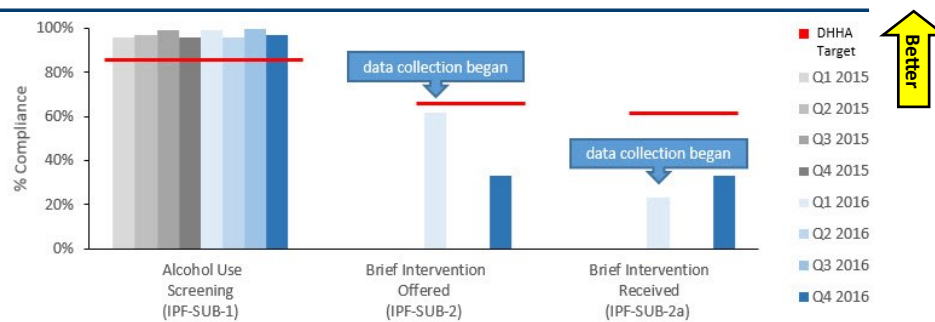
Source: DHHA DPSQ

- **PI Activity**
  - ◊ DPSQ and Epic Inpatient Clinical Documentation teams collaborated to build an alcohol screen (AUDIT-C) in the Admission Navigator.
  - ◊ Met with Behavioral Health staff certified in alcohol intervention to standardize process for identifying patients who should receive treatment; reviewed documentation of required elements of intervention.
  - ◊ Epic team created real-time, unit-specific worklists which showed patient-level status of alcohol screening, results of screening questionnaire, and status of brief intervention.

- **Future Impact**
  - ◊ CY 2017: CMS added two new measures — Alcohol Disorder Treatment Offered at Discharge (IPF-SUB-3) and Alcohol Disorder Treatment Received at Discharge (IPF-SUB-3a).

5. PUBLIC REPORTING & INCENTIVES

5.7 Medicare/Medicaid/Joint Commission Clinical Quality Measures

Behavioral Health

Tobacco Use (TOB)

- **2016 Overall Results**
  - ◊ 99% (343 of 345) psychiatric inpatients were screened for tobacco use during the first day of admission (TOB-1).
  - ◊ 84% (131 of 156) psychiatric inpatients who used tobacco within the past 30 days were offered cessation counseling and tobacco cessation medication during the hospital stay (TOB-2).
  - ◊ 44% (69 of 156) psychiatric inpatients who used tobacco within the past 30 days received cessation counseling and tobacco cessation medication during the hospital stay (TOB-2a).
  - ◊ 28% (40 of 141) psychiatric inpatients who used tobacco within the past 30 days were offered an outpatient counseling referral and tobacco cessation medication at discharge (TOB-3).
  - ◊ 28% (40 of 141) psychiatric inpatients who used tobacco within the past 30 days received an outpatient counseling referral and tobacco cessation medication at discharge (TOB-3a).

Figure 5.7-18: Tobacco Use Screening and Treatment Offered/Received (Inpatient)
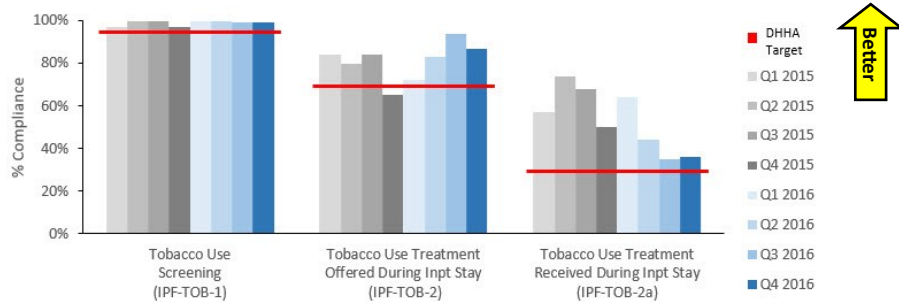
Source: DHHA DPSQ

Figure 5.7-19: Tobacco Use Treatment Offered/Received at D/C
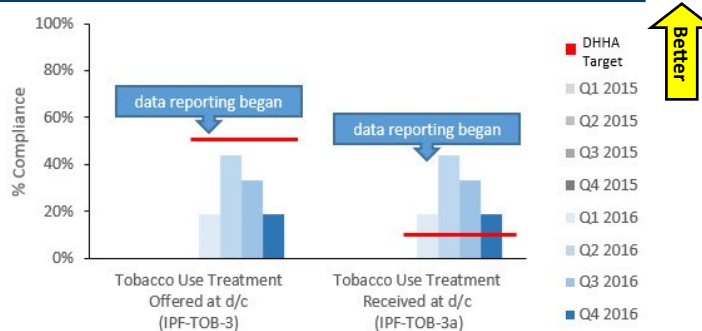
Source: DHHA DPSQ

- **PI Activity**
  - ◊ DPSQ and Epic teams collaborated to build a tobacco screen in the Admission Navigator.

- **Future Impact**
  - ◊ CY 2017: No changes.

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5.7 Medicare/Medicaid/Joint Commission Clinical Quality Measures

Behavioral Health

Influenza Immunization (IPF-IMM)

- **2016 Overall Results**
   - ◊ During the 2015-2016 flu season, 85% of psychiatric inpatients (266/313) received their influenza immunization.
    - ◊ During the first half of the 2016-2017 flu season, 98% of patients (148/151) received their influenza immunization.

- **PI Activity**
    - ◊ Epic Report Team created real-time, unit-specific worklists which showed patient-level vaccination screening and administration status.
    - ◊ Epic report updated to include immunization status at time of discharge, thereby allowing DPSQ staff to provide immediate feedback to specific units with failed cases.

- **Future Impact**
    - ◊ CY 2017 CMS IPFQR: No change.

Figure 5.7-20: Behavioral Health Influenza Immunization
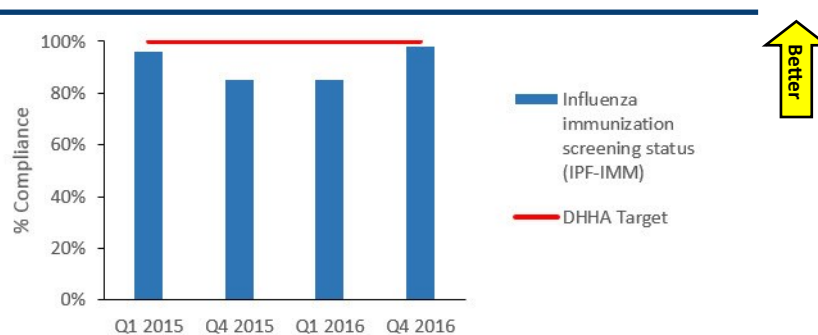
Source: DHHA DPSQ

Web-Based and Claims-Based Measures

The PY 2018 IPFQR claims-based measure includes Medicare FFS paid claims for encounters from July 1, 2015 to June 30, 2016. The two structural web-based measures for PY 2018 are based on the hospital's status as of December 31, 2016. The Influenza measure reported to NHSN for PY 2018 is for the 2016-2017 Influenza season.

Figure 5.7-21: Web-Based and Claims-Based IPFQR Measures

Submission	Measure	DHHA 2015	DHHA 2016
Claims-based	Follow-Up After Hospitalization for Mental Illness (FUH)	n/a	Not yet released by CMS
Structural Web-Based	Assessment of Patient Experience of Care	No	Yes
Structural Web-Based	Use of an Electronic Health Record and Exchange of Interoperable Health Information with a Health Information Service Provider	No	Yes
NHSN	Influenza Vaccination Coverage Among Healthcare Personnel	98%	99%

Source: DHHA DPSQ

5. PUBLIC REPORTING & INCENTIVES

5.8: CMS Overall Hospital Ratings

CMS developed the Overall Hospital Rating as a simple, intuitive method for summarizing information on *Hospital Compare*. The rating reflects more than 50 measures across seven domains of quality. Some of the measures are based only on data from Medicare beneficiaries whereas others are based on data regardless of payer. CMS provided dry runs in July and August 2015 to gather feedback from the public and providers. The first release of the Overall Hospital Quality Star Rating on *Hospital Compare* occurred on July 27, 2016. CMS released updates to the ratings on October 19, 2016 and December 19, 2016. The results from the December 2016 release are shown in Figure 5.8-1, see next page.

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5.8: CMS Overall Hospital Rating

Figure 5.8-1: CMS Overall Hospital Rating (December 2016 release)

Readmission*

Measure ID	Measure Description	DHHA Result	National Rate
READM-30-AMI	Acute Myocardial Infarction 30-Day Readmission Rate	16.5%	16.9%
READM-30-COPD	Chronic Obstructive Pulmonary Disease 30-Day Readmission Rate	19.2%	20.0%
READM-30-HF	Heart Failure 30-Day Readmission Rate	20.9%	22.0%
READM-30-PN	Pneumonia 30-Day Readmission Rate	16.0%	17.1%
READM-30-STK	Acute Ischemic Stroke 30-Day Readmission Rate	12.3%	12.6%
READM-30-HOSP-WIDE	Hospital-Wide All-Cause Unplanned Readmission	14.8%	15.6%

* Minimal volume thresholds not met for Coronary Artery Bypass Graft 30-Day Readmission Rate and Hospital-Level 30-Day All-Cause Risk-Standardized Readmission Rate Following Elective Primary Total Hip Arthroplasty and Total Knee Arthroplasty

Safety*

Measure ID	Measure Description	DHHA Result	National Rate
CLABSI	Central-Line Associated Bloodstream Infection	1.912	0.995
CAUTI	Catheter-Associated Urinary Tract Infection	1.434	0.928
SSI-Colon	Surgical Site Infection - Colon Surgery	2.549	0.914
MRSA	Methicillin-Resistant Staphylococcus aureus Bacteremia	0.576	1.011
CDI	Clostridium difficile	1.173	0.955
PSI-90	AHRQ Patient Safety Composite	1.14	0.89

* Minimal volume thresholds not met for Surgical Site Infection – Abdominal Hysterectomy and Hospital-Level Risk-Standardized Complication Rate Following Elective Primary Total Hip Arthroplasty and Total Knee Arthroplasty

Patient Experience

Measure Description	DHHA Result	National Rate
Cleanliness of Hospital Environment	83	87
Nurse Communication	90	91
Doctor Communication	91	92
Responsiveness of Hospital Staff	81	85
Pain Management	86	88
Communication About Medicines	82	79
Discharge Information	87	87
Overall Rating of Hospital	89	89
Quietness of Hospital Environment	84	83
Willingness to Recommend Hospital	85	88
HCAHPS 3-Iteam Care Transition	79	82

Mortality*

Measure ID	Measure Description	DHHA Result	National Rate
MORT-30-AMI	Acute Myocardial Infarction 30-Day Mortality Rate	13.1%	14.1%
MORT-30-COPD	Chronic Obstructive Pulmonary Disease 30-Day Mortality Rate	6.9%	8.1%
MORT-30-HF	Heart Failure 30-Day Mortality Rate	11.6%	12.2%
MORT-30-PN	Pneumonia 30-Day Mortality Rate	15.4%	16.4%
MORT-30-STK	Acute Ischemic Stroke 30-Day Mortality Rate	14.4%	14.9%
PSI-4	Death Rate Among Surgical Inpatients with Serious Treatable Complications	152.5	136.7

* Minimal volume thresholds not met for Coronary Artery Bypass Graft 30-Day Mortality Rate

Efficient Use of Medical Imaging*

Measure ID	Measure Description	DHHA Result	National Rate
OP-10	Abdomen CT Use of Contrast Material	0.2%	8.9%
OP-11	Thorax CT Use of Contrast Material	5.3%	3.1%
OP-13	Cardiac Imaging for Preoperative Risk Assessment for Non-Cardiac Low-Risk Surgery	2.3%	4.7%

* Minimal volume thresholds not met for OP-8 MRI Lumbar Spine for Low Back Pain, OP-14 Simultaneous Use of Brain CT and Sinus CT

Effectiveness of Care*

Measure ID	Measure Description	DHHA Result	National Rate
IMM-2	Influenza Immunization	94%	92%
OP-27	Healthcare Personnel Influenza Vaccination	98%	85%
OP-22	ED-Patient Left Without Being Seen	3%	2%
OP-29	Appropriate Follow-up Interval for Normal Colonoscopy in Average Risk Patients	99%	80%
PC-01	Elective Delivery Prior to 39 Completed Weeks Gestation	3%	2%
STK-4	Thrombolytic Therapy	92%	90%
VTE-5	Venous Thromboembolism Warfarin Therapy Discharge Instructions	95%	93%
STK-6	Hospital Acquired Potentially-Preventable Venous Thromboembolism	0%	2%

* Minimal volume thresholds not met for OP-23 ED-Head CT or MRI Scan Results Interpretation within 45 Minutes of Arrival for Acute Ischemic Stroke or Hemorrhagic Stroke, OP-30 Colonoscopy Interval for Patients with a History of Adenomatous Polyps, OP-4 Aspirin on Arrival.

Timeliness of Care*

Measure ID	Measure Description	DHHA Result	National Rate
ED-1b	Median Time from ED Arrival to ED Departure for Admitted ED Patients	308	277
ED-2b	Admit Decision Time to ED Departure Time for Admitted Patients	130	101
OP-18b	Median Time from ED Arrival to ED Departure for Discharged ED Patients	212	142
OP-20	Door to Diagnostic Evaluation by a Qualified Medical Professional	10	26
OP-21	ED-Median Time to Pain Management for Long Bone Fracture	19	53

* Minimal volume thresholds not met for OP-3b Median Time to Transfer to Another Facility for Acute Coronary Intervention, OP-5 Median Time to ECG

5. PUBLIC REPORTING & INCENTIVES

5.9: Hospital Quality Incentive Program (HQIP)

The Colorado Department of Health Care Policy and Financing (HCPF) started HQIP in 2011 to incentivize hospitals to improve health care and patient outcomes. The state's Medicaid agency retains a percentage of each hospital's payment and distributes incentive payments based on each hospital's performance on selected nationally recognized measures. In 2016, HCPF added measures related to culture of safety.

DHHA's cesarean section rate declined but not as rapidly as other institutions. If one cesarean section had been avoided, DHHA would have been in the best quartile. The 30-day readmission rate and patient satisfaction measures were in the worst quartile.

Figure 5.9-1: HQIP Program Scoring

Measure Name	Model Year 2015-2016			Model Year 2016-2017		
	Rate/Result	Time Period	Points	Rate/Result	Time Period	Points
Emergency Department Processes: 1. Info provided about local primary care clinics if no PCP 2. Info provided about nurse advice lines 3. ED visit communicated to RCCO within 24 hours 4. Policy to not replace lost, destroyed, or stolen opiate prescriptions 5. Policy that long-acting opiates are not prescribed	Intervention #1: Yes Intervention #2: Yes Intervention #3: Yes Intervention #4: Yes Intervention #5: Yes	CY 2015	10 of 10	Intervention #1: Yes Intervention #2: Yes Intervention #3: Yes Intervention #4: Yes Intervention #5: Yes	CY 2016	10 of 10
Caesarean Section Rate (PC-02)	18.00%	CY 2014	10 of 10	16.77%	CY 2015	7 of 10
30-Day All Cause Readmission Rate (Medicaid only)	16.00%	CY 2014	0 of 10	14.42%	CY 2015	0 of 10
Patient Satisfaction—HCAHPS Hospital rating of 9 of 10	69.00%	As of July 2015	0 of 10	68%	As of July 2016	0 of 10
Culture of Safety 1. Patient and Family Advisory Council 2. Hospital Safety Leadership 3. Patient Safety Survey 4. Unit Safety Huddles/Briefings	n/a	n/a	n/a	Intervention #1: Yes Intervention #2 Yes Intervention #3: Yes Intervention #4: n/a	CY 2016	10 of 10
INCENTIVE PAYMENT	**$5,857,931**		**30 of 50**	**$4,612,904***		**27 of 50**

*Preliminary
Source: HCPF

- **Next Steps:**
  - ◊ Educate the Obstetrics Department on the importance of documenting medical reasons for cesarean sections.
  - ◊ Focus on decreasing the 30-day readmission rate through a multidisciplinary task force.
  - ◊ In 2016, the executive leadership of DHHA launched a multipronged coordinated improvement effort focused on hospital flow. A primary target of the improvement work has been a reduction in unnecessary admissions and readmissions. Work has begun to improve the rapid availability of comprehensive outpatient services designed for patients who might otherwise be admitted.

- **Future Impact of 2017 Program**
  - ◊ Culture of Safety—new measure on adverse event reporting system and processes to address reported events.
  - ◊ RCCO Participation—notification expanded to inpatient admissions and requires chief complaint/reason for visit.
  - ◊ Cesarean section—must notify physicians of their respective rates vs. other physicians and the hospital average.
  - ◊ ED Process—required submission of written policies or guidelines for the two opioid interventions.
  - ◊ Advance Care Planning and Tobacco Screening/Follow-up will be required for participation in HQIP but not scored.

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THELEAPFROG**GROUP**

5.10: The Leapfrog Group

Hospital Safety Grade

The Leapfrog Hospital Safety Grade is a single letter grade which represents a hospital's overall performance in keeping patients safe from preventable harm and medical errors. The score uses 30 performance measures from CMS, the Leapfrog Hospital Survey, AHRQ, CDC, and the American Hospital Association's Annual Survey and Health Information Technology Supplement. The Safety Grade is assigned to over 2,600 hospitals nationwide twice annually. Safety scores are accessible to the public via http://www.hospitalsafetygrade.org.

Figure 5.10-1: Leapfrog Hospital Safety Grade Scores

LEAPFROG HOSPITAL SAFETY GRADE	Spring 2014	Fall 2014	Spring 2015	Fall 2015	Spring 2016	Fall 2016
Denver Health	B	B	B	C	C	C

Source: The Leapfrog Group

Denver Health's letter grade of C for two years running reflects higher than expected rates of some selected hospital acquired infections that have been active areas of improvement work, including CLABSI and hospital acquired *C. difficile*. Since the measurement period for these recent scores, we have seen improved performance in both areas which should be reflected in future letter grades. In addition, the first computerized provider order entry (CPOE) test of our newly installed electronic health record was performed in a shadow test environment which did not have all the safety features of the live system. We are allowed to retest the system in 2017.

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THE**LEAPFROG**GROUP

5.10: The Leapfrog Group

Leapfrog Hospital Survey

The Leapfrog Hospital Survey was developed as a tool for consumers to identify the best hospital for their care based on quality and safety. Hospitals voluntarily submit their data for the survey annually. The Leapfrog Group assigns ratings from zero to four bars (failure to submit to fully meets standard, respectively). Hospital-level results are available to the public via http://www.leapfroggroup.org.

Figure 5.10-2: 2016 Leapfrog Hospital Survey Results

Inpatient Care Management	
Steps to Avoid Harm	
Never Events Management	
Appropriate Use of Antibiotics in Hospitals	
Specially Trained Doctors Care for ICU Patients	
Readmissions for Common Acute Conditions	

Medication Safety	
Doctors Order Medications Through a Computer	
Safe Medication Administration	

Maternity Care	
Early Elective Deliveries	
Cesarean Sections	
Episiotomies	
Maternity Care Processes	
High-Risk Deliveries	

Infections	
Central-Line Infections in ICUs	
Urinary Catheter Infections in ICUs	
MRSA Infections	
C. difficile Infections	
Surgical Site Infection Following Major Colon Surgery	

Injuries	
Hospital-Acquired Pressure Ulcers	
Hospital-Acquired Injuries	

High-Risk Surgeries	
Aortic Valve Replacement	DOES NOT APPLY
Abdominal Aortic Aneurysm Repair	
Pancreatic Resection	
Esophageal Resection	

Source: The Leapfrog Group

Legend	
Progress towards meeting Leapfrog standards:	

Fully meets standards — Substantial progress — Some progress — Willing to report — Did not respond to this measure — Not applicable to this hospital

5. PUBLIC REPORTING & INCENTIVES

5.11: Colorado Department of Public Health and Environment (CDPHE)

The CDPHE publishes Healthcare-Associated Infection (HAI) rates annually per legislation for state licensure. These HAIs include infections associated with surgeries central lines (see figure 5.11-1), and dialysis treatment. Data are reported by each institution to the CDC's National Healthcare Safety Network (NHSN). Improvement efforts are described in the Infection Control section.

Figure 5.11-1 Denver Health Healthcare-Associated Infections

		August 2014—July 2015				August 2015—July 2016		
	# Procedures	# Infections	SIR	Nat'l Comparison	# Procedures	# Infections	SIR	Nat'l Comparison
Breast Surgery	143	1	0.4	Same	217	4	0.9	Same
Colon Surgery	87	13	2.2	Worse	83	2	0.3	Same
Hip Replacement	142	7	2.5	Worse	129	5	2.1	Same
Knee Replacement	159	1	0.6	Same	174	2	1.1	Same
Abdominal Hysterectomy	76	2	1	Same	83	2	0.9	Same

	Unit Type	# CL Days	# Infections	SIR	Nat'l Comparison	# CL Days	# Infections	SIR	Nat'l Comparison
Central Line-Associated Blood-stream Infections	MICU	2,898	4	1.2	Same	2,883	3	0.9	Same
	Trauma ICU	2,009	5	1.8	Same	1,863	8	3.1	Worse
	NICU	1,297	6	5.1	Worse	1,251	3	3.1	Same
	Inpt Rehab	228	0	0	Same	65	0	0	Same

	# Patient Days	# Infections	SIR	Nat'l Comparison	# Patient Days	# Infections	SIR	Nat'l Comparison
Clostridium difficile Infections	106,394	81	0.8	Same	95,488	82	0.9	Same

CL: Central Line, SIR: Standardized Infection Ratio
Source: CDPHE Health Care Associated Infections in Colorado January 2017 report

5. PUBLIC REPORTING & INCENTIVES

5.12: Colorado Hospital Association (CHA)

The interactive Colorado Hospital Report card uses nationally endorsed quality measures to compare care amongst Colorado Hospitals. Each of the following categories are available on the report card: Procedure Volume and Infections, Mortality Rate, and Patient Safety. Examples from the CHA Report Card are shown. Report cards are accessible to the public via http://www.cohospitalquality.org/corda/dashboards/COLORADO_REPORT_CARD_BY_HOSPITAL/main.dashxml. Due to ICD-10 imple-mentation on October 1, 2015, CHA only reported 9 months of data for the Mortality and Patient Safety measures.

Nearly all of DHHA's risk-adjusted rates were statistically the same as other hospitals in Colorado (denoted by the Average or Same rating below). DHHA had a statistically higher standardized infection ratio (SIR) for colon procedures and hip replacement surgery compared to the national average (denoted as Worse in the table below).

Figure 5.12-1: Denver Health Mortality Measures (1/1/2015—09/30/2015)

Medical Condition	Mortality Rating	Cases	Deaths	Observed Rate	Risk Adjusted Rate	State Average Risk Adjusted Rate
Bleeding Stomach/Intestine (GI Bleed)	Average	174	3	1.7%	1.8%	2.1%
Heart Attack (AMI)	Average	131	5	3.8%	5.3%	6.3%
Heart Failure (CHF)	Average	285	2	0.7%	0.8%	2.4%
Hip Fracture	Average	74	1	1.4%	3.4%	3.9%
Hip Replacement	Average	80	0	0.0%	0.0%	0.1%
Pneumonia	Average	103	0	0.0%	0.0%	2.3%
Stroke	Average	152	13	8.6%	8.6%	7.3%

Source: CHA

Figure 5.12-2: Denver Health Procedure Volume and Infections (8/1/2014—07/31/2015)

Procedure	National Comparison	Cases	Infection Count	Standardized Infection Ratio
Abdominal Hysterectomy	Same	174	2	1.0
Breast Surgery	Same	143	1	0.4
Colon Surgery	Worse	87	13	2.2
Hip Replacement	Worse	142	7	2.5
Knee Replacement	Same	159	1	0.6

Source: CHA

Figure 5.12-3: Denver Health Patient Safety Measures (1/1/2015—09/30/2015)

Condition	Rating	Cases	Complications	Observed Rate	Risk Adjusted Rate	State Average Risk Adjusted Rate
Bloodstream Infection (Sepsis)	Average	216	6	2.8%	2.2%	1.1%
Post Surgical Blood Clot (DVT) / Lung Artery Clot (PE)	Average	2,425	18	0.7%	0.6%	0.4%
Pressure Ulcer (Decubitus Ulcer)	Average	3,503	0	0.0%	0.0%	0.05%

Source: CHA

5. PUBLIC REPORTING & INCENTIVES

5.13: U.S. News and World Report

The U.S. News and World Report publishes yearly rankings and ratings for hospitals in an effort to help consumers decide at which hospital they should receive their care. Adult specialties are evaluated based on data from multiple sources like the American Hospital Association (AHA), Centers for Medicare and Medicaid Services (CMS), and reputation among surveyed physicians. The survival measure reflects the chances of survival in the specialty 30 days after being admitted, adjusted for patient severity and other risks. Patient Safety demonstrates the ability to prevent six types of accidents and medical errors across the hospital. Patient Services includes services which have been shown to improve patient care within the specialty, such as infection isolation rooms, palliative care, translators, and wound management services. Nurse Staffing indicates the nurse to patient ratio for the hospital. The Pulmonology specialty had the best survival rating and Patient Services were rated best for the Pulmonology and Urology specialties (see figure 5.13-1). DHHA was also rated within the Hospital Procedure and Condition category (see figure 5.13-2). The other U.S. News and World report rating categories are Best Hospital Honor Roll, Best Regional Hospitals and Best Children's Hospitals.

Figure 5.13-1: Denver Health Adult Specialties Rankings and Ratings

	Overall Score	Survival	Patient Safety	Patient Services	Nurse Staffing
Pulmonology	66.3/100	Best	Average	Best	Better than Average
Neurology & Neurosurgery	47.6/100	Better than Average	Average	Better than Average	Better than Average
Orthopedics	44.2/100	Better than Average	Average	Better than Average	Better than Average
Urology	50.9/100	Better than average	Average	Best	Better than Average

Source: U.S. News and World Report

Figure 5.13-2: Denver Health Adult Procedures / Conditions Ratings

	Rating	Survival	Preventing Readmissions	Nursing Staffing
Abdominal Aortic Aneurism Repair	N/A	N/A	N/A	N/A
Chronic Obstructive Pulmonary Disease	Average	Better than Average	N/A	Best
Colon Cancer Surgery	Average	Best	Worst	Best
Heart Failure	Average	Average	N/A	Best
Hip Replacement	Below Average	Worse than Average	Average	N/A
Knee Replacement	Average	Worse than Average	Better than Average	N/A
Lung Cancer Surgery	N/A	N/A	N/A	N/A

Source: U.S. News and World Report

6. NATIONAL COLLABORATIVES

6.1: High Value Healthcare Collaborative (HVHC)

DHHA was one of the founding members of HVHC in 2010 along with the other current founding members: Dartmouth, Mayo, and Intermountain Healthcare. HVHC is a provider learning network committed to improving health care value through data and collaboration. As a member institution, DHHA has participated in multicenter improvement collaboratives in diabetes, joint replacement, and sepsis care. "The mission of the HVHC is to improve healthcare value—defined as quality and outcomes over costs, across time—for its service population, in a sustainable manner, while serving as a model for national healthcare reform." The collaborative's specific aims are to: Measure, Innovate, and Replicate. Because of the launch of our new electronic health record in 2016, data submissions to HVHC were suspended and we therefore do not have any comparative data from that calendar year.

6.2: Vermont Oxford Network (VON)

The Vermont Oxford Network (VON) is a voluntary collaborative focused on improving the quality and safety of medical care for newborn infants and their families through a coordinated program of research, education and quality improvement projects. Data are used to analyze the care and outcomes of high-risk newborn infants for quality management, process improvement, internal audit, peer review, outcomes research, randomized clinical trials, and epidemiological studies. VON provides reports which benchmark center specific data to neonatal centers from around the world. Findings are important for the development of educational materials and programs for health care professionals, policy makers, families of high-risk infants, and the public.

VON offers two comparative databases and DHHA participates in both options. The very low birthweight (VLBW) database is for infants born between 401 and 1500 grams. The expanded database includes infants weighing over 401 grams at birth and who were admitted to a Neonatal Intensive Care Unit (NICU). DHHA had lower morbidity rates compared to the VON Network for VLBW infants. The VLBW Infants mortality rate was slightly higher than the VON Network but within the interquartile range (15.8% vs. 14.7%, IQR 8.3%-17.8%). DHHA's pneumothorax rate for infants weighing over 401 grams at birth and who were admitted to the NICU was higher than the VON Network interquartile range (4.7% vs. 3.0%, IQR 1.7%-3.6%).

Figure 6.2-1: Very Low Birth Weight Infants (401-1500 grams)
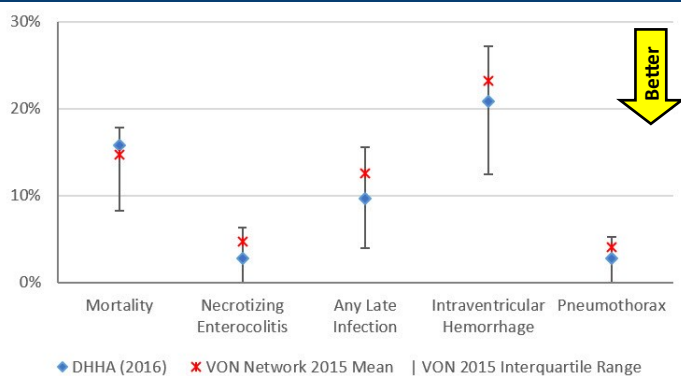
Source: VON Key Performance Measures

Figure 6.2-2: Infants Admitted to NICU (>401 grams)
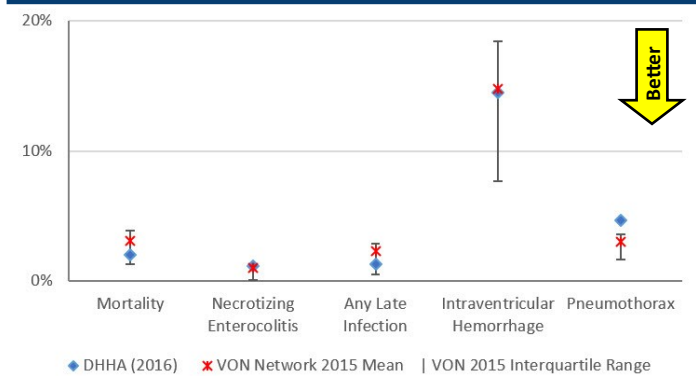
Source: VON Key Performance Measures

6. NATIONAL COLLABORATIVES

6.3: Vizient AMC Inpatient Quality and Accountability (Q&A) Scorecard
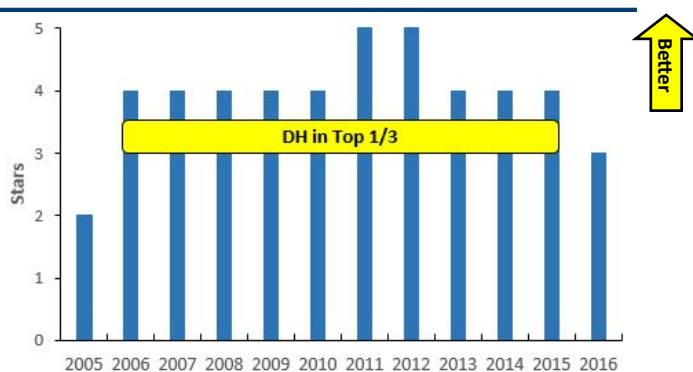
vizient™

Vizient created the Q&A Study in 2005 to help organizations assess their performance across a broad spectrum of high-priority dimensions of patient care. The Q&A Scorecard allows institutions to benchmark their results against other Academic Medical Centers (AMCs) in the US. In 2016, DHHA received a high ranking in equity and received three of five stars (see figure 6.3-1). The overall rank was 61. DHHA has previously placed in the best ~1/3 of approximately 100 AMCs for 10 consecutive years (see figure 6.3-2). However, the 2016 ranking was lower than the DHHA 2016 target of "top 10."

Figure 6.3-1: 2016 AMC Quality and Accountability Performance Scorecard

Star Rating	Overall Rank	Overall Score
★ ★ ★	61	60.19%

Domain Performance Table

Domain	Rank	Weight	Score	Weighted Score	Vizient Median	Vizient Top Performer
Overall	61	100%	60.19%	60.19%	61.47%	71.00%
Mortality	20	25%	63.13%	15.78%	57.25%	82.25%
Efficiency	24	10%	61.50%	6.15%	56.88%	76.75%
Safety	82	25%	55.68%	13.92%	60.23%	73.86%
Effectiveness	81	20%	57.08%	11.42%	62.97%	77.21%
Patient Centeredness	66	15%	52.78%	7.92%	56.94%	75.00%
Equity	1	5%	100.00%	5.00%	100.00%	100.00%

Source: Vizient

Figure 6.3-2: Denver Health Vizient Star Ratings

Source: Vizient

Figure 6.3-3: Denver Health Vizient Star Ratings

Source: Vizient

6. NATIONAL COLLABORATIVES
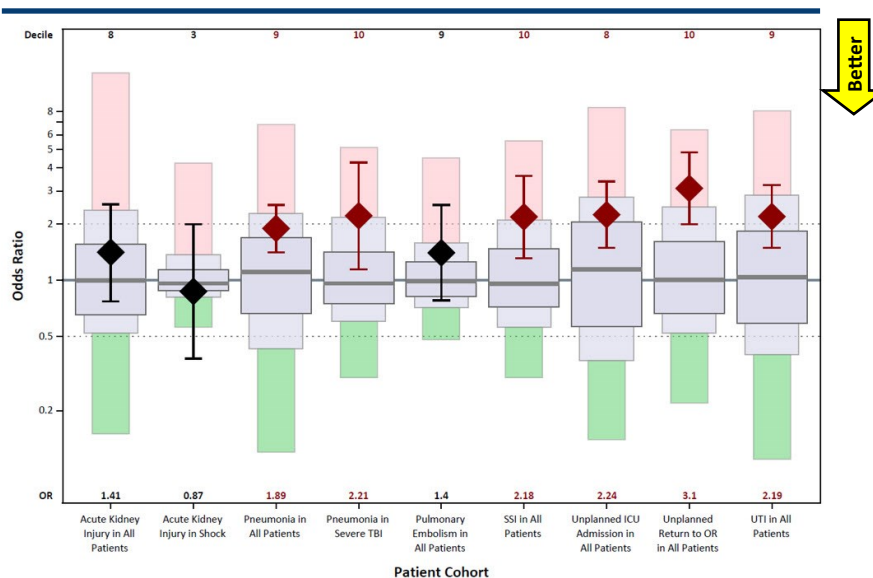
6.4: Trauma Quality Improvement Program (TQIP)

The Trauma Quality Improvement Program (TQIP) is a program offered through the American College of Surgeons to improve the quality of care for trauma patients at trauma centers. There are currently over 700 trauma centers ranging from Level I, Level II, and Level III trauma designation that participate in TQIP. Each center collects data through their trauma registry and submits it to the National Trauma Data Bank (NTDB) on a quarterly basis. NTDB works with TQIP to aggregate data sets and provide feedback to participating facilities by identifying institutional specific trends and characteristics to help drive trauma performance improvement at local and national levels. Additionally, TQIP uses risk-adjusted benchmarking to provide each facility with national comparisons.
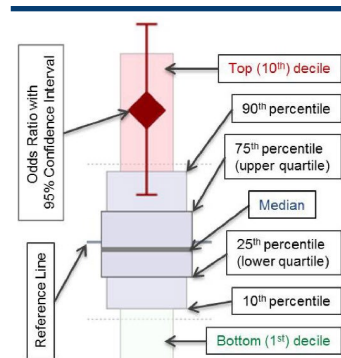
Figure 6.4-1: Risk-Adjusted Mortality by Cohort
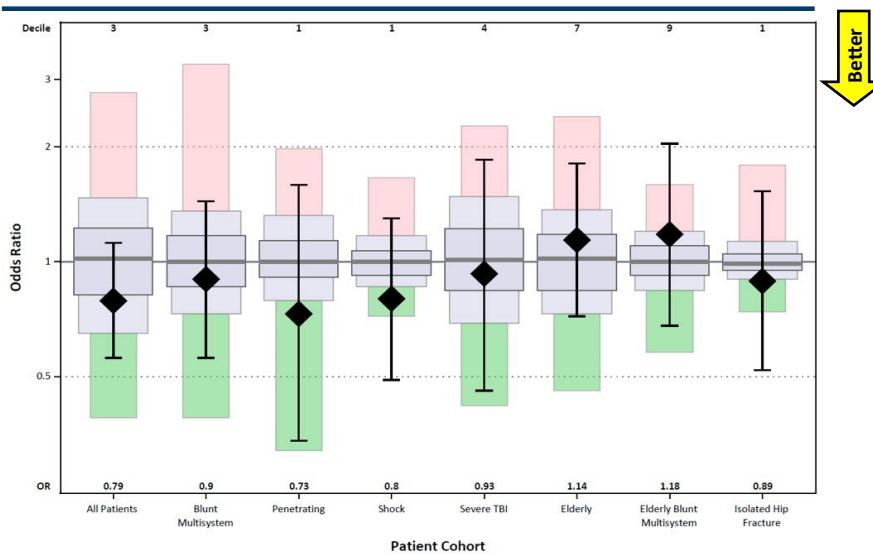
Source: TQIP Benchmark Report, Fall 2016

Figure 6.4-3: Legend

Figure 6.4-2: Risk-Adjusted Specific Complications by Complication/Cohort

Source: TQIP Benchmark Report, Fall 2016

6. NATIONAL COLLABORATIVES

6.5: Comprehensive Care for Joint Replacement (CJR)

On November 16th, 2015 CMS released the final rule for the Comprehensive Care for Joint Replacement (CJR) mandatory bundled payment program. Hospitals would assume financial responsibility for eligible lower extremity joint replacing episodes which include all related spending from the initial hospitalization through to 90 days post discharge.

Denver was selected as one of the participating areas. A team was formed at DHHA to coordinate care of total joint patients from initial screening through surgery and the inpatient stay and monitoring post-acute care. For 2016, the total CMS payments for qualifying patients was $650,182 vs. the target of $643,625. For the first year of the program there will not be penalties associated with missing the target price. As shown in the graph below, the payment for most patients was below the target. Some of the outliers had lengthy post-acute care stays. The team is focused on better care coordination to ensure the patient is successful after their operation. The quality data associated with the CJR program were not available at the time of this report.

Figure 6.5-1: 2016 Knee Replacement Payments

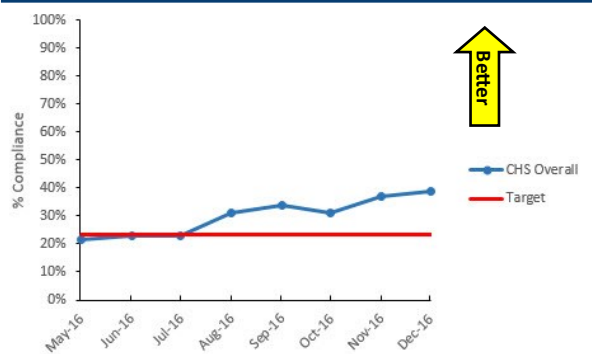Source: DHHA

Figure 6.5-2: 2016 Hip Replacement Payments
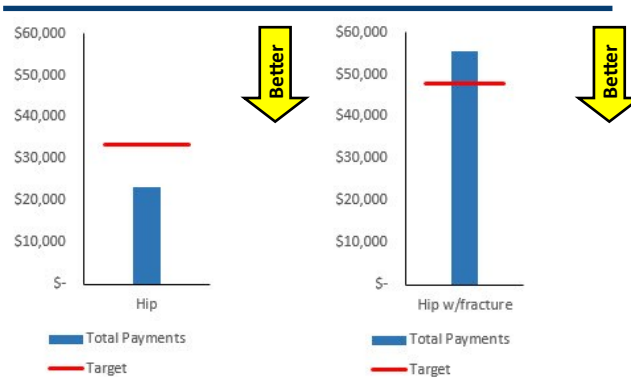
Source: DHHA

7. AMBULATORY CARE SERVICES (ACS)

7.1 Quality Improvement

The department of Ambulatory Care Services (ACS) prioritized three clinic performance measures which included providing tobacco counseling and advice, postpartum care visits within 21-56 days after delivery, and a well-child check (WCC) for patients 3-9 years old in the past year. The tobacco cessation metric actually included participation from the whole organization. Tobacco cessation interventions included all outpatient clinics, Denver Public Health, the Emergency Department and the Inpatient service. Throughout the year there was a steady improvement in this measure which we will continue to monitor in 2017. Post partum visits and WCC were chosen as it was in alignment with deliverables for our Regional Care Collaborative Organization (RCCO) contracts. WCC was greatly impacted by the implementation of our electronic health record in April 2016. WCC visits were intentionally blocked during the summer months in anticipation of the Epic implementation. Post partum visits demonstrated a steady increase during the year most notably by working on efforts focused on improving coordination between the inpatient and outpatient clinics. Efforts to improve post partum visits included a more patient-centered approach where the mother and child are seen at the same visit or "dyad" visit.
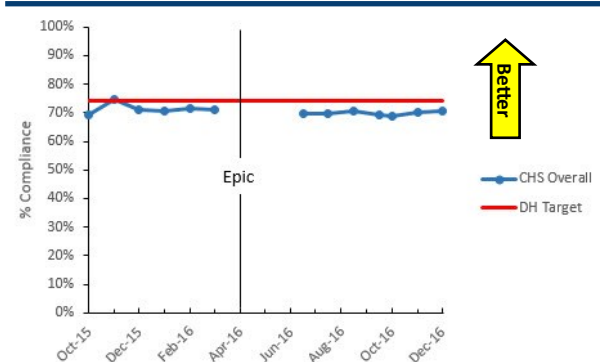
Figure 7.1-1: Tobacco Cessation Interventions

Source: DHHA ACS

Figure 7.1-2: Post-Partum Return Rates
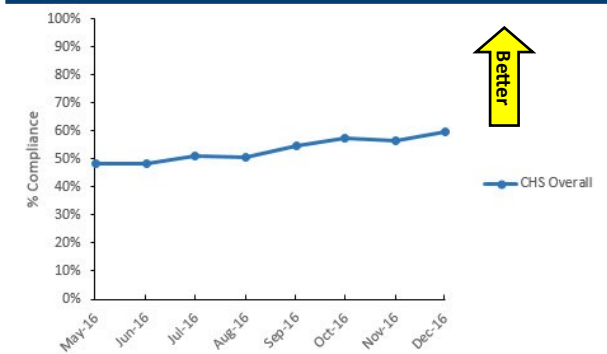
Source: DHHA ACS

### Figure 7.1-3: Well-Child Check Rate 3-9 Year Olds

Source: DHHA ACS

8. INPATIENT NURSING SENSITIVE INDICATORS

8.1: Healthcare-Acquired Pressure Injury (HAPI)

Nurses from Nursing Outcomes, Research, and Evidence-Based Practice Department (NORE) and Wound Care Nurses lead a joint effort to create an NDNQI pressure ulcer data collection team training which included didactic and hands-on components. Data collection days were held on January 14, June 7, September 15, and November 9. Pressure injuries related to moisture issues were identified in Q3 and Q4 2016. Wound care nurses have identified this as a key point of education for Wound Champions on their units and addressed it in education and training demonstrating a nice decrease in the percent of surveyed patients with HAPI Stage II or higher.

Figure 8.1-1: HAPI: Acute and Critical Care
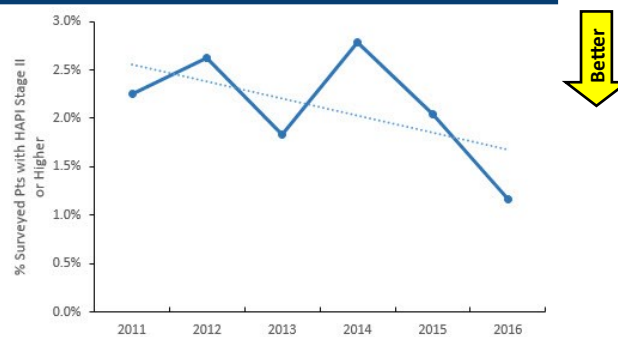
Source: DHHA Department of Nursing Outcomes, Research, and Evidence Based Practice (NORE)

8.2: Restraints

DHHA strives to maintain a low percentage of patients placed in restraints. Alternative measures are always considered prior to placing patients in restraints, for their safety and/or the safety of our employees. We remove the patient from restraints as soon as possible. With the implementation of Epic in April, and a change in the education department, restraint education will be reinforced and monitored by the DPSQ in 2017.

Figure 8.2-2: Restraint Prevalence 2016
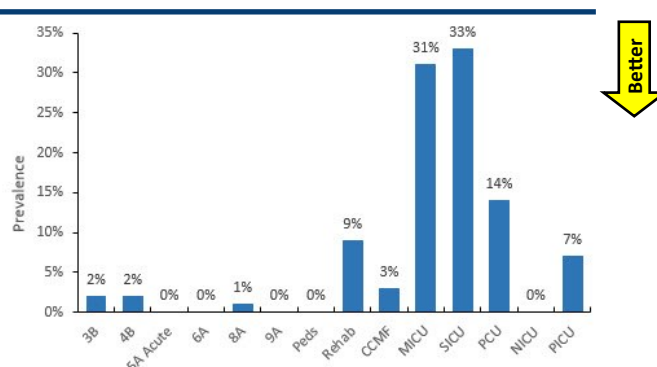
Source: DHHA NORE

8.3: Patient Falls

The goal of the evidenced-based falls prevention program at DHHA is to reduce the overall rate of falls at DHHA by 10% and to reduce the rate of falls with injury by 10%. Preventing patient falls is a complex set of issues that requires a collaborative, multidisciplinary approach utilizing an evidenced-based, data-driven implementation process.

8. INPATIENT NURSING SENSITIVE INDICATORS

The multifaceted approach to falls reduction includes:

- Monthly Falls Champions Meetings.
- Quarterly Hospital-Wide Fall Committee Meetings.
- Required risk assessment documentation every shift on every patient.
- Communication amongst all staff regarding fall risk and history of falls.
- Implementation of interventions based on fall risk.
- Ensuring patient safety while toileting.
- Improvement of staff education on fall prevention.
- Camera surveillance to reduce falls.

Intervention and Education

- The NORE Team partnered with Instruction Design to create a Cornerstone module to educate nursing staff on the Hester Davis Scale (HDS) which will be the new fall risk assessment in Epic.
- The NORE Team began work on fall prevention with the DPSQ and ED stakeholders. The ED had a higher percent of injury falls (40% of total falls) in 2015 than the hospital-wide percentage of injury falls (28%). A literature review, staff survey, and medical record review were initiated. Environmental rounds were also completed in January 2016. Work on a fall prevention program in the ED continued throughout 2016.
- The NORE Team completed an evaluation of the Joint Commission fall prevention Targeted Solutions Tool (TST). Is was determined that the NORE Team's current reporting process is more sophisticated than the TST, with one exception. The TST offers a falls top contributing factors report. With the support of acute care leadership, the NORE Team created a top five contributing factors report which is now published monthly and included on the acute care divisional Gemba board.
- Interdisciplinary Teams huddle on every patient assessed as high risk to discuss intervention. They also meet to review and debrief following every fall.
- The NORE Team and the Safety Intelligence (SI) Administrator worked to create changes to the fall SI database which would allow the NORE Team to complete the entire fall quality review in SI, rather than in a Microsoft Access database. This will help ensure accuracy of data, allow for easier access to quality review data, and simplify the fall reporting process. Work on these changes continued into 2016.
- DHHA implemented an "Arm's Length Reach" intervention, which asks that a caregiver be within arm's length of a high risk falls patient during ambulation and toileting.

Figure 8.3-1: Total Falls per 1,000 Patient Days
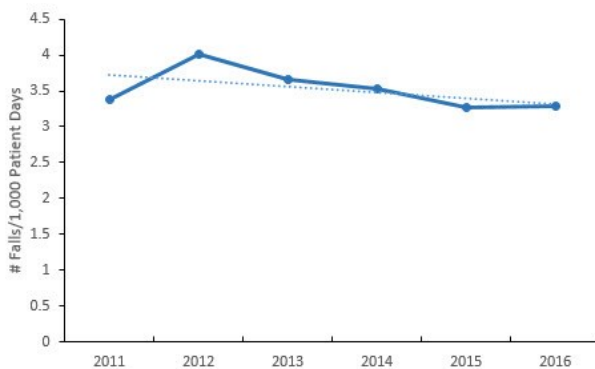
Population includes acute care units, critical care units, and behavioral health units.
Source: DHHA NORE

Figure 8.3-2: Total Falls with Injury per 1,000 Patient Days
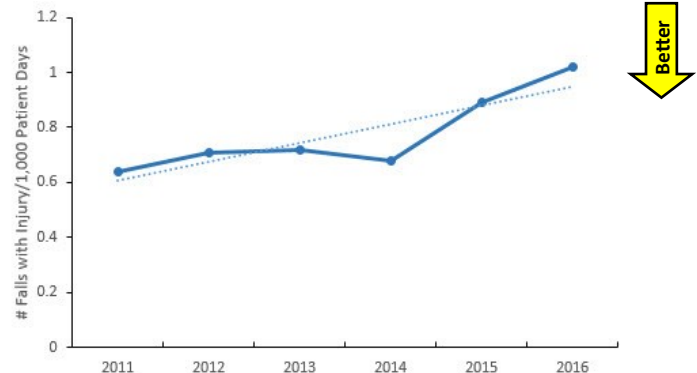
Note: The NDNQI definition for "injury" related to falls changed in 2016 to include ANY reports of pain post-fall, thus creating, at least in part, an artificial increase in the number of falls with "injury."
Population includes acute care units, critical care units, and behavioral health units.
Source: DHHA NORE

DEPARTMENT OF PATIENT SAFETY AND QUALITY

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9. CLINICAL DOCUMENTATION INTEGRITY (CDI) QUALITY INITIATIVES

The Clinical Documentation Integrity (CDI) Team works closely with DPSQ on a daily basis. They review Hospital Acquired Conditions (HAC), Patient Safety Indicators (PSI), and mortality cases as well as any other case that is requested by other team members from DPSQ. They review these cases to determine if the coded diagnoses correspond with the provider documentation. On occasion, they are asked to review documentation and coding to determine if a quality metric is legitimate. They also send cases to DPSQ when they have concerns about documentation or other issues with the chart that have the potential to be a quality or patient safety concern.

9.1: Patient Status Care Management Project

Purpose: The purpose of the Care Management Project was to review observation patients on provider teams to ensure that patients are placed in the correct patient status throughout the stay. The ultimate goal is to prevent short stay inpatient admissions and long observation stays so that the claim can be sent out in the correct status and DHHA can receive proper payment, prevent audits, and prevent insurance denials.

Background: Determining a patient's status can be difficult and requires a multidisciplinary approach. Since April 2016, the CDI team has been tasked with several work queues in Epic such as ensuring claims have proper bed charges and confirming that patients are given the appropriate patient stay status. Due to Epic implementation, the CDI team found that patient statuses are often changed multiple times throughout a patient's stay. A team was created by combining CDI and Care Management in order to focus on observation patient status.

Methodology: A baseline audit was conducted for June and early July discharges by collecting a random sample of observation patients from floor 7A. Emergent dialysis only patients paying via Medicaid fee-for-service (FFS) were excluded. During the CDI intervention period, a member from the CDI team attended report with the nurse care coordinator (RNCC) prior to physician rounds Monday through Friday. The RNCC reported a general overview of the patient, additional documentation was reviewed as needed, and a plan for patient status was determined as a team. The CDIs provided education as needed to the RNCC and the clinical social worker (CSW) regarding patient status, documentation and billing rules and regulations. Then the CDI/RNCC team attended physician rounds together along with the CSW for both Steamboat and Durango provider teams on 7A. Patient status recommendations were made during rounds, primarily by the RNCC. The CDI team built an audit tool using Microsoft's SharePoint software. Discrete data were entered and analyzed by the CDI team members. Afternoon follow-up was done via phone call by the RNCC to the CDI team members and patient information was updated as needed in the audit tool. A feedback loop was done on a daily basis by discussing incorrect patient status changes. Once the patient had been discharged, the CDI team determined the billing status to ensure the final level of care order was correct. The percentage of correct and incorrect final orders were monitored and reported to the care management team (see figure 9.2-1) as well as the number of long (≥ 3 days) observation stays (see figure 9.2-2).

Summary: The CDI team reviewed 228 records for the baseline audit and reviewed a total of 1,015 records from August 1, 2016 to December 31, 2016. The baseline audits showed a patient status accuracy score of 86%. The correct level of care at discharge has consistently been >95% score for all months of the intervention. These results demonstrate that this team collaboration has been successful. This project is now being expanded to other care teams, Pikes and Evans, for previous day inpatient admits and observation patients.

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9. CLINICAL DOCUMENTATION INTEGRITY (CDI) QUALITY INITIATIVES

Figure 9.1-1: Final Order Correct at Discharge
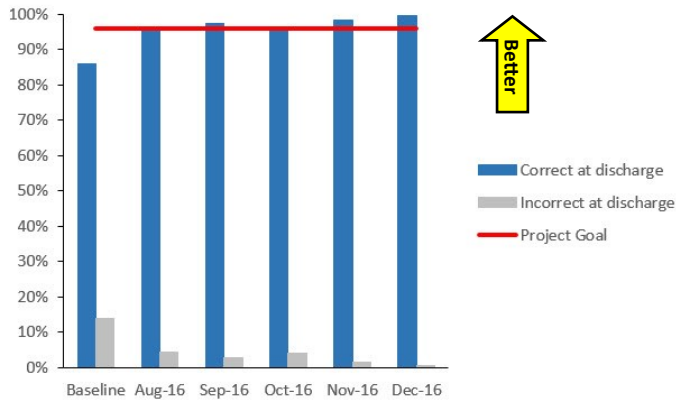
Source: DHHA CDI

Figure 9.1-2: Number of Long (≥ 3 Days) Observation Stays
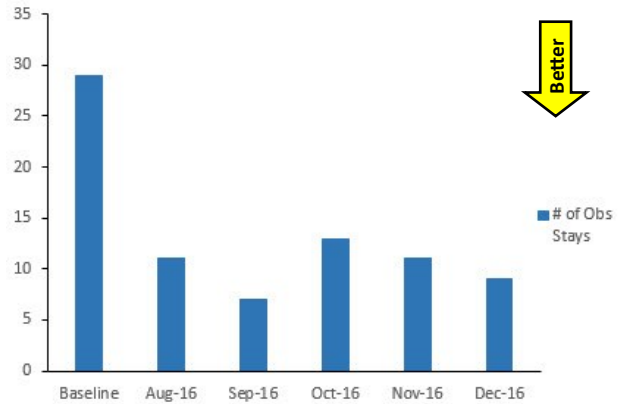
Source: DHHA CDI

Figure 9.1-3: Observation Length of Stay > 2 Days: Root Cause
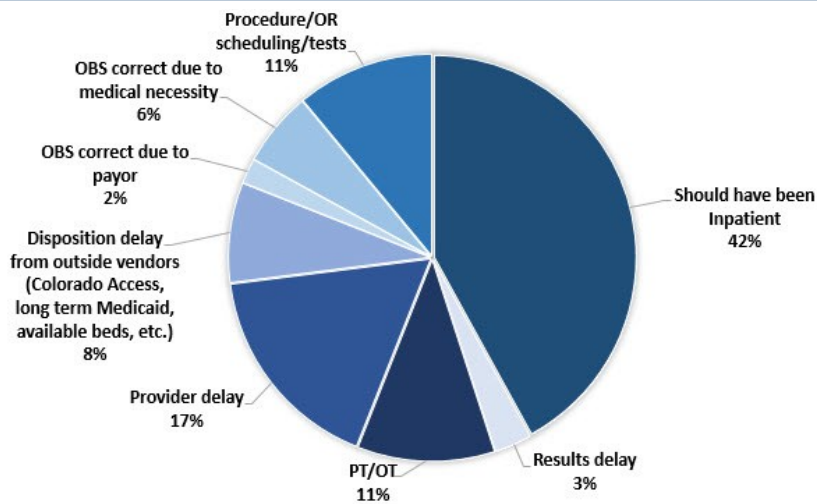
Source: DHHA CDI

9.2: Mortality

Purpose: Review all inpatient deaths with severity of illness (SOI) and/or risk of mortality (ROM) score less than extreme and determine if there are opportunities to improve documentation to increase SOI/ROM or if there are coding errors resulting in inaccurate SOI/ROM.

Background: Mortality ratios allow for a comparison of patients' actual mortality rates to expected mortality rates, based on the risk adjusted mortality score. Risk adjusted expected mortality scores are impacted mainly by acute and chronic conditions that are present on admission and have been shown to have a statistically significant impact on mortality.

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9. CLINICAL DOCUMENTATION INTEGRITY (CDI) QUALITY INITIATIVES

Observed mortality is the actual number of inpatient deaths that occur in the hospital during a specific period. **Expected mortality** is the predicted number of deaths in the hospital. Patients who are very sick (higher severity of illness) have a higher expected mortality rate (see figure 9.2-1).

Figure 9.2-1: Risk Adjusted Mortality Ratio

$$\text{Risk Adjusted Mortality Ratio} = \frac{\text{\# Observed Mortality Cases}}{\text{Sum of Expected Mortality}}$$

The APR-DRG Grouper, developed by 3M Health Information Systems, is one method that can be used to determine the SOI and ROM for each patient. High SOI and ROM are mostly determined by the interaction of multiple illnesses and chronic illnesses involving multiple organ systems. These patients are difficult to treat and more likely to have poor outcomes.

DHHA uses 3M SOI/ROM for mortality reviews. Prioritizing reviews based on the SOI/ROM is a reasonable and efficient way to determine which cases warrant a review. The discharge SOI/ROM is readily available to the CDI team after the record is coded.

The CDI team built an audit tool using Microsoft's SharePoint software. The office of decedent affairs sends a death report to the CDI team monthly. The CDI team then looks up all inpatient deaths in 3M to determine the SOI/ROM. For the cases that have a COI/ROM that is less than 4/4 (extreme/extreme), the entire record is reviewed and entered into the audit tool. If there is an opportunity to increase the SOI/ROM because of missing documentation, incorrect coding, or an issue that was present on admission but not documented, it is marked this way in the audit tool and sent to the coding manager for further review. The coding manager determines if the case needs to be recoded or if a query needs to be sent to the provider.

From January 2016 to December 2016, the CDI team reviewed 77 death records and sent five records to the coding manager to be reviewed for possible recoding or issuance of a query to increase the SOI/ROM. We were able to increase the SOI/ROM on four cases.

The CDI team will continue to review all inpatient deaths. Along with the current review process, the CDI team will continue to provide education to providers to remind them to use specific verbiage and to document conditions that are present on admission in order to capture the highest SOI/ROM and appropriate risk adjusted mortality index. The team's goal in 2017 is to implement a process to review these patients before billing takes place.

Neurosurgery Vizient Mortality Ranking
There was an effort to focus on neurosurgery service line patients and identify diagnoses that drive severity which are present on admission and should be included in the history and physical document (H&P). DHHA's neurosurgery's O/E mortality ranking from Vizient for Q3 2014—Q4 2014 was 99/100 and it was the same for 2015. After this ranking was reported, the CDI team reviewed the 2015 cases that gave us the 99/1000 score to identify missed diagnoses. The CDI team then focused on the top missing diagnoses from the H&P which were: brain compressions, cerebral edema, and electrolyte abnormalities.

The most frequently missed diagnoses report was presented to the neurosurgery department head as baseline data for 2015. They then began to concurrently review neurosurgery patients and place electronic queries when necessary for present on admission diagnoses at discharge. These concurrent results are presented every month to the head of the neurosurgery department. The CDI team also continues to have education presentations and meet ups with new neurosurgery staff.

The CDI team noticed a small improvement in the top two diagnoses being documented in the H&P as present on admission. Turnover among staff which occurred April 2015 to present has been identified as an obstacle to compliance. The second challenge identified has been working with the attending staff from the University of Colorado Hospital that cover for our attendings here at DHHA. Their limited time here makes it difficult to get queries answered and education out to them. However, the CDI team is continuing to educate frequently on documenting present on admission conditions in the H&P.

9. CLINICAL DOCUMENTATION INTEGRITY (CDI) QUALITY INITIATIVES

9.3: Work Queues Created in Collaboration with Epic

Work Queue (WQ) #22 and #23—Bed Charges

The purpose of these work queues is to clinically review accounts to determine if bed charges are appropriate given the status of the patient. The CDI team collaborates with the Revenue Cycle team to review these accounts. The CDI role is to review the documentation and admission orders for medical necessity and determine if the status was appropriate for the patient visit. If the account is deemed appropriate, then the bed charges are reviewed and added as needed by the Revenue Cycle team.

WQ #907—Observation

The intent of this queue is to ensure that patient accounts in an observation status have the appropriate number of observation hours per CMS guidelines. Hours are determined based on observation start time to stop time, minus any carve outs for procedures and tests that were performed when the patient was off the unit. The CDI team also reviews the chart to ensure that the final status order is appropriate, Code 44s are properly documented, and that event management matches the active orders on the account.

WQ #408—Short Stay Inpatient Admissions

Inpatient Medicare and Medicaid FFS accounts are reviewed if they meet the following criteria:

- < 2 day total length of stay.
- < 4 day length of stay + hemodialysis (ED Medicaid exempt).
- < 5 day length of stay + O.R. procedure.
- These accounts are excluded from review: delivery, transfer to another acute care facility, patient left against medical advice (AMA), or patient expired.

The purpose of this review is to self-audit accounts that do not meet medical necessity for inpatient status prior to claim submission. The CDI team provides the clinical review of the documentation and submits it to the Revenue Cycle team for claim adjustment as necessary.

WQ 193—CDI Concurrent Reviews

This is a list that includes ALL inpatients currently in the hospital. The purpose of the WQ is to track the concurrent reviews and possible queries completed by a CDI. The purpose of the review is to optimize the physician documentation in the record before it goes to the coder so that the record is accurate, clear, and concise by the time of discharge. CDI's use a number of different risk models to determine diagnoses that affect the SOI and ROM of each patient we review. We use the 3M software to enter in our choice for principal diagnosis, appropriate secondary diagnoses, and procedures performed to get a final "working DRG" with associated SOI and ROM. Our reviews, queries, and "working DRG" are visible to the coders, however, direct collaboration is not encouraged, nor is looking at our work part of the coder's workflow.

WQ 268—CDI Patient Accounts No Longer Open with Active CDI Review

Once a patient is discharged from an inpatient stay and has also had a CDI review done in WQ #193, they will populate to a list. Once on the list, the CDI team will follow up through discharge to compare the CDI DRG with the coder's DRG. If there are coding errors or issues, the CDI team can then follow up with the coding educator via the coding/CDI audit SharePoint tool that is an established means of communication between the two groups.

Figure 9.3-1: Queries Placed for Missing Documentation

Baseline (Q3 2015—Q4 2015)	November 2016	December 2016	January 2017—January 2018
28%*	65%	59%	Ongoing

*These baseline data were taken from after the 2014 study and prior to the NSG department turn-over in staff. The original baseline from 2014, before any intervention, was 35%. The new NSG staff and the conversion to Epic are being considered as the reasons for the increase in queries sent.
Source: DHHA CDI

9. CLINICAL DOCUMENTATION INTEGRITY (CDI) QUALITY INITIATIVES

9.4: Patient Safety Indicators (PSIs)/Hospital-Acquired Conditions (HACs)

Purpose: The CDI team reviews all coded PSIs and HACs for accuracy. We review select core measures that are sent to us by a member of the quality team. We review the chart for the clinical indicators that have led to the codes that have triggered the PSI or HAC.

Background: PSIs and HACs are determined by the coded data. These coded data are used to compare hospital quality scores which can affect payments because insurance companies give preference to hospitals with better quality scores. The CDI team felt that there was opportunity to review these records for coding errors, as well as clinical or documentation errors. If errors are found or query opportunities identified, it is possible to avert the PSI or HAC.

Methodology: Once the record is coded, if an identified code is included, a PSI or HAC will be triggered. The record will then populate to the work list that a CDI member checks weekly. The CDI team reviews the record to find the clinical criteria for the code. All cases that are reviewed are entered into a SharePoint audit tool. If we find an error in a record, we check the appropriate box in the audit tool that sends the case to the coding manager's work list for second review.

The CDI team will continue to review all PSIs and HACs on a weekly basis and enter them into the SharePoint quality audit tool. Records that need a query or recoding will be sent to the coding manager.

Results: CDI averted 1% of PSIs and 6% of HACs (figure 9.4-1) reviewed. The main reason for the aversion was multifactorial. Some cases were coded inaccurately with the code while others are inaccurately coded with the present on admission (POA) indicator. Others required the team to send a query to the physician when the documentation conflicted with the clinical findings or when something could be clarified as "unable to clinically determine if present on admission," thereby averting the PSI or HAC.

Summary: The CDI team will continue to review all PSIs and HACs. The process for reviewing PSIs and HACs will be shifting to a pre-bill review as soon as the Epic team is able to build this into the system.

Figure 9.4-1: PSIs and HACs Averted
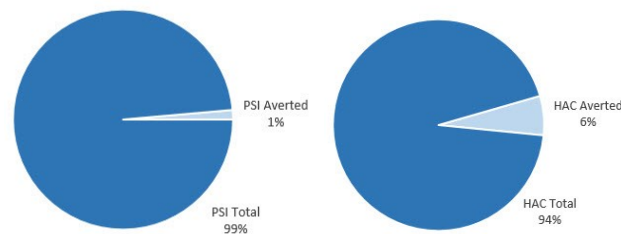
Source: DHHA CDI

# 10. PATIENT SAFETY & QUALITY IMPROVEMENT INITIATIVES

10.1: PolicyStat

Policy and Guidelines are critical documents for reference to ensure we provide high quality and safe care to our patients. In 2015, a Lean Value Stream Analysis (VSA) was led by the Lean and PSQ Departments with the objective to "strategically develop and prioritize an improvement plan to better define and streamline the process of policy, procedure, and guideline (PP&G) creation and revision." The ability to review and revise documents timely and efficiently was a critical goal.

During 2016, the Policy Committee approved 210 workflows out of 495. They implemented Standard Process/Guidelines for the suggested committee document approval process. Areas with extremely past due documents were contacted resulting in 11 documents being retired and 9 moved to active status. A sub committee to the Policy Committee was developed to review documents and a formatting review was added as the first step in the approval process. A follow up survey from the VSA was sent out to end users and approvers. The following action items were completed:

- Moved Human Resources (HR) Documents to main site to easily locate.
- Set up single sign on (SSO) so staff do not have to log in to edit and approve documents.
- Set up and communicated searchable webinar to train on how to search for documents.
- Changed the desktop icon color and picture to gradient color to more easily locate.

Figure 10.1-1: Policy Stat Weekly Metrics
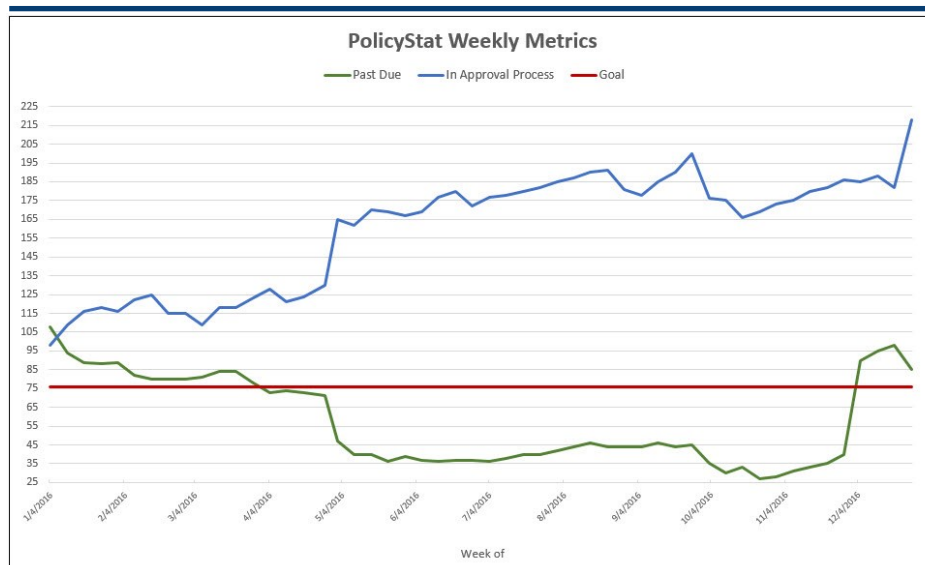
Source: DHHA DPSQ

10.2: Procedural Sedation

Procedural sedation is a high-risk intervention that requires well written guidelines for practice, physician, nurse, and respiratory therapy training, and ongoing competency checks. These procedures are performed by non-anesthesiologists for planned sedation cases on non-intubated patients. Documentation is analyzed to facilitate and support practice as well as to follow-up on performance.

The Procedural Sedation Committee reviews data and makes recommendations to ensure ongoing performance improvement. The graphs display a summary of the quarterly documentation data and annual sedation events that are reviewed.

10. PATIENT SAFETY & QUALITY IMPROVEMENT INITIATIVES

Documentation:

In April 2016, Epic was implemented and the documentation of procedural sedation converted from a paper format to an electronic format. A sharp decrease in the percent of completed documentation was noted from Q1 2016 to Q3 2016 (see figures 10.2-1 and 10.2-2). Efforts to optimize the electronic documentation are showing improvements and it is expected there will be a higher rate of documentation compliance in 2017.

Figure 10.2-1: Bundle Pass Rate Procedural Sedation—Outpatient*
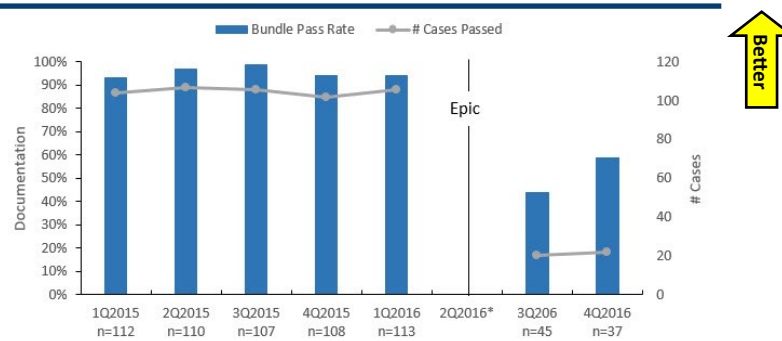
*Outpatient: Cardiology, GI lab, IR, DECC, OMFS, Bronchoscopy lab, and East grand clinic.

Figure 10.2-2: Bundle Pass Rate Procedural Sedation—Inpatient*
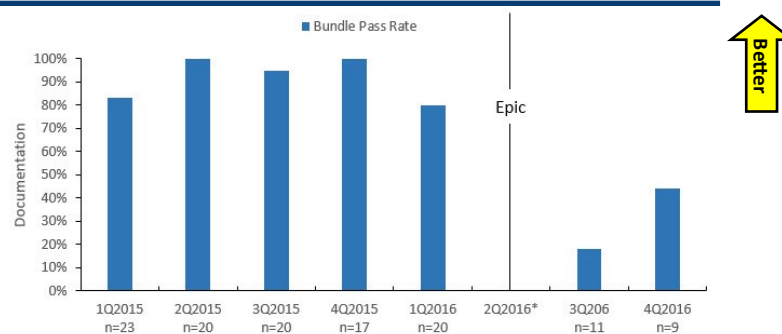
*Number of cases passed unavailable due to Epic implementation.
**Inpatient: MICU, PICU, SICU, PCU, NICU.

Procedural Sedation Occurrence / Safety Events:

Procedural sedation related safety events are self-reported. The data demonstrate a low percentage of safety events related to procedural sedation (see figure 10.2-3).

Figure 10.2-3: Procedural Sedation Safety Events

Source: DPSQ

Level One Care for ALL
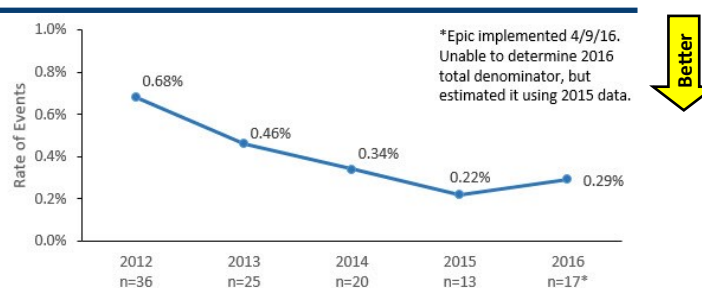
10. PATIENT SAFETY & QUALITY IMPROVEMENT INITIATIVES

10.3: Patient Flow Using Electronic Transfer

In the spirit of shared governance, 7A and the Emergency Department (ED) decided to improve transfer time, patient flow, and patient and staff satisfaction utilizing the Electronic Transfer. This initiative removes telephonic back and forth calls required for a patient report to be communicated. With Epic, the receiving RN is informed by the clerk that a bed has been assigned for a patient coming from the ED. The receiving RN reviews the ED summary of the patient's care in Epic. The patient is moved to the floor in approximately 30 minutes. If the receiving RN has questions they need to call during the 30 minute window. If important information needs to be disseminated from the ED, then the transferring RN will make a call and provide that information.

The Electronic Transfer has been very well received by staff with increased control of their time for continuing current unit care and knowing more definitively when their assigned patient will leave the ED and arrive to the unit. The transfers have remained safe and the patients are happy about getting to their rooms more quickly. This electronic transfer reduces the number of patients and length of time having to be boarded in the ED. The Joint Commission states an ideal goal to assign a patient to a bed in the ED and arrive to an assigned unit is 45 minutes. At Denver Health, many initiatives have been planned and started over the years and the transfer times have remained around 90 minutes. Since inception of the electronic transfer on October 3, 2016, the transfer times have been under 45 minutes, eight out of ten weeks, with only two weeks at approximately 50 minutes.

Essentially the electronic transfer has reduced the times during this step of the admission process by 45 minutes; when you multiply this by the number of admissions since implementation (567), they actually created 25,515 minutes of bed availability in the ED. This roughly translates to 425 hours of bed availability, 17 days of that the ED has had which amounts to an "additional bed" for use in the ED department.

This is a remarkable win, on many levels. The 7A and ED staff are to be congratulated for their openness to try this new initiative and drive change to improve the care of our patients. This program will be implemented in other areas in 2017.

11. HIGH ACUITY CARE

11.1: Emergency Response

A coordinated review of all medical emergencies and surrounding processes related to Medical Alert/Medical Emergency response is conducted by the COR Zero Committee. The Committee reports to the Medical Staff through the Medical Staff Executive Committee (MSEC) twice a year.

DHHA is a teaching institution, which provides in-house residents and interns 24 hours a day, 7 days a week. Therefore, it was decided to institute a variation on the Rapid Response Team (RRT) that better suited the needs of the institution and would avail a timely and thorough assessment and plan for patients who are starting to deteriorate. Through the implementation of the Clinical Triggers Program, DHHA has been able to maintain a decreased number of patients who reach the level of Medical emergency initiation.

After an increase in the total number of COR Zeros in 2015 (20), the number decreased to 15 in 2016 (see figure 11.1-2). All COR Zeros are reviewed by the COR Zero Committee and no significant trends have been identified. Rapid Response Process education continues. Follow-up is conducted as needed for each specific unit and team.

Figure 11.1-1: 2016 Acute Care COR Zeros
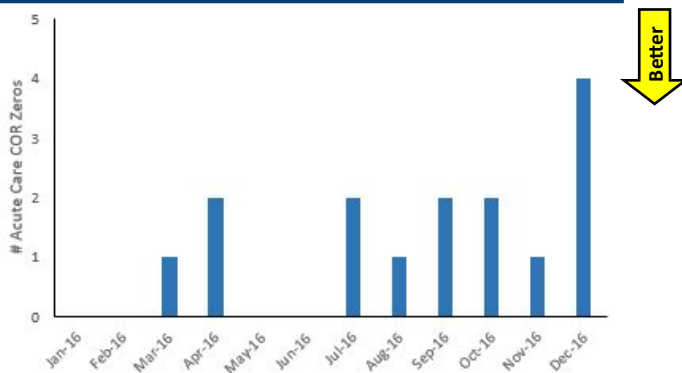
Source: DHHA DPSQ

Figure 11.1-2: Acute Care COR Zeros: 2011—2016
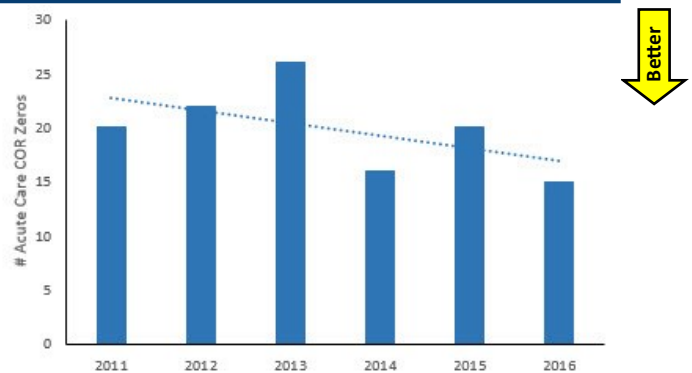
Source: DHHA DPSQ

11.2: Intensive Care Unit (ICU) Transfers & Bounce Backs

Patients who are transferred from the ICU to a lower level of care and then return to the ICU within 48 hours are considered ICU Bounce Backs and all are reviewed for appropriateness of care. The number of Bounce Backs steadily decreased in 2016 50 to 41 in 2015. An analysis of the 41 cases did not demonstrate any particular trend. DHHA has 59 critical care beds and, as a Trauma Level 1 Center, our critical care beds are in great demand.

All transfers from Acute Care to the ICU are formally reviewed. The goal of these reviews is to identify opportunities for improvement and evaluate the effectiveness of the escalation process. Total transfers went from 408 in 2015 to 479 in 2016. The contributing factors for these transfers in 2016 were: respiratory condition, cardiac condition, and a sepsis combination. The sepsis combination occurs when a patient has more than one complex condition leading to a transfer to the ICU. In July, DHHA had the highest number of transfers (56) to the ICU (see figure 11.2-1). While there has been no direct correlation identified, DHHA is a teaching institution and residents arrive at DHHA in July to begin their rotation. In April, the organization went live with Epic, which also could have contributed to the increase.

Adult Rapid Response calls were relatively steady throughout 2016. There was a drop in Rapid Response calls during May and June

11. HIGH ACUITY CARE

that could be related to the implementation of Epic. After the Epic rollout, it was recognized that the electronic method of rapid response notification was different in the old electronic system. Epic notified to a Standardized Early Warning Score (SEWS) event not the clinical triggers of the DHHA rapid response. Education was then provided to staff. As staff became more confident and competent on the new electronic health record, the Rapid Response calls increased in July and have remained between 30 and 40 calls per month.

Plan for 2017: Continue process of abstraction and review of transfer data focusing on clinical triggers. DHHA will re-evaluate the process surrounding rapid responses and on areas for improvement.

Figure 11.2-1 Transfers to ICU
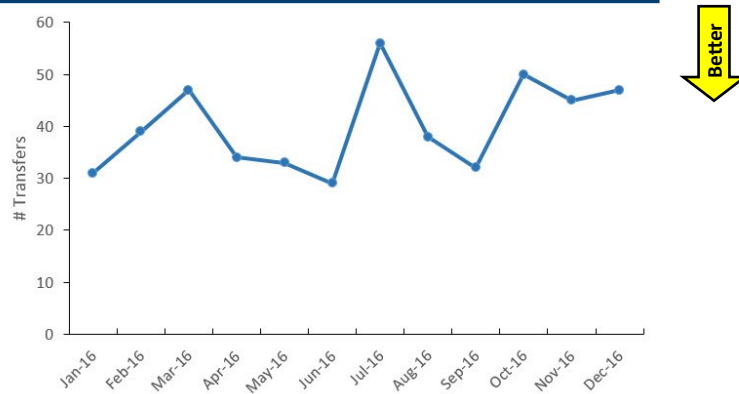
Source: DHHA DPSQ

Figure 11.2-2: Adult Rapid Response Calls

Source: DHHA DPSQ

12. CULTURE OF PATIENT SAFETY

12.1: Culture of Safety Initiatives

Patient and Family Advisory Council (PFAC)
DHHA established a Patient Family Advisory Council (PFAC) in October 2015. The council consists of ten members who are DHHA patients. The purpose of the council is to strengthen collaboration between patients, family members, and the health care team to enhance DHHA's ability to provide superior care. The result will contribute to outstanding patient satisfaction while delivering the highest standard of safe, comprehensive, and compassionate health care.

The council's primary objectives are to bring together patient and family advisors to foster a culture of patient and family centered care, to share ideas in the implementation of new programs and existing programs across the hospital, and to identify and articulate the patient and family perspective with regard to improving the patient experience.

The mission defined by PFAC is to be a collaborative partner in strengthening the standard of excellence in the delivery of safe, comprehensive and compassionate health care. Our vision is to be a transformational force in the growth and advancement of compassionate patient centered care through collaboration and teamwork between patients, family members, and the health care team.

The council meets every other month and each member is required to attend a minimum of four out of six meetings each year. Some of the topics discussed at our meetings in 2016 are:

- MyChart
    - ◊ Dr. Andrew Steele, Chief Medical & Information Officer
- Access/Urgent Care Clinics
    - ◊ Tim Bradsby, Senior Business Project Manager
- Physician Face Cards
    - ◊ Marisha Burden, MD, Hospitalist
- Appointment Reminder Preferences
    - ◊ Amy Friedman, Chief Experience Officer
- Dress Code Perceptions
    - ◊ Sherry Stevens, Associate Chief Human Resources Officer
- Responsiveness to Patients
    - ◊ Marc Fedo, Interim Director of Acute Care
- Patient Identifiers & Pain Management
    - ◊ Mary Ann McEntee, Director of Patient Safety & Quality
- Gateway Green Belt Project/Regular Construction Updates/Feedback
    - ◊ Carl Kline, Jr., Director of Planning & Construction
- Health & Safety of our Patients & Visitors/Smoke Free Campus Initiative
    - ◊ Tricia Mestas, Director of Women & Children's Services
    - ◊ Lisa Strate, Nursing Education Director
- AMA Policy Update/Health & Safety of Our Patients, Visitors, & Employees
    - ◊ Santhe Talley, Senior Clinical Risk Manager
- One Call Access
    - ◊ Kathy Osborn, Operations Manager

Based on discussion and feedback from our council members, some of the areas in which we were able to incorporate the voice of the patient:
- Prior to updating the dress code policy in 2016, we listened to the voices of our patients and their perceptions of various aspects of the existing dress code. Council members expressed that they DO NOT want to see tattoos, facial piercings, ear plugs or colored hair on staff. They love our colored scrubs but would like to see a color coded key/chart that tells them the

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color of scrub for each area and role of the employee. They like the badges with RN or MD bolded underneath the badge. The dress code policy was updated in 2016, taking into consideration the preferences of our patients/council members. The Human Resources Department is looking into creating a new/updated version of the color coded scrub chart.

- One of our council members, Michelle Archuleta, has partnered with and is actively working with Dr. Marisha Burden on a Patient-Centered Outcomes Research Institute (PCORI) study. Michelle is currently surveying PFAC members for feedback on prioritizing care for hospitalized patients.

- In order to better market MyChart to our patients, we discussed MyChart and the functionality/features that were most valuable to them. The council members were most interested in the following features:
  - ◊ Ability to view test results.
  - ◊ Messaging your provider.
  - ◊ Requests and/or schedule appointments on-line.
  - ◊ Pay Bills.
  - ◊ Medication Refills.
  - ◊ Responsiveness to Patients.

  DHHA is actively signing up patients in our clinics and have volunteers assisting patients in this process. DHHA had a total of 20,119 MyChart users by the end of 2016, surpassing the goal of signing up 20,000 patients. We are regularly monitoring the features to ensure that we are meeting the needs of our patients in a timely manner.

- Appointment reminder preferences were discussed with the council members. The majority of council members preferred text, although there were a few mixed responses. Some of the members do not have a cell phone, and some of them do not use text messaging and prefer a phone call. The group felt that each patient should be asked which notification they like best, and if it can be customized to fit the patient's needs, that would be most effective and beneficial for our patients.

- Mary Ann McEntee presented four different marketing concepts centered on patients driving quality/patient identifiers to the council members for their likes/dislikes and preferences. The council members provided feedback on their poster preference and the concepts they liked best.

Daily Patient Safety Briefing

DHHA has a very robust daily patient safety briefing in which multiple employees throughout the organization participate. Every day at 10 am, we spend anywhere from 10 to 30 minutes discussing any recent patients safety concerns that have occurred within the past 24 hours or any potential concerns for the next 24 hours. We began collecting participant data in April of 2015. The graph below indicates the growth in 2016 (see figure 12.1-1). We counted 9,310 telephone conference lines over the year which does not account for individuals present in the room or multiple individuals using one telephone conference line. We have also expanded the number of facilitators to include more directors of nursing and continue to educate and enhance our Culture of Safety. We believe this education leads to a safe environment where individuals are much more comfortable in speaking up about safety concerns.

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Figure 12.1-1: Daily Patient Safety Briefing Attendees
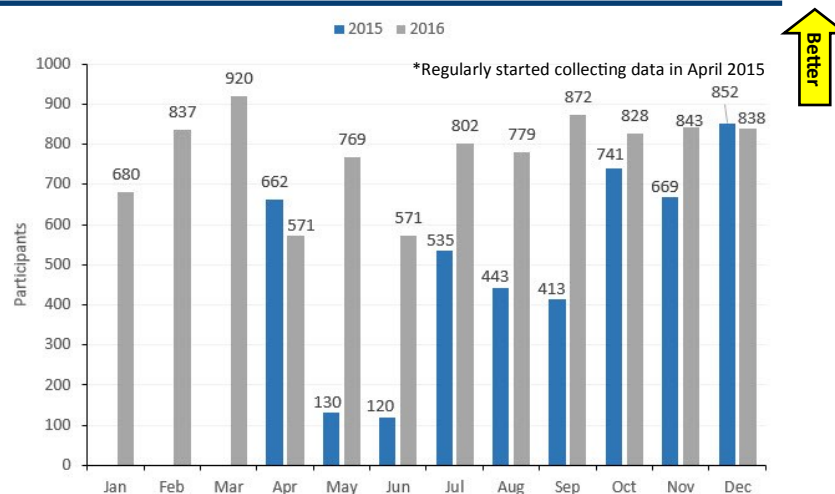
Source: DHHA DPSQ

12.2 Safety Intelligence (SI) Reporting

DHHA supports a Culture of Safety and encourages all employees, students, and residents to identify opportunities of improvement (near miss) and to report any occurrences in which the outcome was not foreseen and related by commission or omission. In 2016, the total number of self-reported incidents rose by 14% from 5,602 to 6,987 (see figure 12.2-1). Initiatives undertaken in 2016 to enhance reporting, demonstrate a high reliability organization and role model a Just Culture include the following:

- During Nurses Week, the DPSQ presented A Culture of Safety, It Starts with You!
- During Charge Nurse Leadership Orientation, DPSQ engaged nurses with reflective discussion surrounding Annie's Story a MedStar Health video showing how a system's approach can change a safety culture.
- Added a field to the SI system where a manager or peer can recommend someone for a "Good Catch" award.

Figure 12.2-1: SI Reported Events

Source: DHHA DPSQ Safety Intelligence

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Each occurrence is categorized by event type in which you can drill down to obtain greater detail. DHHA is a Safety Net hospital providing inpatient psychiatric treatment and also is a place of choice for many refugee and homeless individuals. As an institution, we recognize the extra care needed to provide for our vulnerable population. The majority of incidents reported in 2016 are behavioral events (see figure 12.2-2). The second top reported incidents are medication related which is often the number one reported event across the nation.

Figure 12.2-2: 2016 Reported Events by Type
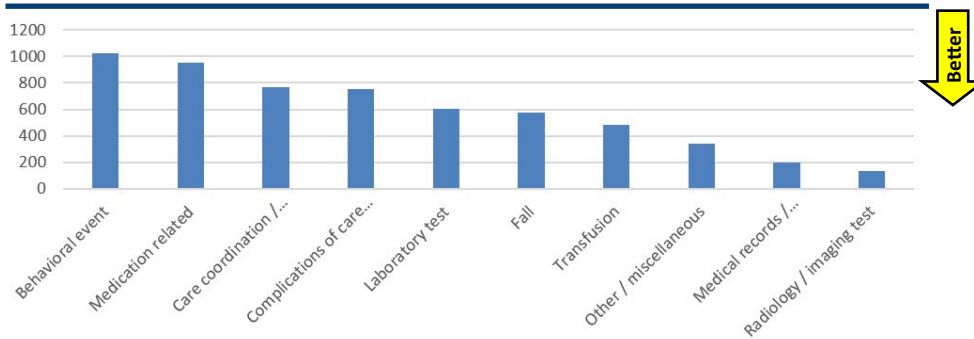
Source: DHHA DPSQ Safety Intelligence

During the Epic implementation, the DPSQ staff reviewed every event to determine if it was related either directly or indirectly to a computer issue. Any occurrence that had a computer component was forwarded to the Incident Command Center, reviewed by the Epic team, and prioritized based on patient safety (see figure 12.2-3).

Figure 12.2-3: Number Reported EHR Events
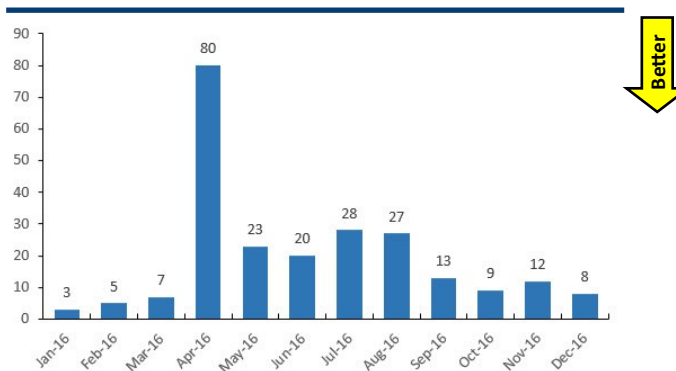
Source: DHHA DPSQ Safety Intelligence

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12.3: Culture of Safety Survey Results

In October 2015, DHHA rolled out a new employee engagement survey vendor and the patient safety culture survey was included to streamline the process and to reduce survey fatigue from our employees. In 2016, the survey was shortened, but still includes a number of culture of safety assessment questions. Three separate surveys were distributed: one for all employees, one for hospital providers, and one for clinic providers. Below are the questions under the culture of safety domain for each group with a comparison to the National Healthcare Average.

In the table below, "same" indicates scores on a 5-point scale that were within 0.1 points of the National Healthcare Average. "Lower" and "Higher" indicate scores that were more than 0.1 points different from the national benchmark. The "% Positive Responses" indicates the percent of all respondents who agreed or strongly agreed to the statement.

Figure 12.3-1: All Employee Engagement Survey

	% Positive Responses	Vs. Nat'l Healthcare Avg.
My work unit works well together.	84%	Same
The person I report to treats me with respect.	88%	Same
Different work units work well together in this organization.	64%	Lower
This organization makes every effort to deliver safe, error-free care to patients.	85%	Lower
In my unit, we discuss ways to prevent errors from happening again.	84%	Same
This organization provides high-quality care and service.	83%	Lower
This organization treats employees with respect.	78%	Same
The person I report to encourages teamwork.	84%	Same
I would recommend this organization to family and friends who need care.	66%	Lower
I can report patient safety mistakes without fear of punishment.	83%	Same

Source: Press Ganey 2017

Figure 12.3-2: Hospital Provider Engagement Survey

	% Positive Responses	Vs. Nat'l Healthcare Avg.
There is effective teamwork between providers and nurses at this hospital.	90%	Higher
I am satisfied with the level of collegiality among providers at this hospital.	82%	Same
This hospital cares about quality improvement.	85%	Same
The hospital provides high-quality care and service.	83%	Lower
This hospital makes every effort to deliver safe, error-free care to patients.	84%	Same
There is a climate of trust in this hospital.	64%	Same
I can easily communicate any ideas/concerns to hospital administration.	69%	Higher
Hospital administration (executive staff) is responsive to feedback from providers.	65%	Higher
Different departments work well together at this hospital.	65%	Lower
I would recommend this hospital to family and friends who need care.	57%	Lower

Source: Press Ganey 2017

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Figure 12.3-3: Clinic Provider Engagement Survey

	% Positive Responses	Vs. Nat'l Healthcare Avg.
The members of this clinic/group work well together.	88%	Same
I am satisfied with the level of collegiality among providers at this clinic/group.	89%	Higher
There is a climate of trust in this clinic/group.	85%	Higher
This clinic/group cares about quality improvement.	90%	Higher
This clinic/group provides high-quality care and service.	93%	Higher
This clinic/group makes every effort to deliver safe, error-free care to patients.	97%	Higher
Different departments work well together at this clinic/group.	82%	Higher
I can easily communicate any ideas and/or concerns I may have to clinic administration (DOS).	80%	Higher
Clinic administration (DOS) is responsive to feedback from providers.	69%	Higher
I would recommend this clinic/group to family and friends who need care.	73%	Lower

Source: Press Ganey 2017

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12.4: Monthly Culture of Safety Survey Results

DHHA recognized in 2014 that in order to continually improve our safety culture, assessments of our culture needed to be done more frequently than annually or biannually. Beginning in 2014 and continued through 2015 and 2016, a three-item survey which highlights areas of opportunity, was used to gather monthly data on our culture of safety. The first survey is sent in January to all employees to determine the baseline rates. Ten percent (10%) of employees are randomly selected each month to receive a follow-up survey. All responses were anonymous, allowing the employees to be open and honest with their answers. The graph below shows the three 2016 questions and overall results. The monthly results suggest random cause variation without change from the baseline performance.

Figure 12.4-1: Monthly Culture of Patient Safety Survey
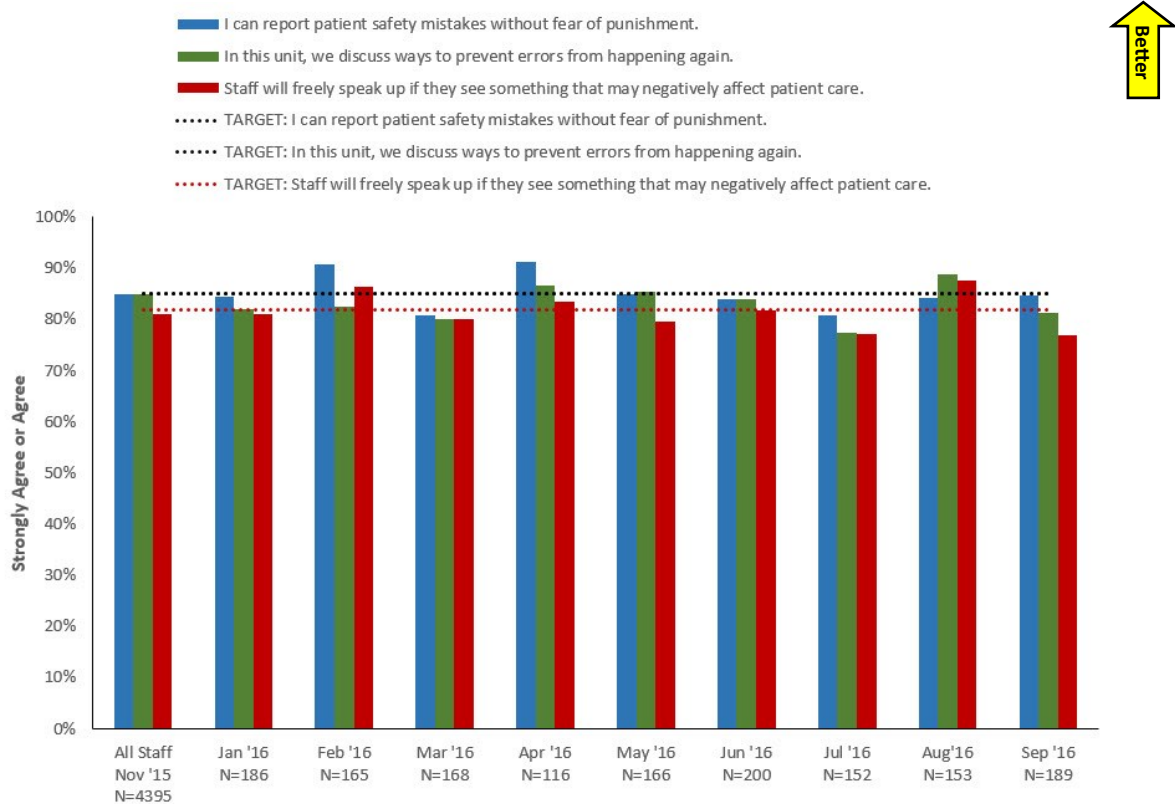
Source: DHHA DPSQ

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12.5: Culture of Safety Decision Tree

In 2016, we presented the revised Culture of Safety Decision Tree tool to managers at DHHA and we included it when distributing the results of monthly culture of safety survey results by department.

Figure 12.5-1: Culture of Safety Decision Tree—A Performance Management Tool for Adverse Events

Denver Health Culture of Safety Decision Tree
A Performance Management Tool for Adverse Events

What is a Culture of Safety	▪ **Balances** the need for an open and honest reporting environment with appropriate individual _and_ organizational accountability to our patients and to each other. ▪ **Improves** patient safety by empowering employees to actively monitor and participate in safety efforts.
When To Use This Decision Tree	▪ Utilize **prior to** issuing corrective action following an adverse event or near miss. ▪ Use **in addition to** and not in replace of the Safety Intelligence reporting system.
Purpose Of This Decision Tree	▪ A **tool** for leaders to evaluate employee conduct and determine appropriate follow-up action after an adverse event or near miss. ▪ **Encourages** leaders to decrease the focus on individual blame and instead view an adverse event-or near misses as an opportunity to console and re-educate staff, improve systems, and reduce risk.
How To Use This Decision Tree	▪ **First**: thoroughly investigate the adverse event or near miss. Ensure that a Safety Intelligence report has been filed. ▪ **Second**: start at the top left of the tool, answer each question 'yes' or 'no,' and follow the arrows through the Decision Tree. ▪ **Third**: ensure any corrective action is based upon the employee's behavior, not the outcome of the behavior (e.g., harm to a patient). ▪ **Fourth**: Enter corrective action plan into Safety Intelligence manager review

Tips for Leaders
1. We expect the vast majority of cases will result in an outcome requiring managers to console the employee and look for system improvements or re-education opportunities and will _not_ result in employee corrective action.
2. A Culture of Safety encourages transparency. Share the steps you took to investigate and determine the action with the employee.
3. When necessary, seek a second opinion from a fellow leader and/or HR.
4. Contact HR when you are unsure of appropriate corrective action or are considering suspension, decision making leave, or termination.

Rev. 24May2016

Source: DHHA DPSQ

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Figure 12.5-2: Culture of Safety Decision Tree
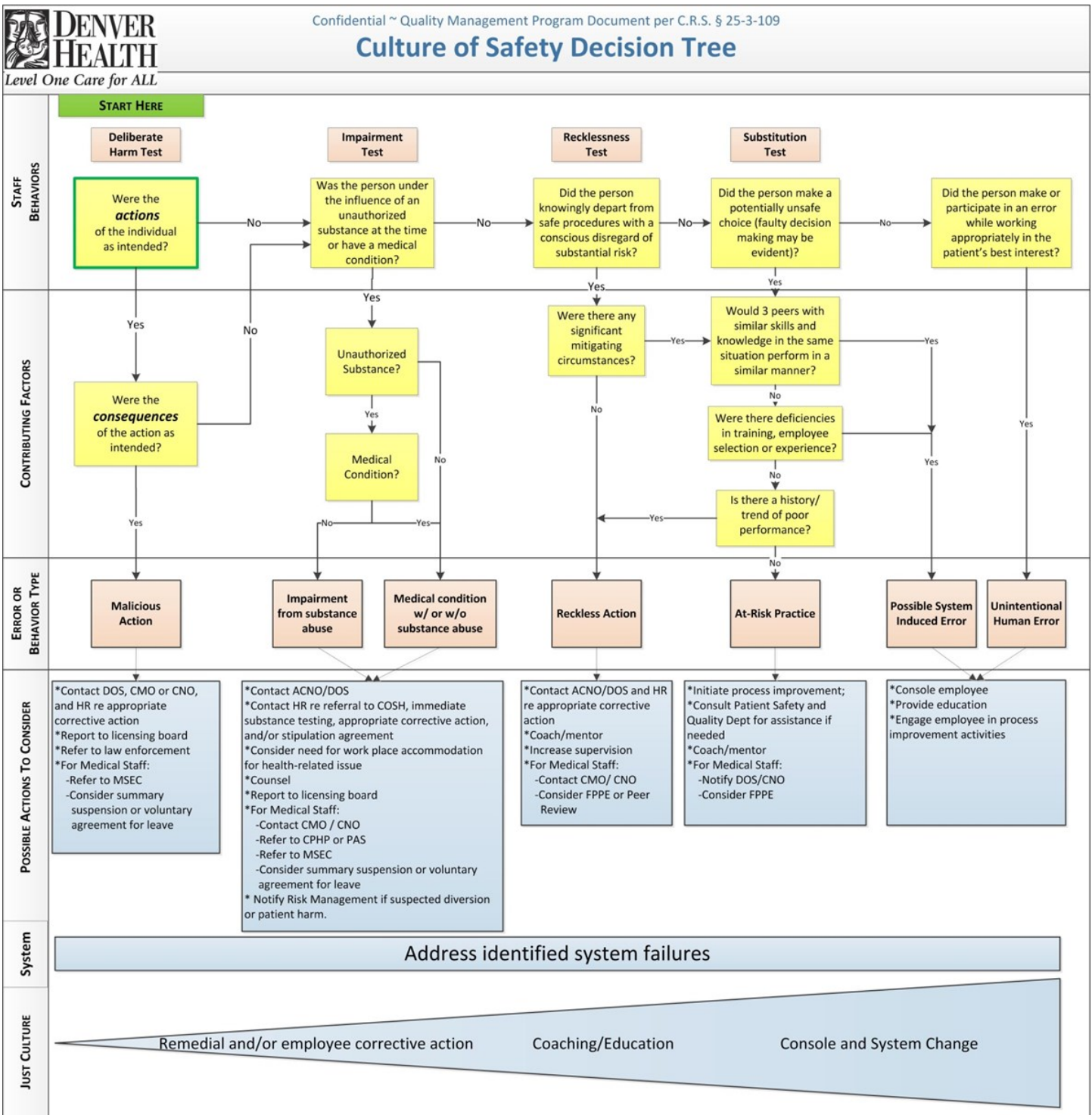
Source: DHHA DPSQ

13. INFECTION PREVENTION

The mission of the Infection Prevention (IP) and Antibiotic Stewardship (AS) programs is to support our staff in providing the highest quality and safest healthcare by:

- Reducing the risk of acquiring and transmitting infections in both the inpatient and outpatient settings.
- Ensuring the optimal antibiotic choice, dose, and duration of therapy for each patient to maximize the opportunity for a favorable outcome and minimize unnecessary antibiotic use.
- Decreasing infection-related costs.
- Engaging in research aimed at furthering knowledge of preventing healthcare-associated infections (HAI) and the optimal use of antibiotics.
- Providing leadership in community and national IP and AS initiatives.

13.1 Hand Hygiene

DHHA utilizes the World Health Organization's (WHO) 5 Moments of Hand Hygiene methodology to determine the facility's hand hygiene (HH) adherence rate. In 2016, the IP team continued to focus efforts on the HH program in both the inpatient and outpatient settings. In addition to IP observations, inpatient managers and hospital leadership also provided observations. Each unit's leadership was expected to observe a minimum of 15 observations each month and submit the data to IP using a smart phone application. The data were used to determine the monthly and quarterly HH rates. The organization's goal for hand hygiene in 2016 was a tiered goal with the threshold at 77%, target at 80%, and stretch at 85% (see figure 13.1-1).

Figure 13.1-1: Inpatient Hand Hygiene Compliance

Source: Annual Plan IP and AS 03/01/2017

In addition to improvements in hand hygiene adherence, DHHA had a number of other accomplishments in 2016 including:

- Introduction of a new hand hygiene product (Tricolsan-free and emollient containing).
- Development of surveillance and reporting plans for electronic hand hygiene reporting system.
- Expansion of the HH champion program to all areas.
- Continual focus on education.

13.2 Epic Infection Control Module (ICON) System

In April 2016, DHHA transitioned to the Epic electronic medical record and became one of the first hospitals to use the 2014 Infection Control module (ICON). In 2016, the IP team validated and improved the following reports:

- Appropriate surgical procedures for publicly-reported and internally monitored surgeries.
- Possible surgical site infections for publicly-reported and internally monitored surgeries.
- CLABSI.

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- CAUTI.
- *C. difficile.*
- Multidrug resistant organisms (including methycillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant enterococcus (VRE), and carbapenem-resistant Enterobacteriaceae (CRE)) with notification of inpatient floors.
- Publicly reported conditions (e.g. gonorrhea, chlamydia, syphilis, pertussis).

The IP team is still in the process of validating electronic reports on the prevalence of central lines and urinary catheters. Both manual and electronic counts are underway. The Epic electronic medical record system ties into many, if not all, of the surveillance activities. The validation of data is an extensive task that will continue throughout 2017.

13.3 Device Related Infections

The Target Zero initiative (see section 3.1) is enormously helpful in engaging the frontline staff in Healthcare-Associated Infections (HAI) prevention. The IPs provide timely feedback to units when device related infections are detected so that staff members may consider ways to prevent these infections in the future. Summary, unit-level, and individual-level data are posted on the Target Zero SharePoint website which is available to all staff members.

Central venous catheters, endotracheal tubes and urinary catheters increase a patient's risk for HAI. DHHA tracks its device-related infections through the CDC's National Healthcare Surveillance Network (NHSN). The Standardized Infection Ration (SIR), a metric generated within NHSN, is used to compare DHHA units to similar units at comparable facilities. It uses important risk factors in historical data to calculate the expected number of infections given a patient population's risk factors for a specific infection event, and subsequently compares this number statistically with the actual number of infections observed.

Below are listed specific interventions to decrease device-related infection that were undertaken in 2016.

Hospital Line Associated Bloodstream Infections (CLABSI)
Hospital-wide surveillance for CLABSI began in 2010. DHHA CLABSI rates over the last five years, and the corresponding NHSN percentile, were as follows (see figure 13.3-1):

Figure 13.3-1: CLABSI per 1,000 Central Line Days

	2012	2013	2014	2015	2016	2016 SIR
MICU	1.2	0.9	0.6	1.4	1.4	0.3
SICU	0.4	0.3	1.9	4.5	3.1	0.5
PCU	0.0	0.8	0.9	4.9	0.0	0.0
PICU	0.0	0.0	0.0	0.0	0.0	—
NICU	1.2	2.4	1.8	5.6	3.4	1.9
Acute Care	0.3	1.9	1.0	1.0	0.9	0.4

Source: Annual Plan IP and AS 03/01/2017

In 2016, a Vascular Access Committee was formed with a "shared governance" structure. The Vascular Access Committee, with more than 30 members from a variety of departments and roles, will oversee the dissemination of new products and practices throughout the hospital. In addition to targeted interventions for CLABSI, regular audits were conducted for adherence to best practice central line care and to the Total Parenteral Nutrition (TPN) Guideline. Real-time CLABSI notifications were provided to nurse managers as well as the monthly line listing to each unit. Also, universal decolonization was continued in the critical care

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units (including chlorhexidine bathing and mupirocin nasal ointment) and chlorhexidine bed baths for patients on acute care floors. Finally, avoidance of unnecessary central lines continued to be a 2016 DHHA goal. DHHA's central line utilization is consistent with NHSN benchmarks. Evaluation of the central line use revealed lower utilization of central lines in MICU, SICU, PICU, and Med/Surg floors (top 25-50% or less) compared to comparable units reporting nationally through NHSN (see figure 13.3-2).

Figure 13.3-2: Central Venous Catheter Utilization Ratio (device days/patient days)

	2012	2013	2014	2015	2016	2016 NHSN Percentile	
MICU	50%	52%	53%	43%	47%	10—25%	Better
SICU	46%	54%	37%	39%	31%	10%	
PCU	28%	32%	29%	34%	20%	50—75%	
PICU	18%	17%	14%	12%	9%	10%	
Med/Surg	14%	13%	11%	11%	11%	25—50%	

Source: Annual Plan IP and AS 03/01/2017

Ventilator Associated Pneumonia (VAP)

VAP rates in the MICU, SICU, and PCU have historically been monitored and benchmarked against national mean rates for comparable units using NHSN. Due to the significant changes in the surveillance definition in 2013 by the CDC, it is difficult to compare to the previous years' rates. In the MICU and SICU, VAP rates have remained low overall from 2014-2016 decreasing in 2014 and 2015 with some increase in 2016. The PCU did not have any NHSN-defined VAP in 2016 (see figure 13.3-3).

As the NHSN has significantly decreased the number of cases that are identified as VAP, we are seeking a different benchmark to determine how the institution performs compared to other similar institutions.

Interventions are championed by the IP, Patient Safety and Quality, unit managers and educators, directors, respiratory therapists and other front line staff. The VAP Bundle includes the following key elements: Minimize duration of ventilation, daily assessment of readiness to wean off ventilator, daily interruption of sedation, elevated head of bed, regular oral care, and continuous aspiration of subglottic secretions.

Figure 13.3-3: VAP per 1,000 Ventilator Days

	2012	2013*	2014	2015	2016	
MICU	0.7	0.3	0.0	0.0	1.0	Better
SICU	3.7	4.4	1.2	0.3	1.2	
PCU	4.9	1.3	2.8	0.0	0.0	

*NHSN definition of VAP changed.
Source: Annual Plan IP and AS 03/01/2017

Catheter-Related Urinary Tract Infections (CAUTI)

Hospital-wide surveillance for CAUTI began in 2014 although CAUTI surveillance in the ICUs began several years earlier. Although this is a low morbidity/mortality infection, it is a priority for IP because CAUTI a) can be caused by antibiotic-resistant pathogens, b) is not reimbursed by CMS, and c) is a strong nursing sensitive indicator. In 2015, NHSN made significant changes to the CAUTI definition which decreased the number of CAUTI reported to NHSN (see figure 13.3-4). At the time of this report, NHSN has not updated percentile benchmark data to reflect the changes in definition.

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Figure 13.3-4 CAUTI per 1,000 Catheter Days

	2012	2013*	2014	2015	2016	2016 SIR
MICU	1.7	1.6	2.7	1.2	1.5	0.58
SICU	2.1	2.7	4.4	3.3	2.6	0.48
PCU	1.0	3.2	5.5	4.3	3.5	1.07
Rehab	0.0	7.7	15.6	4.8	7.3	2.81
Med/Surg	3.9	4.3	3.8	2.5	2.1	0.65

Source: Annual Plan IP and AS 03/01/2017

13.4 Surgical Site Infections (SSI)

DHHA performs SSI surveillance for 17 procedures including two nationally-reported procedures, five state-reported procedures, and 10 additional procedures that we deem to be high impact to our patient population. SSI rates over the last five years and benchmarking based on the Standardized Infection Ratio (observed/expected infection rate based on individual patient risk) are shown in the table below (see figure 13.4-1).

Figure 13.4-1: SSI per 100 Operations

	2012	2013	2014	2015	2016	2016 SIR
Knee Arthroplasty	1.5	0.0	0.6	0.0	0.6	0.6
Hip Arthroplasty	3.3	2.0	2.0	5.3	2.8	1.4
Abdominal Hysterectomies	4.1	1.4	4.8	3.9	1.2	0.5
Vaginal Hysterectomies	3.7	1.4	2.9	0.0	3.0	—
Craniotomies	1.2	4.1	2.5	0.9	3.9	1.2
Spinal Fusions	6.9	4.2	1.4	1.2	1.3	0.5
Gastric Surgeries	0.0	5.7	4.8	2.6	0.0	0
Herniorrhaphy	1.0	1.2	1.8	1.6	1.6	1.5
Colon Surgeries	8.2	14.5	9.8	11.0	11.0	1.1
Breast Surgeries	2.2	1.8	0.8	1.7	2.2	1
Prostate and Nephrectomy Surgeries*	3.0	0.0	6.8	7.1	1.9	—
Open Reduction of Fracture	2.8	2.6	2.3	2.2	1.8	1.6
Vascular Surgery**	—	—	4.8	4.8	2.0	1
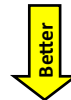
*Nephrectomy procedures added January 2014.
**Vascular surgery SSI surveillance began January 2014. Procedures under surveillance include abdominal aortic aneurism, AV shunt for dialysis, carotid endarterectomy, and peripheral vascular bypass.
Source: Annual Plan IP and AS 03/01/2017

Because of our vertically integrated system, DHHA has the advantage of doing thorough post-discharge infection surveillance that most hospitals are unable to do. The ability to do thorough surveillance may make rates appear higher than other hospitals reporting to NHSN.

In 2015, a multidisciplinary group was formed to focus on colon SSI reduction. The team consisted of operating room (OR) technicians and nurses as well as general surgeons and infection preventionists. A colon bundle was created which consisted of pre-,

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intra–, and post-operative interventions (see figure 13.4-2). Additionally DHHA joined the University Health Consortium (UHC) Colon Collaborative.

Figure 13.4-2: Colon SSI Rate
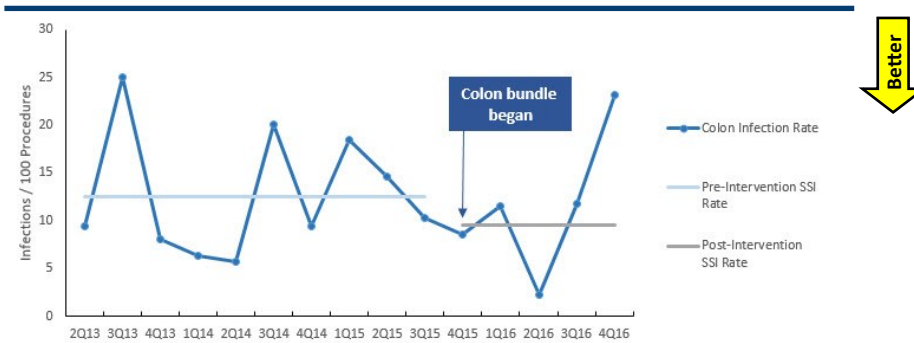
Source: Annual Plan IP and AS 03/01/2017

The UHC collaborative work aligned with the colon bundle and has been a resource for us to learn how to introduce best practices into our hospital. Since the introduction of the colon bundle, we have realized a reduction in colon SSI throughout 2016 and anticipate that this will continue into 2017. In 2016, we worked closely with the preoperative, operative, and postoperative teams to further develop and implement all elements of the colon bundle.

13.5 Multi-Drug Resistant Organisms (MDRO)

Our goal is to minimize hospital-associated spread of MDROs and other organisms identified as significant at DHHA. Daily surveillance of MDROs and organisms of significance in 2016 included:

- *Aspergillus.*
- Multi-drug resistant *Acinetobacter baumannii.*
- Multi-drug resistant *Pseudomonas aeruginosa.*
- Carbapenemase-producing enterobacteriaceae (CRE).
- Extended spectrum beta lactamases (ESBL).
- Methicillin-resistant *Staphylococcus aureus* (MRSA).
- Vancomycin-resistant *Staphylococcus aureus* (VRSA/VISA).
- Vancomycin-resistant enterococci (VRE).
- *Clostridium difficile.*
- Influenza.

A major institutional focus in 2016 was *C. difficile*. Environmental services substituted Perisept (peracetic acid) as the default cleaning product in the hospital. Previously, we had been cleaning with Virex for most rooms and bleach for known patients with *C. difficile* colitis. Perisept has activity against *C. difficile* spores and is less caustic to hospital equipment and staff members. IP assisted environmental services with the purchasing of two additional UV light devices. By the 4th quarter of 2016, approximately 80% of rooms previously occupied by patients with *C. difficile* colitis had been treated with UV lights after terminal clean at discharge (see figure 13.5-1). ED and urgent care rooms, OR suites, the hemodialysis unit, and the admission-discharge unit are also treated with a UV light once weekly.

Additionally, the IP team enhanced education around transmission-based precautions. We are working toward probiotic administration to inpatients on broad spectrum antibiotics and anticipate this to be in place by March 2017. We have also contracted with OpenBIOME to provide fecal transplants to patients with recurrent *C. difficile* colitis.

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Figure 13.5-1: UV Disinfection of *C. difficile* Rooms
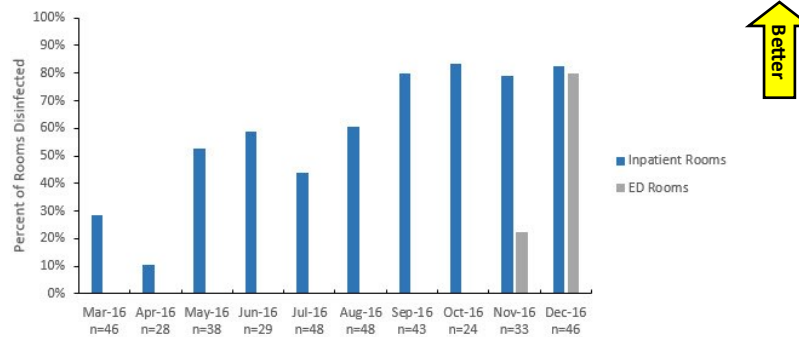
Source: Annual Plan IP and AS 03/01/2017

13.6: Healthcare-Acquired Infections (HAI) Related to Construction

There was a substantial amount of construction in 2016 including the opening of the new Southwest Pena Clinic. The IP personnel continued to attend meetings starting with predesign and preconstruction, including a weekly meeting where all ongoing projects Were discussed. Routine walk-throughs were done in all construction areas. Infection Control Risk Assessments (ICRAs) were done prior to the start of any construction and the contractors were in-serviced about the infection prevention concerns related to hospital construction. The project superintendent or their designees are held responsible for seeing that all workers are in-serviced in appropriate infection prevention techniques prior to the start of their work at DHHA.

13.7: Collaboration with Center for Occupational Safety and Health (COSH)

Infection Prevention works closely with COSH to decrease occupational infection related hazards through the following processes:
- Universal employee influenza vaccination.
- New employee orientation.
- Annual competency training on bloodborne pathogen exposures.
- Consultation with COSH providers regarding employee exposures to potentially infectious pathogens.
- Development of protocols for the OUCH line.
- Representation on Products Committee to identify devices to minimize employee exposures.
- Clearance for employees to return to work after a potentially infectious condition.

Exposure Events

COSH collects exposure details regarding each exposure event. The details collected allow better direction of the education opportunities. These data are presented at the IP Committee meetings (see figure 13.7-1). During these discussions, input from experts and front line staff are gathered on how to formalize interventions and better prevent these exposures in the future.

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Figure 13.7-1: Total Exposures per Year
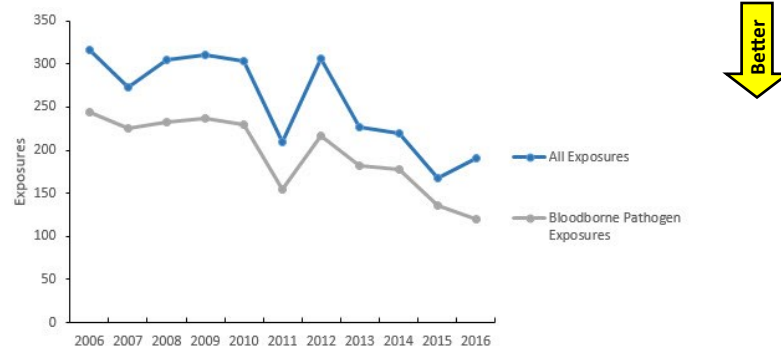
Source: Annual Plan IP and AS 03/01/2017

Influenza Vaccination

DHHA has mandated employee influenza vaccination since the 2011-2012 influenza season. The rationale for implementing such a policy reflects our appreciation that influenza is a serious illness that results in significant patient mortality each year. Influenza is highly contagious and can spread rapidly through a health care facility, particularly in our at-risk patients. In additional, up to 25% of health care workers contract influenza each season. We also appreciate that influenza seasons correlate with staffing shortages, as evidenced by an increase in sick calls at DHHA correlating with influenza peak activity during the past five flu seasons. Health care workers might work while ill and/or might have minimal symptoms but be able to transmit virus to patients or co-workers. It is also clear that the vaccine is most effective in younger, healthier people, such as our employee population. Finally, there are data showing:

- Decreased mortality in patients (in long term care facilities (LTCF)).
- Decreased influenza among vaccinated health care workers.
- Decreased nosocomial influenza among hospitalized patients.
- ~ 50% fewer sick days in workers who receive influenza vaccine.

DHHA has successfully implemented, and continues to refine an electronic tracking system that allows managers to track real time the status of their employee as well as the IP team to track and report data as needed. The developed tracking system, HAND, has been recognized by the Centers for Disease Control (CDC) as a superior tool for mass vaccination clinics and the development team has received national awards.

IP and COSH have successfully partnered with the other academic teaching facilities in the Denver area to assure all residents and faculty have been vaccinated. Ultimately, DHHA has vaccinate >98% of all employees/contractors against seasonal influenza since the implementation of this policy (see figure 13.7-2). There is a ~2% exemption rate for those medical contraindications or religious waivers each year.

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Figure 13.7-2: Employee/Contractor Flu Immunization Compliance

Source: Annual Plan IP and AS 03/01/2017
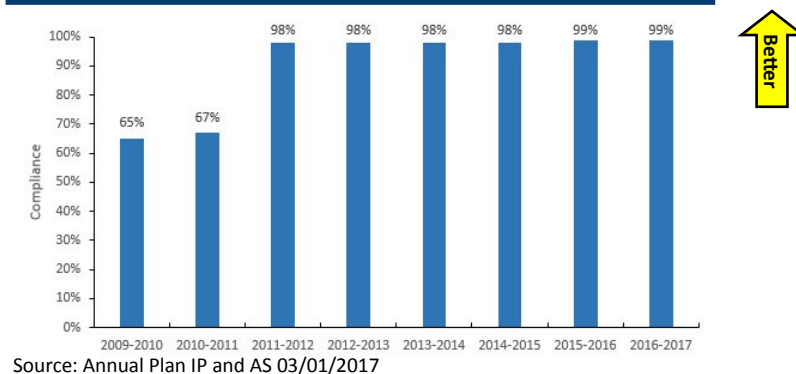
13.8: Environmental Services

Infection Prevention continues to work closely with the Environmental Services (EVS) program to focus on environmental cleaning protocols. In 2016, our accomplishments included:

- Expanded use of Adenosine Triphosphate (ATP) surface monitoring. IP performed swabs on five high touch surfaces in rooms after cleaning and provided feedback to the cleaning staff on which surfaces were cleaned optimally and suboptimally.
- Expanded use of ultraviolet machines. We purchased two additional ultraviolet machines in 2016 and trained EVS management in their use. They are currently being used after terminal clean of a room in which a patient with *C. difficile* resided. Additionally, the ultraviolet light machines are used weekly in each operating room, emergency department room, adult urgent care room, and in the admission-discharge and hemodialysis units.
- Improved communication between EVS and clinical leadership. While we piloted monthly meetings dedicated to improving communication between EVS and nursing management, we found that these were poorly attended. Therefore, we dedicated time during monthly IP Committee meetings for EVS to provide data regarding their use of ultraviolet lights and cleaning products. Because IP Committee meetings have clinical representation from a variety of settings, we have found that this meeting is an ideal forum for these data to be presented.
- Introduced Perisept, a non-bleach cleaning product, as the preferred inpatient cleaning product. Perisept is active against *C. difficile* spores. By introducing this product throughout the hospital, we were able to minimize the caustic effects of bleach on our employees and medical equipment. Additionally, EVS cleaning staff prefer to have just one cleaning product rather than needing to choose the proper product for each room.

13.9: Ebola and Other High Risk Pathogen Preparation

The 2014-2015 Ebola epidemic in West Africa was the largest in history with over 28,600 cases to date and over 11,300 deaths. With the first imported case into the U.S., our Ebola preparation activities were put into place, and we quickly completed a comprehensive plan to safely care for Ebola patients at DHHA. Our Ebola plan and preparation work was validated by the Colorado Department of Public Health and Environment (CDPHE) as well as the CDC, and the National Ebola Training and Education Center (NETEC). In 2015, DHHA was recognized by the CDC to be the Region 8 Ebola Treatment Center and was awarded $3 million dollars to continue to enhance our Ebola and other high risk pathogen program over the next five years. In 2016, IP had several achievements including:

- Hiring an Ebola coordinator.
- Meeting all grant deliverables by stated deadlines.
- Conducting quarterly staff personal protective equipment (PPE) practice, drills and simulation training.

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13.10: Additional High Risk Areas for HAI

In addition to the goals and achievements above, high level disinfection and cleaning of shared patient equipment were major goals in 2016.

High level disinfection is performed in 15 of our departments and clinics. On routine audits, it was found that practices were not as precise as the organization would expect. The program was revamped including major re-education and auditing efforts including:
- Rewriting the policy regarding high level disinfection.
- Creating an annual employee competency.
- Developing a biweekly audit tool.

This improvement work and frequent monitoring will continue in 2017.

On routine rounds, it was determined that shared medial equipment such as Dynamaps (blood pressure cuff, thermometer, pulse oximeter), language line telephones, ultrasound machines, bladder scanners, EKG machines, phlebotomy carts, and IV poles and pumps were inadequately cleaned between patients. The IP staff performed ATP swabs of these items on select inpatient floors and found that the most opportunity to improve cleanliness was by targeting the Dynamaps and language line telephones. With input from the front line staff members, the team developed a cleaning protocol to encompass (1) cleaning between every patient use and (2) weekly deep cleaning. It was implemented on four pilot floors and initial results showed a 70% decrease in ATP levels on these floors.

14. ANTIBIOTIC STEWARDSHIP (AS)

14.1: Analysis of 2016 Goals

In 2016, the AS Program maintained the following interventions and surveillance activities with goals of optimizing antibiotic use for our patients in order to maximize the chance for good clinical outcomes and prevent antibiotic resistance, *Clostridium difficile* infection, and other adverse events:

- Quarterly antibiotic utilization and cost surveillance.
- Development of antibiograms and assessment of resistance trends.
- Formulary restriction and pre-authorization (via the Antibiotic Stewardship Pager) for broad-spectrum, toxic, or high-cost antibiotics.
- Daily post-prescription review with real-time prescribing recommendations.
- Development, implementation, and maintenance of Clinical Care Guidelines (CCG) for common infections.
- Review of new FDA-approved antimicrobials for addition to the DHHA formulary.
- Expansion and maintenance of the Antibiotic Stewardship smartphone application and the Antibiotic Stewardship Sharepoint Site on the Pulse.
- Active Antimicrobial Subcommittee of the Pharmacy and Therapeutics Committee (P&T).
- Weekly multi-disciplinary rounds with SICU team.

The following figure (see figure 14.1-1) illustrates that over the last three years at DHHA, there have been stable or decreasing trends in total antibiotic use and use of antibiotics with a broad spectrum of gram-positive or gram-negative activity.

Figure 14.1-1: Total Antibiotic Usage and Broad Spectrum Activity
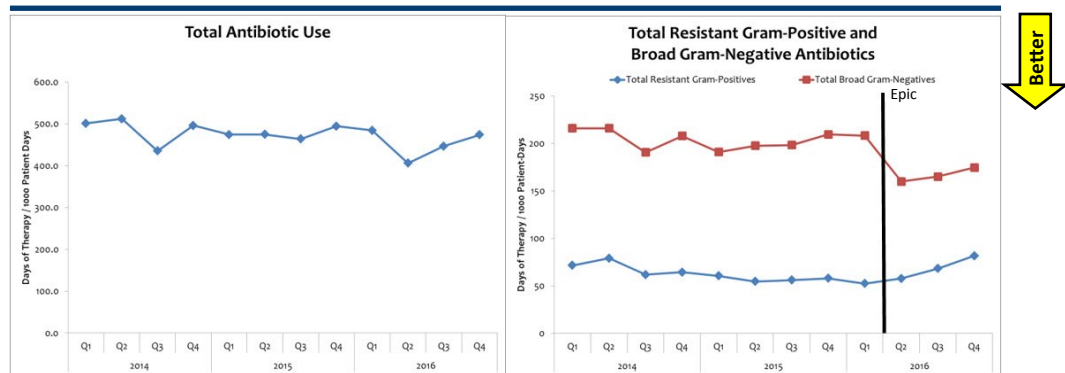
Source: Annual Plan IP and AS 03/01/2017

14.2: Initiative 1—Use of Epic to Optimize Antibiotic Stewardship

- Develop the capability to generate real-time and historical antibiotic utilization reports.
- Develop the capability to submit antibiotic utilization data to the CDC/NHSN antibiotic use and resistance (AUR) module.
- Implement a requirement for providers to document the indication for each antibacterial at the time of order entry.
- Generate an antibiotic stewardship report including clinical, microbiological, and antibiotic data to streamline prospective review and feedback interventions.
- Implement a 72-hour antibiotic timeout.
- Develop an effective and sustainable method to document antibiotic stewardship interventions.
- Generate a real-time rolling antibiograms (e.g., last 12 months of data) and an annual antibiograms.

Progress to date:
- Historical antibiotic utilization reports have been developed and validated. Real-time antibiotic utilization reports are available but require further validation and optimization.

14. ANTIBIOTIC STEWARDSHIP

- Antibiotic use data has been submitted to NHSN since Epic go-live in April 2016 and will continue to be submitted on a quarterly basis. Benchmarking data in the form of standardized antibiotic administration ratios (SAARs) provided by NHSN are reviewed with the AS Program Director and Chief Quality Officer each quarter. The following figure displays DHHA's SAAR for hospital-wide antibiotic use over time; observed antibiotic use has been significantly lower than expected in each month since reporting began in April 2016 (see figure 14.2-1).

Figure 14.2-1: DHHA SAAR by Month
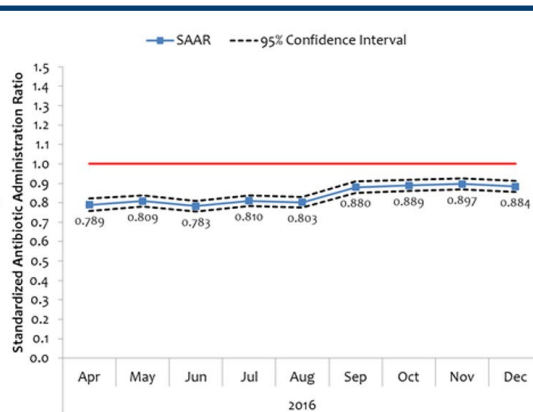
Source: Annual Plan IP and AS 03/01/2017

- The AS Program worked with Epic developers to require that for each antibiotic order, providers must select an indication at the time of order entry. This requirement has been present since the roll out of Epic.
- Prospective review with real-time provider feedback facilitated by Epic reports is ongoing. Customization of some of the Epic reports to streamline the review process is on the Epic optimization list.
- Antibiotic stewardship interventions are documented by all pharmacists as I-vents.
- An initial draft of the Epic-generated antibiograms was reviewed by the AS Program. The AS Program is working with Epic analysts to validate the data and develop hospital-wide, intensive care unit-specific, and pediatric antibiograms. Final versions of the 2016 antibiograms are expected to be completed in February 2017 and will be disseminated to providers.

14.3: Initiative 2—*C. difficile* Infection Prevention
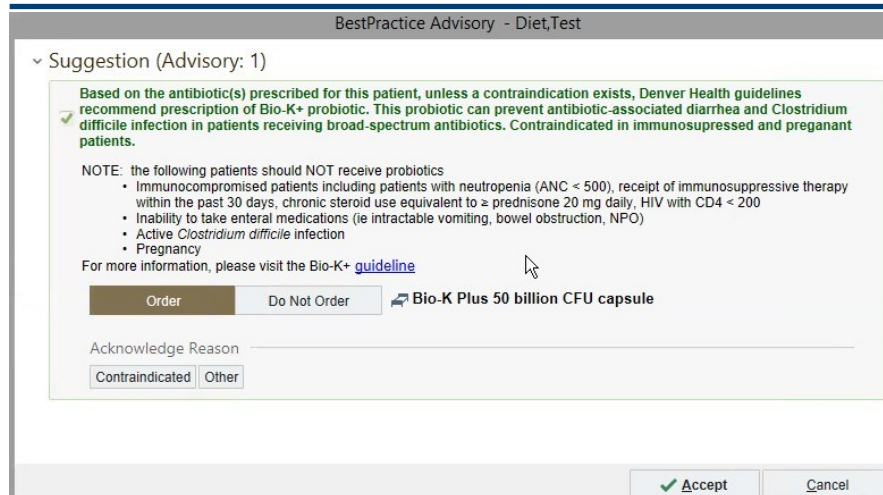
- Implement the protocol for use of the Bio-K+ probiotic for primary prevention of CDI and antibiotic-associated diarrhea.
- Perform prospective review with real-time provider feedback to optimize antibiotic use in hospitalized patients with CDI.
- Increase use of fecal microbiota transplantation (FMT) in cases of recurrent CDI through participation in a national frozen stool bank program, obviating the need for individual donor identification and screening.
- Collaborate with the IP team on enhanced measures to reduce environmental contamination and hospital transmission.

Progress to date:
- A protocol for the use of the Bio-K+ probiotic as primary prevention of CDI and antibiotic-associated diarrhea in patients receiving high-risk antibiotics was developed and approved by the Antimicrobial Subcommittee of P&T and the P&T committee. The AS Program provided standardized education regarding the planned implementation of this protocol to clinicians, pharmacists, and nurses. An Epic Best Practice Advisory (BPA) (see figure 14.3-1) was created requiring clinicians to opt-in or opt-out of the probiotic at the time a high-risk antibiotic is ordered. A report in Epic has been created to monitor appropriateness of use of the probiotic. This intervention is anticipated to be launched at the end of February 2017.

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14. ANTIBIOTIC STEWARDSHIP

Figure 14.3-1: An Epic Best Practice Advisory (BPA)

Source: Annual Plan IP and AS 03/01/2017

- Since August, prospective review with real-time provider feedback to optimize antibiotic use in hospitalized patients with CDI has been occurring.
- An FMT protocol was developed by the AS Program in collaboration with the Gastroenterology service and approved by the Antimicrobial Subcommittee of P&T and the P&T committee. An organizational relationship with OpenBiome—a supplier of pre-screen, frozen stool specimens—has been established, along with plans for receipt, storage, and tracking of the specimens. A consent form for FMT using OpenBiome specimens is in the final stages of review by the DPSQ and the Legal Department.
- The AS Program worked with the Infection Prevention team to implement a number of enhanced environmental cleaning measures and hand hygiene interventions in 2016 (see IP section).

14.4: Initiative 3—Collaborate with Hospitalist Group to Improve Inpatient Antibiotic Use

- Recruit and integrate a Hospitalist antibiotic stewardship champion into the AS Program to lead antibiotic stewardship efforts within the Hospitalist group.
- Develop, implement, and measure the impact of a Hospitalist-focused intervention to improve inpatient antibiotic use.
- To determine the effects of this intervention, the AS Program is in the process of evaluating antibiotic use before and after this intervention on the ward where it was implemented and on a ward with no new intervention (i.e., a control ward).

Preliminary data suggest that the pharmacists are regularly prompting evaluation of the antibiotic regimen on rounds and that recommendations by the pharmacists are accepted in the majority of cases (see figures 14.4-1 and 14.4-2).

Figure 14.4-1: Days Pharmacist Prompting Occurred
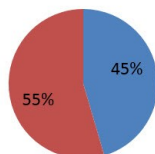
Source: Annual Plan IP and AS 03/01/2017

Figure 14.4-2: Acceptance of Pharmacist Recommendations
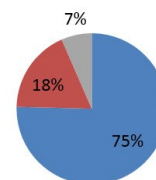
Source: Annual Plan IP and AS 03/01/2017

14. ANTIBIOTIC STEWARDSHIP

14.5: Other 2016 Achievements

- The AS Program developed an action plan to demonstrate and ensure adherence to all elements of The Joint Commission standard for antibiotic stewardship.
- The AS Program launched an upgraded, professionally-developed version of the DHHA antibiotic smartphone application. This application provided point-of-care antibiotic prescribing guidance for the most common inpatient and outpatient infections as well as the annual antibiograms, antibiotic dose adjustment recommendations for renal insufficiency, and perioperative antibiotic guidance. In January of 2017, utilization data demonstrated that 540 unique users accessed the smartphone application with nearly 20,000 page views during 1,640 sessions.
- The AS Program worked closely with Microbiology laboratory staff before and after Epic implementation to improve reporting of microbiology results.
- For antibiotic shortages, with careful inventory management and appropriate utilization, the AS Program avoided the need to implement alternative agent strategies or pharmacy automatic substitutions.
- The AS Program performed an evaluation of stool multiplex polymerase chain reaction (PCR) results and evaluated the impact of this test on antibiotic use. The findings were presented at the national IDWeek meeting New Orleans in October 2016.
- The AS Program restricted weekly microbiology rounds into an interactive, case-based format.
- The AS Program continued to participate in the Colorado Hospital Association's (CHA's) Statewide Antibiotic Stewardship initiative focused on improving antibiotic use for patients hospitalized with urinary tract infection (UTI). The intervention implemented at DHHA consisted of development and implementation of a clinical care guideline for inpatients with urinary tract infection and prospective audit of inpatients being treated for UTI with feedback to providers to increase adherence to the guideline.
- Use of fluorquinolones and durations of therapy (two main goals of the intervention) have declined over the course of the intervention as shown in these figures displaying quarterly data.

Figure 14.5-1: Fluoroquinolone Use
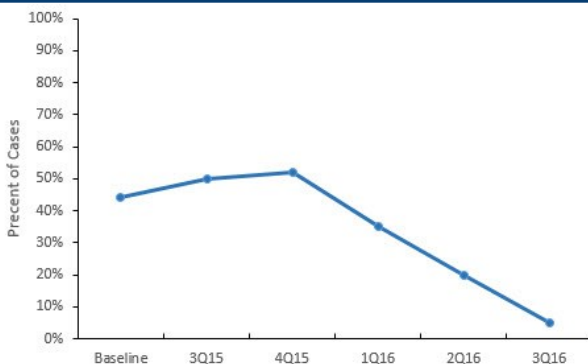
Source: Annual Plan IP and AS 03/01/2017

Figure 14.5-2: Total Antibiotic Duration
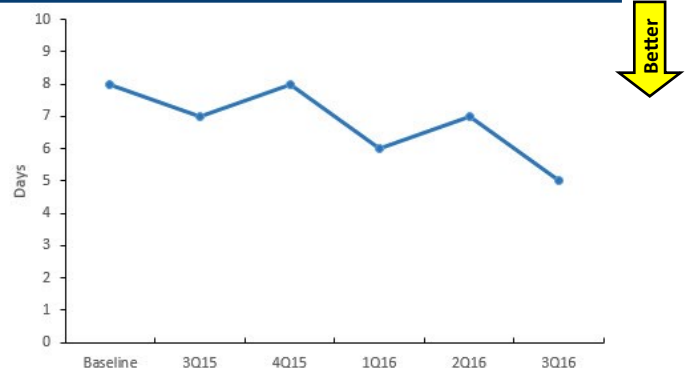
Source: Annual Plan IP and AS 03/01/2017

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15.1: The Joint Commission Accreditation for ACS & Ambulatory Lab Services

In December, the Joint Commission arrived for an initial accreditation of the Pena Federico Community Health Center and Urgent Care Clinic and for the triennial Ambulatory Care Services and biannual ambulatory lab surveys. Three surveyors arrived on December 12, 2016 and remained until December 16, 2016.

The Ambulatory Care Services received eight direct impact findings and seven indirect findings. All action plans were submitted by the required timeframes and were accepted by The Joint Commission. Denver Health received an accreditation decision of Accredited for all services beginning December 17, 2016. This accreditation is valid for up to 36 months.

During this survey, DHHA achieved the Primary Care Medical Home accreditation for the first time.

The Ambulatory Lab Services received 15 findings. All action plans were submitted by the required timeframes and were accepted by The Joint Commission. DHHA received an accreditation decision of Accredited for all services beginning December 1, 2016 and is valid for up to 24 months.

15.2: Failure Modes and Effects Analysis (FMEA)

DHHA elevators in Pavilion A (PAV A) are the original elevators that were installed in 1968. Due to an increase in the frequency of failures and downtime, as well as the critical service they provide, it was imperative that we upgrade the elevators to modern standards. DHHA was able to obtain bond money to enhance the reliability and reduce the impact and expense of failed elevators. An FMEA was important in order to ensure the safety of patients if needed to transport patients for emergency care and to evaluate other options of expedient means of transport.

An elevator upgrade project began on PAV A's elevators in order to enhance service reliability. The project is expected to last from October 2016 through May 2017. Throughout the project, certain elevators will be temporarily out of service; signs will be placed on affected elevators as they are taken out of service. During PAV A elevator modifications, all elevators in PAV A, B, and C are considered emergent with regard to Otis elevator service calls.

An FMEA was conducted through collaboration with the following departments: The DPSQ, Security and Engineering, Transportation, Volunteers, Private Branch Exchange (PBX), Nursing, Laboratory, Radiology, Dietary and Safety, and Environment of Care.

The purpose for conducting the FMEA is to proactively identify failure points in the process, allow for proactive mitigation and ensure safety and satisfaction for our patients, families, and employees.

Failure Modes Identified:
- Delay in emergent/urgent care.
- Delay in food service delivery.
- Elevator entrapment.
- Electrical outage caused by increased construction work on campus.
- Evacuation in an emergency.
- Additional stress on working elevators increases risk of malfunction.
- Productivity is negatively impacted.

Possible Effects of Failure:
- Preventable Patient Harm.
- Impact on diabetics, Acute Eating Disorder Unit.

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- Delay in patient care and services.
- Patient and family dissatisfaction and frustration.
- Employee dissatisfaction and frustration.

Project Goals:
- Reduce potential for patient harm due to delay in transport.
- Mitigate delay in care due to longer wait times for elevators.
- Patient and family satisfaction.

15.3: Continual Readiness

DHHA fully embraces and adheres to a continual readiness model that is ready to receive The Joint Commission or any regulatory agency at any time. The DPSQ is attentive to all state and federal requirements and receive and prioritize all allegations of potential safety issues immediately. All issues are reviewed for continuous performance improvement.

The Colorado Department of Public Health and Environment (CDPHE) visited DHHA from February 16 through February 18, 2016 for an unannounced onsite licensure complaint visit. Four deficiencies were cited requiring a plan of correction. DHHA complied immediately with a plan of action which was accepted by CDPHE indicating that DHHA meets the Medicare requirements based on accreditation by The Joint Commission.

In addition, CDPHE visited DHHA East Grand Community Clinic and Emergency Center on April 6, 2016 for a state licensing visit. Several deficiencies were cited and were addressed with no further action requested. In April and October, correspondence was received from The Joint Commission Office of Quality Monitoring to validate two concerns. The first was related to a media article prompted by physicians leaving DHHA and the second was related to a patient complaint of alleged billing concerns. Both of the allegations were responded to promptly by the DPSQ with no further action required by The Joint Commission.

DHHA anticipated the tri-annual Joint Commission Hospital survey in early 2017.

15.4: Tracers

Tracers are a method to engage front line staff in order to prepare, educate, and encourage direct two-way communication concerning new quality of care initiatives, Joint Commission Standards, CMS or State Regulations. Tracer methodology is used to help us directly observe whether there is consistent provision of appropriate and safe access to care, treatment, and services. The Patient Safety and Quality Department conducts tracers and encourages nursing and ancillary leadership to conduct them as well.

Department of Patient Safety and Quality Tracers
In 2016, the DPSQ team continued efforts to conduct tracers:
- Exceeded the goal to conduct 30 tracers per month ending the year with a total of 417 completed tracers.
- Includes hospital inpatient units and clinics that are subject to the Hospital Accreditation Survey.
- On average, the team speaks to 1-3 staff members during the tracer which results in 800-1,000 interactions with staff about patient safety and quality.

Dissemination of DPSQ Tracer Information
Monthly Huddle Sheets identifying 1-2 areas of focus to managers:
- January: 7 Rights of Medication Adherence.
- February: Effective Communication and Privacy.

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- March: Escalation of Care and Rapid Response.
- April: Clean Work Environment.
- May: Communication with Patients and their Families.
- June: Culture of Safety.
- July: Scope of Practice.
- August: Suicide Risk and Screening.
- September: Critical Value Read Back.
- October: Environment of Care.
- November: Year in Review of Topics.

Data are displayed via graphs on Gemba Board in DPSQ. Manger feedback is provided when appropriate.

Mini-Tracers

Mini-tracers are subject specific with topics such as patient rights, plan of care, and universal protocol. They are intended to be quick tracers that frontline staff can perform and learn from. In 2016, the mini-tracers were edited and updated to reflect new standards and information. A mini-tracer challenge took place July-August 2016 and "Mini-Tracer Olympic" medals were warded as an incentive. In 2016, a total of 1,171 Mini-Tracers were documented which is more than double the total for 2015 (567).

Patient Safety Rounds

Patient Safety Rounds (PSR) were created to contribute to an environment that is safe for our patients, visitors, and staff. These rounds are generally completed by charge nurses.

Topics that are evaluated include monitoring of isolation signs, completion of white boards, medical equipment cleaning, staff knowledge of CAUTI, discharge planning, immunization status, hall egress evaluation, patient identification and hand hygiene. In 2016, staff participated in 785 Patient Safety Rounds.

15.5: Consent Revision Project

In 2016, DHHA extended the work from the previous year's revisions to Informed Consent documents for Surgery and Procedures. Revisions were made to service-specific specialty consents for procedures and surgery. Approximately 45 consents were revised and consolidated, which dramatically decreased the number of consents available for use. These new consent forms allow patients to have a better understanding of the surgery or procedure being considered. The forms were written at a 5th grade reading level and added service-specific anatomical pictures and prompts for the provider to ask the patient to "teach back" what they understand is going to occur. From a patient perspective, the form does a better job of guiding the critical conversation of informed consent between the provider and the patient. Patients have verbalized positive experiences with physicians while using this new form.

15.6: Environment of Care (EOC)

DHHA Environment of Care (EOC) Committee promotes an environment of care that is free of recognized hazards with the aim of reducing the risk of injury to DHHA patients, visitors, and staff and maintains Joint Commission compliance in three chapters: Environment of Care (EOC), Emergency Management (EM), and Life Safety (LS).

The EOC Committee addresses the standards in The Joint Commission (TJC) related to safety and security, hazardous materials and waste, fire safety, medical equipment, and utilities. Performance indicators and goals are set annually for each area. In 2016, 68%

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(13/19) of performance indicators were met. An EOC knowledge survey was sent to evaluate gaps in training and where to focus and prioritize strategies for 2017. In 2016, 62% (15/24) of the goals set were met. Multiple construction projects are underway throughout 2016 and will be ongoing into 2017. Daily focus is on patient safety and employee safety with continuous vigilance by facilities, security, EVS, and all construction workers.

15.7: Emergency Preparedness

The Emergency Operations Plan (EOP) outlines the response procedures for specific incidents with special attention to the Joint Commission's Six Critical Areas: Communication, Resources and Assets, Safety and Security, Staff Responsibilities, Utility Management, and Patient Care. The Emergency Operations Plan (EOP) is an "all-hazards" plan compliant with the National Incident Management System (NIMS). Several initiatives were undertaken and continued in Emergency Management in 2016. Annual updates were made to the EOPs for the main campus, ACS clinics, and Denver Health East Grand (DHEG).

Emergency Response Exercises and Drills
- Ambulatory Care Services conducted tornado drills at each of the nine community health centers.
- DHEG clinic and Emergency Center participated in a wind event exercise that caused a surge of patients to the clinic during a power outage in a short period of time.
- DHHA conducted two exercises for the required exercises in 2016.
    ◊ On January 21st, DHHA participated in a functional exercise with the CDPHE surrounding an outbreak of plague that placed staffing stress and supply shortages on the facility.
    ◊ On December 14th, the ED and DECC participated in full-scale active shooter drills where staff practiced their Run, Hide, Fight response to a shooter in the area. The staff also worked through the recovery from a shooting event in their area, including how to treat gunshot wound patients in the midst of a new crime scene.
- Beyond the two required drills/events, DHHA actively participated in, conducted, or responded to 38 drills/events. These events included:
    ◊ 4 Hospital Command Center set-up drills.
    ◊ 1 emergency credentialing exercise.
    ◊ 1 water outage to Pavilions B and C.
    ◊ 2 Code Pink drills.
    ◊ Tornado drills at all 9 community health clinics.
    ◊ 1 real world incident.
    ◊ 5 real world snow events, one of which required the activation of the Four Wheel Emergency Assistance Team.

DHHA also had several real-world events in 2016 that created opportunities for learning. Primary response events were:
- On January 30th, DHHA received a surge of patients from a shooting at a local motorcycle expo. The facility dealt with the surge while also being on a full-campus lockdown.
- The Hospital Command Center (HCC) was activated for several days to support the go-live of the new Electronic Medical Record, Epic. This provided the opportunity to practice shift changes in the HCC as well as how to provide the right level of support to an agency during planned outages.

15.8: Trauma Survey

DHHA has a focused Trauma Site survey in February. Two surgeons from the American College of Surgeons reviewed the DHHA process and focused on improvement initiatives. The surgeons found that DHHA had corrected previous deficiencies and were back on track without any deficiencies. The final outcome was that DHHA had successfully passed the site survey and remains accredited as an Adult Level 1 Trauma Center for the next two years.

APPENDIX A: GLOSSARY OF TERMS AND ABBREVIATIONS

A-B

ACS...Ambulatory Care Services
AHA...American Hospital Association
AHRQ...................Agency for Healthcare Research and Quality
AIU.................................Adoption, Implementation and Upgrade
AMA...American Medical Association
AMC...Academic Medical Center
AMI...Acute Myocardial Infarction
ARRA..........................American Recovery and Reinvestment Act
AS...Antimicrobial Stewardship
ATP...Adenosine Triphosphate
AUCC...Adult Urgent Care Center
AUR...Antibiotic Use and Resistance
BMI...Body Mass Index
BPA...Best Practice Alert

C

CABG...Coronary Artery Bypass Graft
CAD...Coronary Artery Disease
CAHPS.........Consumer Assessment of Healthcare Providers and Systems
CAUTI.....................Catheter-Associated Urinary Tract Infection
CCG...Clinical Care Guideline
CDC.....................Centers for Disease Control and Prevention
CDI...Clinical Documentation Integrity
CDI...*Clostridium difficile* Infection
CDS...Clinical Decision Support
CDI Team................Clinical Documentation Improvement Team
CDPHE....................Colorado Department of Public Health and Environment
CHA...Colorado Hospital Association
CHG...Chlorhexidine Gluconate
CJR.........................Comprehensive Care for Joint Replacement
CLABSI...............Central Line-Associated Blood Stream Infection
CMS................The Centers for Medicare and Medicaid Services
CNN...CMS Certification Number
COPD.........................Chronic Obstructive Pulmonary Disease
COR Zero.........................Cardiac or Respiratory Zero
COSH.........................Center for Occupational Safety & Health
CPOE.........................Computerized Physician Order Entry
CQM...Clinical Quality Measures
CSW...Clinical Social Worker
CT...Computerized Tomography
CY...Calendar Year

D

DHEG...Denver Health East Grand
DHHA.........................Denver Health and Hospital Authority
DPSQ.........................Department of Patient Safety and Quality
DRG...Diagnosis-Related Group

E

eCQM.........................Electronic Clinical Quality Measures
ED...Emergency Department
EH...Eligible Hospitals
EHR...Electronic Health Record
EOC...Environment of Care
EOP...Emergency Operations Plan
EP...Eligible Professional
EVS...Environmental Services

F

FFY...Federal Fiscal Year
FMEA.........................Failure Modes and Effects Analysis
FMT.........................Fecal Microbiota Transplantation

G-H

HAC...Hospital-Acquired Condition
HAI...Healthcare-Acquired Infections
HAI...Healthcare-Associated Infections
HAPI.........................Healthcare-Acquired Pressure Injuries
HBIPS...................Hospital-Based Inpatient Psychiatric Services
HCAHPS...............Hospital Consumer Assessment of Healthcare Providers and Systems
HCC.........................Hospital Command Center
HCPF................Colorado Department of Health Care Policy and Financing
HCW...Healthcare Workers
HDS...Hester Davis Scale
HEN.........................Hospital Engagement Network
HF...Heart Failure
HH...Hand Hygiene
HIT...Health Information Technology
H&P...History and Physical
HQIP.........................Hospital Quality Incentive Program
HVHC.........................High Value Healthcare Collaborative

I-L

ICON.........................Epic Infection Control Module
ICRA.........................Infection Control Risk Assessments
ICU...Intensive Care Unit
IMM...Immunization
IP...Infection Prevention
IPC.........................Infection Prevention Committee
IPPS.........................Inpatient Prospective Payment System
IPs...Infection Preventionists
IPFQR..........CMS Inpatient Psychiatric Facility Quality Reporting Program
IQR.........................Inpatient Quality Reporting
LS...Life Safety
LVSD.........................Left Ventricular Systolic Dysfunction

APPENDIX B: GLOSSARY OF TERMS AND ABBREVIATIONS

M

Medicare FFS...Medicare Fee-For-Service
MDRO..Multi-drug Resistant Organisms
MICU..Medical Intensive Care Unit
MRSA.....................Methicillin Resistant *Staphylococcus aureus*
MSEC..Medical Staff Executive Committee
MSPB...Medicare Spending Per Beneficiary
MIPS...............................Merit-Based Incentive Payment System
MU...Meaningful Use

N

NDNQI..............National Database of Nursing Quality Indicators
NETEC...................National Ebola Training and Education Center
NHSN....................................National Healthcare Safety Network
NICU..Neonatal Intensive Care Unit
NIMS...............................National Incident Management System
NORE............Nursing Outcomes, Research, and Evidence-Based
Practice Department

O

OPPE...................Ongoing Professional Performance Evaluation
OPPS.............................Outpatient Prospective Payment System
OQR.................................Hospital Outpatient Quality Reporting

P

PBX..Private Branch Executive
PC...Perinatal Care Conditions
PCORI................Patient-Centered Outcomes Research Institute
PCP..Primary Care Provider
PCR...Polymerase Chain Reaction
PCU...Progressive Care Unit
PFAC...Patient Family Advisory Council
PI...Performance Improvement
PM...Pain Management
PN..Pneumonia
POA..Present on Admission
PPE...Personal Protective Equipment
PP&G..Policy, Procedure, and Guideline
PQRS..Physician Quality Reporting System
PSQ..Patient Safety and Quality
PSI...AHRQ Patient Safety Indicator
PSR..Patient Safety Rounds
P&T...Pharmacy and Therapeutics
PY...Program Year

Q

Q&A...Quality and Accountability
QPP..Quality Payment Program
QRUR..Quality and Resource Use Report

R

RCCO.........................Regional Care Collaborative Organizations
RN..Registered Nurse
RNCC...Nurse Care Coordinator
RRT..Rapid Response Team

S

SAAR.....................Standardized Antibiotic Administration Ratio
SCIP...Surgical Care Improvement Project
SD...Standard Deviation
SEP...Severe Sepsis and Septic Shock
SEWS.......................................Standardized Early Warning Score
SICU..Surgical Intensive Care Unit
SIR.......................................Standardized Infection Ratio
SI...Safety Intelligence
SSI...Surgical Site Infection
SSO...Single Sign-On
STK...Stroke

T

THA/TKA...........................Total Hip and Total Knee Arthroplasty
TJC...The Joint Commission
TOB...Tobacco Use
t-PA... Tissue Plasminogen Activator
TPN..Total Parenteral Nutrition
TQIP...............................Trauma Quality Improvement Program
TST...Targeted Solutions Tool

U

UHC......................................University HealthSystem Consortium
UTI...Urinary Tract Infection

V-Z

VAP...Ventilator Associated Pneumonia
VBP............................Hospital Value-Based Purchasing Program
VLBW..Very Low Birth Weight
VM..Value-Based Payment Modifier
VON...Vermont Oxford Network
VRE...Vancomycin-resistant *enterococci*
VSA..Lean Value Stream Analysis
VTE...Venous Thromboembolism
WCC...Well-Child Check
WHO..World Health Organization
WQ...Work Queue

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