



2021 Denver Health Quality, Safety, and Service Annual Report



DENVER HEALTH™

est. 1860

FOR LIFE'S JOURNEY

DISCLAIMER

This report is provided pursuant to Denver Health's reporting responsibilities under its operating agreement with the City and County of Denver. This material is not intended to be used as advertising or promotional material and is not intended for consumers. This report, and the information contained herein, does not represent any promise to provide any specific level of service or quality of patient care in the future.

Nothing in this report is intended to waive any rights or privileges Denver Health has with respect to internal quality improvement information, data, records or reports which are protected from disclosure pursuant to state and federal law. Denver Health retains all rights and privileges provided by state and federal law.

To the Denver Healthcare Community

Our commitment to the communities we serve is to provide reliable high quality and safe care and outstanding service at every point of contact with Denver Health. To fulfill this commitment, we must continuously evaluate and improve our services. We are proud to present our 2021 Quality, Safety, and Service Annual Report. Our intent is to present a year-end summary of our quality, safety and service initiatives and associated outcomes as well as key results of publicly reported performance measures. As the local, regional, and national landscape of healthcare quality measurement becomes more complex, we hope this will be a resource to all who care to track Denver Health's successes and opportunities. In the spirit of our education mission, we hope it will serve as a valuable resource for both internal and external safety and quality measures. Most importantly, we hope the report will drive ongoing efforts to improve the value of the services we provide.

Department of Patient Safety and Quality Mission

To eliminate patient harm and maximize healthcare quality, value, and experience.

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.
3. Put patients, care partners, and staff at the center of everything we do.

EXECUTIVE SUMMARY

- While the COVID-19 pandemic continued to have an important influence on our quality and safety performance in 2021, we demonstrated significant improvement from 2020 in both Target Zero events and in the ambulatory bundle. Both measures achieved the targets we set for 2021.
- On the annual Vizient Quality and Accountability Study, Denver Health maintained its 4-star ranking among 117 similar institutions in the Large, Specialized Complex Care Medical Center peer group within the Vizient collaborative. This places Denver Health in the top 1/3 of this cohort across the domains of Safety, Mortality, Efficiency, Effectiveness, Patient Centeredness, and Equity.
- CMS HAC reduction program: For the third year in a row, DHHA avoided this program's ~\$400,000 penalty reflecting persistently low rates of hospital acquired conditions.
- For the 6th consecutive year of the CMS Readmissions Reduction Program, DHHA performed better than the mean and faces a small penalty that is 1/50th the maximum penalty under the program.
- Denver Health chose to enroll all of its eligible clinicians in the CMS Quality Payment Plan program via the Merit-based Incentive Payment System (MIPS). For every measurement category except promoting interoperability, the overall performance resulted in the maximum point allocation. The preliminary overall score qualifies Denver Health for the Exceptional Performance Bonus which will be determined in the summer of 2022.
- CMS Promoting Interoperability Program – for the quality and objective measures associated with the Medicaid provider program, DHHA received \$1,600,000 in payments in 2021 resulting in a cumulative award over the 10 years of this program of \$37,567,362 (includes both Medicare and Medicaid programs).
- For more than 5 consecutive years, Denver Health has maintained a rate of ZERO elective deliveries between 37 and 39 weeks gestation.
 - Resulting from focused process improvement work, 92% of inpatient psychiatric patients discharged on multiple anti-psychotics had appropriate justification documented in the medical record which was a substantial increase compared to prior years.
- In 2021, Denver Health was awarded the highest ever point total (84/100) and incentive payment (\$10,504,207) from Colorado's Hospital Quality Incentive Payment Program (HQIP) in the 8 years of the program's existence.
- A multifaceted intervention was developed that led to substantial reduction in excess durations of antibiotic therapy for children with acute otitis media.
 - A new ambulatory dashboard designed to display provider-specific antibiotic prescribing rates for respiratory infections among ambulatory patients was developed and deployed further validating Denver Health's designation as an Antibiotic Stewardship Center of Excellence by the Infection Diseases Society of America.
- Compared to national benchmark data in 2021, Denver Health continued to excel by prescribing many fewer antibiotics to hospitalized adults (20+% fewer) and children (40+% fewer).
- Hospitalized patients at Denver Health experienced record low numbers of hospital-acquired *Clostridioides difficile* (C. Diff) infections in 2021. For 3 quarters in 2021, C. Diff infections were significantly and substantially below expected, occurring at a rate less than half the national benchmark.
- On validated patient experience surveys following hospitalization at Denver Health, patient scores for overall hospital rating, nurse courtesy and respect, and doctor courtesy and respect all achieved the highest ranks in 4+ years at the 82nd, 62nd, and 79th percentiles respectively.
- Among 28 Colorado hospitals, Denver Health experienced the 4th lowest rate of inpatient falls per 1000 patient days in 2021.
- In 2021, Denver Health launched 2 important new inpatient dashboards designed to highlight areas of modifiable care variation: Clinical Equity Dashboard and Provider Scorecard.
- The Colorado Department of Public Health and Environment report on hospital acquired infections shows that Denver Health performed better than the national benchmark with 40% fewer hospital-acquired C. difficile infections for the two most recent consecutive years for which we have data (2019-2020).

TABLE OF CONTENTS

1. PUBLIC REPORTING & INCENTIVES

- 1.1. CMS Hospital Readmissions Reduction Program - FFY 2022.....11
- 1.2. CMS Hospital-Acquired Conditions Reduction Program (HACRP) - FY2022.....12
- 1.3. CMS Quality Payment Program (QPP) - FFY2023.....13-14
- 1.4. CMS Hospital Value-Based Purchasing Program (VBP) - FFY2022.....15-16
- 1.5. CMS Promoting Interoperability (PI) Programs.....17-18
- 1.6. CMS/The Joint Commission Clinical Quality Measures.....21-30
- 1.7. CMS Overall Hospital Quality Star Rating.....31
- 1.8. Hospital Transformation Program (HTP).....32
- 1.9. Hospital Quality Incentive Payment Program (HQIP).....33
- 1.10. The Leapfrog Group Hospital Safety Grade.....34
- 1.11. Colorado Department of Public Health and Environment (CDPHE).....35
- 1.12. The Federal Information Blocking Committee (FIBR).....36

2. NATIONAL COLLABORATIVES

- 2.1. Vizient Inpatient Quality and Accountability (Q&A) Scorecard.....37-39
- 2.2. Vizient Ambulatory Quality and Accountability (AQA) Scorecard.....40
- 2.3. Vermont Oxford Network (VON).....41
- 2.4. American College of Surgeons Trauma Quality Improvement Program (TQIP).....42-43

3. INPATIENT SAFETY & QUALITY INITIATIVES

- 3.1. Target Zero.....44-46
- 3.2. Pre-Procedure Dietary Orders.....47
- 3.3. Morning Lab Stewardship.....48-49
- 3.4. Zero Suicide Commitment50-51
- 3.5. COR Zero and ICU Transfers.....52
- 3.6. Procedural Sedation.....53
- 3.7. Diabetes Program.....54-55
- 3.8. Patient Flow Workgroups / Length of Stay.....56
- 3.9. Rapid Response System Redesign.....57
- 3.10. COVID-19 Pandemic.....58-59
- 3.11. Policy Management.....59
- 3.12. VTE Prophylaxis Taskforce.....60
- 3.13. Provider Scorecard.....61-64
- 3.14. Clinical Equity Dashboard.....65

4. INPATIENT NURSING SENSITIVE INDICATORS

- 4.1. National Database of Nursing Quality Indicators (NDNQI).....66
- 4.2. Healthcare-Acquired Pressure Injuries (HAPI).....66
- 4.3. Patient Falls.....67-69

5. OUTPATIENT SAFETY & QUALITY INITIATIVES

- 5.1. Ambulatory Care Services (ACS) Quality Improvement (QI) Committees.....70
- 5.2. ACS Strategic Clinical Performance Metrics.....70-74
- 5.3. During and Between Visit Interventions.....74-77
- 5.4. Addressing Disparities in ACS QI Metrics.....78-79

6. ACCREDITATION

- 6.1. Hospital Survey Joint Commission.....80
- 6.2. Accreditation Related Surveys.....80
- 6.3. 27/65 Behavioral Health Survey.....80
- 6.4. Environment of Care (EOC).....81-84
- 6.5. Emergency Management Program.....85-86

7. CLINICAL DOCUMENTATION INTEGRITY (CDI) QUALITY INITIATIVES

- 7.1. Patient Safety Indicators (PSIs) and Hospital Acquired Conditions (HACs).....87
- 7.2. Mortality Reviews.....88
- 7.3. Outpatient CDI Program.....89
- 7.4. Inpatient CDI Concurrent Reviews.....90

TABLE OF CONTENTS

8. CULTURE OF PATIENT SAFETY

- 8.1. Culture of Safety Decision Tree and Algorithm.....91-92
- 8.2. Safety Intelligence (SI) Reporting.....93
- 8.3. Culture of Safety Survey.....94
- 8.4. Team STEPPS.....95

9. PATIENT EXPERIENCE

- 9.1. Voice of the Customer.....96
- 9.2. Patient Family Advisory Council (PFAC).....97
- 9.3. Patient Advocates.....97
- 9.4. Complaint / Grievance Management.....97
- 9.5. Patient Rounding.....97
- 9.6. Communication with Care Partners.....98
- 9.7. Service Recovery.....98
- 9.8. Chaplain Support of Patients, Families, and Staff.....98
- 9.9. Measuring Patient Experience.....99-100
- 9.10. Patient Experience Dashboard.....101

10. INFECTION PREVENTION

- 10.1. Infection Prevention Goals 2021.....102
- 10.2. Improve Hand Hygiene Adherence.....102
- 10.3. Decrease the Rate of Device-Related Infections.....103-104
- 10.4. Decrease Surgical Site Infection (SSI) Rates.....105-106
- 10.5. Decrease Healthcare Transmission of Multi-drug Resistant Organisms (MDRO) and Ensure Containment of Organisms of Significance.....106-107
- 10.6. Collaboration with Center of Occupational Safety & Health (COSH) to Decrease Occupational Infection-Related Hazards.....107-108
- 10.7. Collaborate Closely with Environmental Services (EVS).....109
- 10.8. High-Risk Pathogen Preparedness.....109
- 10.9. Optimization of High-Level Disinfection (HLD).....109
- 10.10. Shared Medical Equipment Cleaning.....109

11. ANTIBIOTIC STEWARDSHIP

- 11.1. Optimizing Antibiotic Use.....110
- 11.2. Reduce Unnecessary Urine Cultures and Prevent Antibiotic Treatment of Asymptomatic Bacteriuria.....111
- 11.3. Evaluate the management of bloodstream infections caused by Gram-negative bacteria and develop an intervention to optimize therapy.....112
- 11.4. Develop an Ambulatory Care Antibiotic Utilization Surveillance Tool.....112
- 11.5. Provide Infectious Diseases and antibiotic stewardship expertise and leadership to assist the DHHA COVID-19 response.....112
- 11.6. Antibiotic Stewardship Program Academic Achievements.....113

12. APPENDIX

- 12.1. Appendix A: Glossary of Terms and Abbreviations
- 12.2. Appendix B: Contact Information and Acknowledgements

1. PUBLIC REPORTING & INCENTIVES

1.1. CMS Hospital Readmissions Reduction Program (HRRP)—FFY2022

The Affordable Care Act established the Hospital Readmissions Reduction Program requiring the Centers for Medicare and Medicaid 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. CMS implemented a socio-demographic status adjustment beginning in FFY 2019.

- 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.
- 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 frailty.
- Hospitals are grouped into quintiles based on their ratio of full-benefit dual eligible patients (Medicaid and Medicare) to total Medicare FFS and Medicare Advantage patients. Hospitals are compared to the condition-specific median excess ratio within their quintile.
- DHHA is in the quintile with the most dual eligible patients.
- Due to the Extraordinary Circumstances Exception (ECE) granted in response to the COVID-19 public health emergency, data from Q1 and Q2 2020 were excluded.
- **Financial Impact**
 - ◇ 3.0% maximum payment reduction, i.e. potential \$400,000 loss.
 - ◇ Reduction applies to the Base Operating DRG payment amount (including wage-adjustment and new technology amounts) for discharges of Medicare FFS patients.
 - ◇ DHHA will be penalized –0.06% for FFY 2021 discharges, which is estimated as a \$8,500 loss (Figure 1.1-1).
 - ◇ DHHA’s ranking improved to the best tercile.
- **PI Activities**
 - ◇ Enterprise-wide patient flow initiative with executive oversight targeting all aspects of patient flow.
 - ◇ A Readmission Reduction Committee was initiated in 2021 with Lean events and disease-specific workgroups to improve our discharge process and thereby prevent readmissions.

Figure 1.1-1: CMS Hospital Readmissions Reduction Program FFY 2022*

Condition**	Number of Eligible Discharges	Readmission Rate	Excess Readmission Ratio	Penalty
Acute Myocardial Infarction (AMI)	28	25.0%	1.0507	Yes
Chronic Obstructive Pulmonary Disease (COPD)	43	20.9%	0.9900	No
Heart Failure (HF)	56	28.6%	1.0262	Yes
Pneumonia (PN)	53	11.3%	0.9475	No
Estimated Financial Impact			- \$8500	



* Performance Period 7/1/17-12/31/19

** Total Hip or Knee Arthroplasty and Coronary Artery Bypass Graft Surgery are excluded because fewer than 25 eligible discharges

Figure 1.1-2: DHHA 5-Year Performance on CMS Hospital Readmissions Reduction Program

Condition	Penalty				
	FFY 2018	FFY 2019	FFY 2020	FFY 2021	FFY 2022
Acute Myocardial Infarction	Yes	Yes	Yes	Yes	Yes
Chronic Obstructive Pulmonary Disease	No	No	No	No	No
Heart Failure	No	No	No	Yes	Yes
Pneumonia	No	Yes	No	No	No
Denver Health Penalty	-0.02%	-0.05%	-0.09%	-0.11%	-0.06%

Abbreviation: FFY, Federal Fiscal Year

1.2. CMS Hospital-Acquired Conditions Reduction Program (HACRP) —FFY 2022

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 ranking 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 Hospital Compare website. Due to the impacts of the COVID-19 Public Health Emergency, CMS is excluding all CY 2020 data from future HACRP scoring calculations. In addition, CMS will continue to use any HAI data that hospitals optionally submitted for Q4 2019.

Measures

- ◇ Healthcare-Associated Infections (HAI): HAIs are identified by the Infection Prevention department through chart-abstracted surveillance data and reported to the Centers for Disease Control and Prevention (CDC) National Healthcare Safety Network (NHSN). Standardized infection ratios (SIRs) provide risk-adjustment at hospital- and patient-care unit levels.
- ◇ Agency for Healthcare Research and Quality (AHRQ) Patient Safety and Adverse Events Composite (PSI-90): weighted average of the risk- and reliability-adjusted versions of 10 Patient Safety Indicators (PSIs). Figure 1.2-1 lists the PSIs in this PSI-90 measure. AHRQ v11.0 used for the FFY 2022 program.

Figure 1.2-1: AHRQ Patient Safety and Adverse Events Composite Measure (PSI-90)

PSI 03—Pressure Ulcer Rate	PSI 11—Postoperative Respiratory Failure Rate
PSI 06—Iatrogenic Pneumothorax Rate	PSI 12—Periop Pulmonary Embolism or Deep Vein Thrombosis Rate
PSI 08—In-Hospital Fall with Hip Fracture Rate	PSI 13—Postoperative Sepsis Rate
PSI 09—Perioperative Hemorrhage or Hematoma Rate	PSI 14—Postoperative Wound Dehiscence Rate
PSI 10—Postoperative Acute Kidney Injury Requiring Dialysis Rate	PSI 15—Unrecognized Abdominopelvic Accidental Puncture/Laceration Rate

Financial Impact

- ◇ 1% maximum payment reduction in FFY 2022 if total HAC Score is worse than 75th percentile, i.e. potential \$300,000 loss for DHHA.
- ◇ 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.
- ◇ DHHA was not in the worst quartile and therefore was not penalized (Figure 1.2-2).
- ◇ DHHA has not been penalized for three years (Figure 1.2-3).

PI Activities

- ◇ For efforts to reduce PSIs, see the Clinical Documentation Integrity section of this report.
- ◇ For efforts to reduce HAIs, see the Infection Prevention section of this report.

Figure 1.2-2: CMS Hospital-Acquired Conditions Reduction Program FFY 2021

Measure	Result	Contribution to Total HAC Score
AHRQ PSI 90 Composite*	0.898	-0.1119
Central Line-Associated Bloodstream Infection (CLABSI) SIR [†]	0.457	-0.0653
Catheter-Associated Urinary Tract Infection (CAUTI) SIR [†]	1.536	0.2786
Surgical Site Infection - colon and abdominal hysterectomy SIR [†]	0.775	-0.0077
Methicillin-resistant <i>Staphylococcus aureus</i> (MRSA) bacteremia SIR [†]	0.588	-0.0579
<i>Clostridioides difficile</i> infections (CDI) SIR [†]	0.573	0.0164
Total HAC Score		0.0523

* Performance period 7/1/18—12/31/19

† Performance period 1/1/19—12/31/19



Payment Reduction Threshold ≥ 0.2998

Figure 1.2-3: HACRP Financial Impact

Program Year	Subject to 1% Payment Reduction	Financial Impact
FFY 2015	No	\$0
FFY 2016	Yes	-\$295,053
FFY 2017	Yes	-\$296,679
FFY 2018	Yes	-\$300,621
FFY 2019	Yes	-\$308,138
FFY 2020	No	\$0
FFY 2021	No	\$0
FFY 2022	No	\$0

1.3. CMS Quality Payment Program (QPP)—FFY 2023

In January 2017, CMS implemented the Quality Payment Program (QPP) to reward high value, high quality Medicare clinicians with payment increases while simultaneously reducing payments to clinicians with subpar performance. Clinicians may participate in QPP via the Merit-based Incentive Payment System (MIPS) or Advanced Alternative Payment Models (APMs). As a large enterprise with a single Medicare Tax Identification Number (TIN), DHHA chose to participate in MIPS as a group practice. DHHA is considered non-patient facing for QPP because at least 75% of the eligible clinicians (ECs) billing under the group's TIN had less than 200 Medicare Fee for Service (FFS) patient facing encounters in the performance period. DHHA is also considered a facility-based group because at least 75% of the ECs furnished at least 75% of their covered professional services in an inpatient hospital, outpatient hospital, or emergency room. This program is based on Medicare Part B professional services paid under the Physician Fee Schedule (PFS).

The QPP program is evolving every year and a few of the major changes are shown below (Figure 1.3-1). The performance and exceptional performance thresholds have increased annually. Starting in reporting year 2022, the quality and cost categories will be equally weighted. Immunization and Electronic Case Reporting registries will be mandatory. Hospitals will attest to conducting an annual assessment of the High Priority Guide from the Safety Assurance Factors for EHR Resilience Guides (SAFER). CMS continued to double the complex patient bonus due to direct and indirect effects of the COVID-19 Public Health Emergency (PHE).

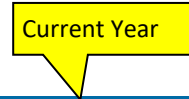


Figure 1.3-1: CMS Quality Payment Program Major Changes by Program Year

	Year 3 Reporting Year 2019 Payment Year 2021	Year 4 RY 2020 PY 2022	Year 5 RY 2021 PY 2023	Year 6 RY 2022 PY 2024
Eligible Clinicians	Physician, Physician Assistant, Nurse Practitioner, Clinical Nurse Specialist, Certified Registered Nurse Anesthetist, Physical Therapist, Chiropractor, Occupational Therapist, Speech-Language Pathologist, Audiologist, Clinical Psychologist, Registered Dietician			Prior clinicians + Clinical Social Workers and Certified Nurse Midwives
Low-Volume Threshold Exclusion Medicare Part B professional charges Medicare Part B beneficiaries Medicare Part B professional services	≤ \$90,000 charges or ≤ 200 beneficiaries or ≤ 200 services	Same	Same	Same
Performance Threshold	30 points	45 points	60 points	75 points
Exceptional Performance Threshold	75 points	85 points	Same	89 points
Performance Payment Adjustment	- 7% up to + 7% x scaling factor (SF)*	- 9% up to + 9% x SF*	Same	Same
Exceptional Performance Payment Adjustment	0.5% up to +10% x scaling factor (SF)*	Same	Same	Same
Category Weights				
Quality	45%	Same	40%	30%
Promoting Interoperability	25%		25%	25%
Improvement Activities	15%		15%	15%
Cost	15%		20%	30%
Promoting Interoperability	<ul style="list-style-type: none"> 2 of 4 registries 	Same	Same	<ul style="list-style-type: none"> Immunization and Electronic Case Reporting registries SAFER Guides
Improvement Activities	Only 1 EC needs to perform the activity	≥ 50% ECs perform activity	Same	Same
Measures for Cost Performance Category	<ul style="list-style-type: none"> Medicare Spending per Beneficiary Total per Capita Cost 8 Episode-based Cost measures 	10 additional Episode-based Cost measures	Same	5 additional Episode-based Cost measures
Complex Patient Bonus	Up to 5 points	Up to 10 points	Up to 10 points	Up to 10 points

* Scaling factor to achieve budget neutrality: not to exceed 3 for Performance and not to exceed 1 for Exceptional Performance

1.3. CMS Quality Payment Program (QPP)—FFY 2023

DHHA has preliminarily received 86.7 of 100 points, without accounting for up to 20 points in the Cost Category (Figure 1.3-2). Q1 2021 was reported for Promoting Interoperability and all other domains were for CY 2021. The Cost Performance Category results will be released by CMS in the summer of 2022. The preliminary score qualifies DHHA for the Exceptional Performance Bonus.

Financial Impact

- Between -9.0% and 27% payment adjustment (based on the scaling factor) will be applied to all Medicare Part B allowed charges for professional services paid under PFS for FY 2023.

Figure 1.3-2: CMS Quality Payment Program Reporting Year 2021 —Denver Health Group Practice Submission

Quality (40%)				
Quality ID	Measure	Denver Health	Performance + Bonus Points*	Category Score [†]
305	Initiation and Engagement of Alcohol and Other Drug Dependence Treatment	8.1%	10 + 1 ^H + 1 ^E	68.2 achieved = 60 possible 1.14*40 weight = 45.5 → 40 max 40 points
065	Appropriate Treatment for Children with Upper Respiratory Infection	98.1%	9.56 + 1 ^H + 1 ^E	
239	Weight Assessment & Counseling for Nutrition and Physical Activity for Children & Adolescents	78.7%	10 + 1 ^E	
379	Primary Caries: Prevention Intervention as Offered by Primary Care Providers & Dentists	26.9%	10 + 1 ^E	
310	Chlamydia Screening for Women	65.4%	9.93 + 1 ^E	
001	Diabetes: Hemoglobin A1c Poor Control (>9%)	36.4%	6.70 + 1 ^E	
066	Appropriate Testing for Children with Pharyngitis	68.9%	1 ^H	
191	Cataracts: 20/40 or Better Visual Acuity within 90 Days Following Cataract Surgery	95.5%	2 ^H	
236	Controlling High Blood Pressure	55.5%	1 ^H	
Promoting Interoperability (25%)				
Measure	DHHA	Points	Category Score	
Complete a Security Risk Analysis	Yes	n/a		87 achieved = 100 possible 87%*25 weight = 21.75 points
Electronic Prescribing	97.6%	10 / 10		
Query of Prescription Drug Monitoring Program (bonus points)	Yes	10 / 0		
Support Electronic Referral Loops by Sending Health Information	49.1%	10 / 20		
Clinical Information Reconciliation	57.5%	12 / 20		
Provide Patients Electronic Access to Their Health Information	88.1%	35 / 40		
Public Health and Clinical Data Exchange: active engagement with two registries	Yes	10 / 10		
Improvement Activities (15%)				
Improvement Activity	Priority	Points	Category Score	
Participation in CAPHS or Other Supplemental Questionnaire	High	40		140 achieved = 40 possible 3.5*15 weight = 52.5 → 15 max 15 points
FQHC Quality Improvement Activities	High	40		
Population Empanelment	Medium	20		
Practice Improvements for Bilateral Exchange of Patient Information	Medium	20		
Use of Telehealth Services that Expand Practice Access	Medium	20		
Cost (20%)				
Measure	DHHA	Points	Category Score	
Medicare Spending per Beneficiary	TBD	TBD		TBD with max score of 20
Total per Capita Cost	TBD	TBD		
Episode-Based Cost Measures	TBD	TBD		
Additional Bonus for Complex Patients	yes	9.92	9.92	
OVERALL SCORE = (40 + 21.75 + 15 + cost score + 9.7 bonus) / 100 = 89.7 plus up to 20 cost points				

* Performance points are based on the benchmark deciles with the best decile receiving 10 points. ^E End-to-End electronic reporting. ^H High Priority Measure. Only the top six measures are included in the performance points.

[†] Performance and Bonus points are capped at 100%

1.4. CMS Hospital Value-Based Purchasing (VBP) Program —FFY 2022

In October 2012, Medicare began incentivizing hospitals to provide high-quality care through the Hospital Value-Based Purchasing (VBP) Program. Incentive payments are based on either how well the hospital performs on each measure compared to other hospitals during a baseline period or how much the hospital improves its performance on each measure compared to its performance during the baseline period. CMS determined that circumstances caused by the COVID-19 Public Health Emergency significantly affected hospital acquired infections, patient experience and Medicare spending. Thus, CMS suppressed these measures during the reporting period so there were not enough data to award a Total Performance Score. Instead, CMS reimbursed hospitals for their original 2% payment reduction. Next year, the Modified AHRQ PSI-90 (Patient Safety & Adverse Event Composite) will return to the VBP program.

Financial Impact

- ◇ Payment reduction applies to the Base Operating Diagnosis Related Group (DRG) payment amount for Medicare FFS discharges.
- ◇ 2% payment withholding with the ability to earn back up to 3% based on performance.
- ◇ DHHA will be reimbursed its 2.0% and CMS will not provide incentive payments this year due to the COVID-19 PHE. (Figure 1.4-1).

Figure 1.4-1: CMS Hospital Value-Based Purchasing Program - FFY 2022

Clinical Outcomes Domain** Data Source: CMS Claims	Baseline Rate	Performance Rate	Achievement Threshold	Points	Domain Points
Acute Myocardial Infarction 30-Day Mortality Rate	0.870	0.884	0.862	10 (A) / 9 (I)	N/A*
Chronic Obstructive Pulmonary Disease 30-Day Mortality Rate	0.931	0.928	0.920	5 (A)	
Heart Failure 30-Day Mortality Rate	0.885	0.878	0.880	0	
Pneumonia 30-Day Mortality Rate	0.848	0.869	0.836	9 (A&I)	
Person and Community Engagement Domain Data Source: HCAHPS	Baseline Rate (CY 2018)	Performance Rate (CY 2020)	Achievement Threshold	Points	Domain Points
Communication with Nurses	75.6%	76.2%	79.2%	n/a*	N/A*
Communication with Doctors	75.4%	77.8%	79.7%	n/a*	
Responsiveness of Hospital Staff	62.2%	60.8%	66.0%	n/a*	
Communication about Medicines	63.6%	62.9%	64.6%	n/a*	
Hospital Cleanliness and Quietness	59.6%	59.6%	65.5%	n/a*	
Discharge Information	86.9%	84.5%	87.1%	n/a*	
Care Transition	46.4%	44.3%	51.7%	n/a*	
Overall Rating of Hospital	72.1%	70.3%	71.4%	n/a*	
HCAHPS Consistency	--	--	--	n/a*	
Safety Domain Data Source: CDC NHSN Standardized Infection Ratio	Baseline Rate (CY 2018)	Performance Rate (CY 2020)	Achievement Threshold	Points	Domain Points
Catheter-Associated Urinary Tract Infection	0.414	1.700	0.727	n/a*	N/A*
Central Line-Associated Blood Stream Infection	0.952	0.508	0.633	n/a*	
<i>Clostridioides difficile</i> Infection	0.851	0.621	0.646	n/a*	
Methicillin-Resistant <i>Staphylococcus aureus</i> Bacteremia	0.365	0.611	0.748	n/a*	
Surgical Site Infection—Colon Surgery	0.965	0.457	0.749	n/a*	
Efficiency and Cost Reduction Domain Data Source: CMS Claims	Baseline Rate (CY 2018)	Performance Rate (CY 2020)	Achievement Threshold	Points	Domain Points
Medicare Spending per Beneficiary	0.945	0.933	0.993	n/a*	N/A*
OVERALL SCORE = N/A*					

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

Minimal volume threshold not met for CABG mortality, total knee/hip arthroplasty complications, and abdominal hysterectomy SSI

* Not applicable due to the COVID-19 public health emergency

** Baseline periods: AMI, HF, COPD 7/1/12 - 6/30/15; PN 7/12/12 - 6/30/15. Performance periods: AMI, HF, COPD 7/1/17 - 12/31/19; PN 9/1/17 - 6/30/20

1.4. CMS Hospital Value-Based Purchasing (VBP) Program —FFY 2022

In order to determine if DHHA has improved its value-based care, a hospital's Total Performance Score should be compared to state and national results. CMS has added, removed, and updated measures annually so a hospital cannot directly compare its performance year over year. In addition, CMS applies an automatic reduction to the Base Operating DRG payments to finance the VBP program and the reduction increased over the first five years of the program making it difficult to directly compare the financial impact.

Figure 1.4-2 shows DHHA's performance compared to the Colorado and national average scores. As mentioned previously, CMS did not calculate Total Performance Scores due to the impact of the COVID-19 Public Health Emergency. Therefore, CMS will reimburse hospitals for the original 2% withheld and there will be no incentive payments (Figure 1.4-3).

Figure 1.4-2: CMS Hospital Value-Based Purchasing Program—Denver Health Compared to Colorado and National Averages

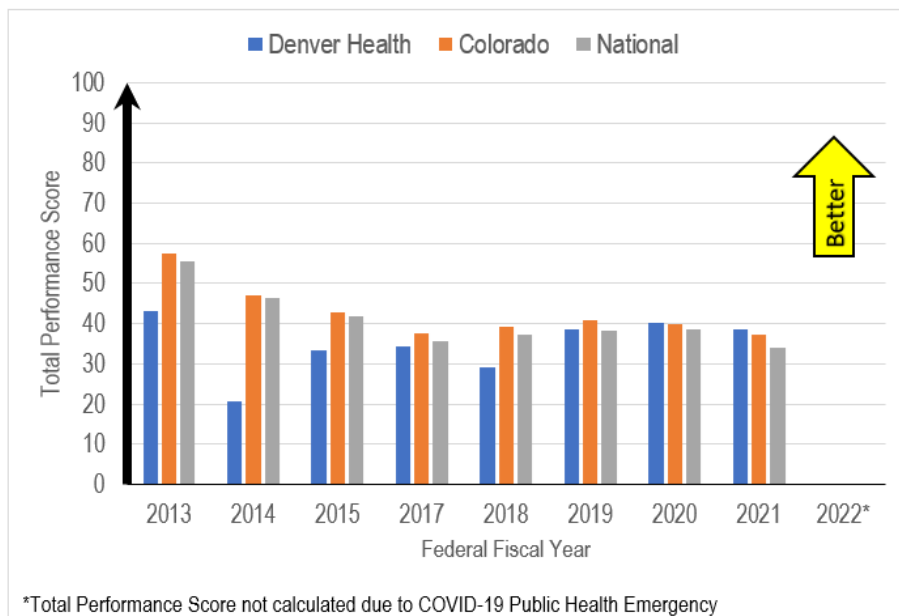


Figure 1.4-3: CMS Hospital Value-Based Purchasing Summary

Reporting Year	Base Operating DRG Payments			Financial Impact
	Automatic Reduction	DHHA Earned Back	DHHA Net Change	DHHA
FFY 2013	- 1.00%	0.793%	- 0.207%	- \$34,417
FFY 2014	- 1.25%	0.538%	- 0.712%	- \$107,256
FFY 2015	- 1.50%	1.297%	- 0.203%	- \$29,688
FFY 2016	- 1.75%	1.225%	- 0.525%	- \$74,583
FFY 2017	- 2.00%	2.104%	0.104%	\$15,443
FFY 2018	- 2.00%	1.687%	- 0.313%	- \$44,336
FFY 2019	- 2.00%	2.200%	0.200%	\$27,000
FFY 2020	-2.00%	2.266%	0.266%	\$36,715
FFY 2021	-2.00%	2.478%	0.478%	\$70,000*
FFY 2022	-2.00%	n/a	n/a	n/a

* Estimated

1.5 CMS Promoting Interoperability (PI) Programs

The American Recovery and Reinvestment Act (ARRA) of 2009 established incentive payments to eligible hospitals (EHs) and eligible providers (EPs) to promote the adoption and meaningful use (MU) of interoperable health information technology (HIT) and qualified electronic health records (EHRs). In 2018, CMS changed the program’s name from EHR Incentive to Promoting Interoperability (PI).

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 vs. EPs and for Medicare vs. Medicaid.

Hospitals can participate in both the Medicare and Medicaid programs. Medicare encouraged hospitals by offering incentive payments for participation and penalized those hospitals that did not submit data. Beginning in program year 2017, Medicare stopped providing incentive payments. Medicaid encouraged hospitals by providing incentive payments for the first three years of participation. DHHA currently only participates in the Medicare EH program because there are no penalties or remaining incentives with Medicaid. The final year of this Medicaid program is 2021.

In comparison, providers were required to select either the Medicare or Medicaid program (depending on their patient population). When possible, DHHA selected Medicaid for EPs because it provided incentive payments for participation whereas Medicare only penalized for lack of participation. DHHA’s EPs could successfully demonstrate meaningful use to Medicare or Medicaid for the first time in 2016. In prior years, the EPs had only been able to show “adoption, implementation and upgrade.” The final year of this Medicaid program is 2021.

■ Financial Impact

- ◇ DHHA has received incentive payments of \$37.6 million from the Promoting Interoperability Program, with \$11.9 million for the Eligible Hospital program and \$25.66 million for the Eligible Provider program (Figure 1.5-1).
- ◇ DHHA has avoided Medicare payment reductions of over \$4.4 million by participating in both the hospital and provider versions of the Promoting Interoperability Programs.
- ◇ If DHHA decides not to participate in the Eligible Hospital program in the future or fails to meet the requirements, there would be an approximately \$530,000 penalty yearly.

Figure 1.5-1: EHR Incentive / Promoting Interoperability Payments by Program Year

Program Year	Eligible Hospital (EH)		Eligible Provider (EP)	
	Medicare	Medicaid	Medicare	Medicaid
2012	\$0	\$4,501,504	n/a	\$4,632,500
2013	\$1,155,115	\$3,601,203	n/a	\$0
2014	\$916,026	\$900,301	n/a	\$2,231,250
2015	\$602,916	n/a	n/a	\$913,750
2016	\$233,047	n/a	n/a	\$5,682,250
2017	n/a	n/a	n/a	\$2,550,000
2018	n/a	n/a	n/a	\$2,320,500
2019	n/a	n/a	n/a	\$2,881,500
2020	n/a	n/a	n/a	\$2,847,500
2021	n/a	n/a	n/a	\$1,598,000
Total Payment	\$2,907,104	\$9,003,008	n/a	\$25,657,250
Total Payment by Program	\$11,910,112		\$25,657,250	
Overall Financial Impact	\$37,567,362			

1.5. CMS Promoting Interoperability (PI) Programs

Medicare Eligible Hospital Promoting Interoperability Program

DHHA’s hospital successfully participated in the Medicare Promoting Interoperability Program in 2021. A minimum total score of 50 points was required to successfully pass the program and avoid a penalty. Performance on the objective measures is shown in Figure 1.5-2. The clinical quality measures are discussed in Section 1.6 (CMS/The Joint Commission Clinical Quality Measures) and performance is shown in Figure 1.6-1.

Figure 1.5-2: Medicare Eligible Hospital Promoting Interoperability Program Objectives and Measures for 2021

Objective	Measure	DHHA Performance*	DHHA Points
Electronic Prescribing	E-Prescribing of Discharge Prescriptions	81.1% (10,906 / 13,440)	13 of 10
	Query of Prescription Drug Monitoring Program (Bonus 5 points)	Yes	
Health Information Exchange	Support Electronic Referral Loops by Sending Health Information — create a summary of care record and electronically exchange the record for transitions of care or referrals outside the system	20.8% (494 / 2380)	7 of 40
	Support Electronic Referral Loops by Receiving and Incorporating Health Information — conduct clinical information reconciliation for medication, medication allergy, and current problem list for transitions of care, referrals into the system, or new patients	13.4% (544 / 4072)	
Provider to Patient Exchange	Provide Patients Electronic Access to Their Health Information — Provide timely access to health information to view online, download and transmit to a third party and to access using an application of the patient’s choice	96.7% (5895 / 6095)	39 of 40
Public Health and Clinical Data Exchange	Choose two of the following options: a) Immunization Registry Reporting (bidirectional) b) Syndromic Surveillance Reporting (urgent care setting) c) Electronic Case Reporting d) Public Health Registry Reporting e) Clinical Data Registry Reporting f) Electronic Reportable Laboratory Result Reporting	a) Colorado Immunization Information System e) Vizient Clinical Data Base and Clinical Practice	10 of 10

*Reporting period is Quarter 3 2021.

69 points achieved so passed the program

■ PI Activity

- ◇ Enterprise-wide effort to encourage patients to sign up for MyChart and access their health information.
- ◇ Communication to the medical staff from the Chief Quality Officer and Chief Medical Information Officer about the importance of clinical information reconciliation and tip sheets on how to complete the process.
- ◇ The Epic team created a report for Registration staff that lists patients whose PCP field was left blank during the intake process. Feedback is provided to individual clerks on their performance.

■ Program Changes

- ◇ The electronic clinical quality measure “Safe Use of Opioids—Concurrent Prescribing” (NQF #3316e) will be mandatory in CY 2022 in addition to three self-selected eCQMs.
- ◇ The reporting period for eCQMs will be three calendar quarters in 2022 and the full year in 2023.
- ◇ Hospitals will need to attest to completing an annual self-assessment of all nine SAFER Guides.
- ◇ The reporting period for Objective measures will remain 90 days during 2022 and 2023 and then increase to 180 days in 2024.
- ◇ The minimum score required to pass PI increases from 50 points to 60 points in 2022.
- ◇ Hospitals must be active in four registries by the beginning of their 2022 reporting period, i.e. Syndromic Surveillance, Immunization Registry, Electronic Cases, and Electronic Reportable Laboratory Results.

1.5. CMS Promoting Interoperability (PI) Programs Medicaid Eligible Provider EHR Incentive Program

The Department of Health Care Policy and Financing (HCPF) manages Colorado’s Medicaid program and it decided not to change the name of the EHR Incentive Program. Per CMS regulations, all payments for this program must occur by December 30, 2021 so payments for the final two years of this program occurred the same year. For each provider, a 90-day period was identified where the EP met the thresholds of all objective measures. Six eQMs which are related to the EP’s scope of practice were submitted. Figure 1.5-3 shows the percentage of providers compliant with each objective measure. Figure 1.5-4 shows the percentage of patients or encounters passing each quality measure during Q1 2021.

For program year 2021, 188 providers passed the objective measures and met the 30% Medicaid patient volume threshold plus the 10% ambulatory encounter requirement. This resulted in incentive payments of \$1,598,000. Overall, 189 providers successfully completed the six-year program generating the full incentive payment of \$63,750 per provider.

Figure 1.5-3: Medicaid Eligible Provider EHR Incentive Program Objective Measures

Objectives	Measures	Threshold	Program Year 2021 Compliant Providers
Protect Patient Health Information	Conduct a security risk analysis	Yes	100% (221/221)
Clinical Decision Support (CDS)	Implement CDS Interventions	5 CDS	100% (221/221)
	Implement Drug-Drug & Drug-Allergy Checks	Yes	100% (221/221)
Computerized Provider Order Entry (CPOE)	Medication orders using CPOE	>60% orders	100% (221/221)
	Laboratory orders using CPOE	>60% orders	100% (221/221)
	Diagnostic imaging orders using CPOE	>60% orders	99% (218/221)
Electronic Prescribing	Prescriptions queried for a drug formulary and transmitted electronically	>60% prescriptions	100% (221/221)
Patient Electronic Access to Health Information	Provide timely access for patient to view online, download, and transmit his or her health information, and allow patient to access the data using any application meeting the technical specifications of the Application Programming Interface (API)	>80% patients	99% (219/221)
	Provide patient-specific educational resources electronically	>35% patients	100% (221/221)
Coordination of Care through Patient Engagement (must meet 2 of 3 measures)	Patients view, download, or transmit to a third party their health information or access information through application chosen by patient and configured to API	>5% patients	100% (221/221)
	Secure message sent to patient	>5% patients	100% (221/221)
	Patient generated health data or data from non-clinical setting incorporated into certified electronic health record (EHR)	>5% patients	100% (221/221)
Health Information Exchange (must meet 2 of 3 measures)	Electronically transmit summary of care record to receiving provider of transfer or referral (minimum 100 transfers/referrals)	>50% transfers/referrals	All excluded
	Incorporate electronic summary of care into EHR for transfers, referrals, or new patients	>40% transfers/referrals/new patients	100% (221/221)
	Clinical information reconciliation (medications, medication allergies, problem list) for transfers, referrals, or new patients	>80% transfers/referrals/new patients	85% (188/221)
Public Health and Clinical Data Registry Reporting	Active engagement in registry reporting, including Immunization registry (bidirectional), Syndromic surveillance, Electronic case reports, Public Health registry, or Clinical data registry	2 registries	100% (221/221)

*Preliminary results based on 10/1/2020—12/31/2020.

■ PI Activity

- ◇ List of providers failing measures reported at Pay for Performance Committee. Chief Quality Officer and Chief Medical Information Officer contacted these providers to promote improvement.
- ◇ Enterprise-wide effort to encourage patients to sign up for MyChart and access their information
- ◇ In July 2021, Epic improved the clinical reconciliation process so that when a medication is on a patient’s chart and an external organization sends a similar medication, the system auto discards if a different dose.
- ◇ Patients can now immediately access any data that is part of the US Core Data for Interoperability (USCDI) v1 categories (see Federal Information Blocking section for more information).

1.5. CMS Promoting Interoperability (PI) Programs Medicaid Eligible Provider EHR Incentive Program

Figure 1.5-4: Medicaid Eligible Provider EHR Incentive Program Clinical Quality Measures for Quarter 4 2021 Encounters

Domain	CMS ID	Measure Name	Numerator	Denominator	Compliance
Efficiency and Cost Reduction	146	Appropriate Testing for Children with Pharyngitis	127	201	63%
	154	Appropriate Treatment for Children with Upper Respiratory Infection	3800	3883	98%
Patient Safety	68	Documentation of Current Medications in the Medical Record	114,051	143,648	79%
	156	Use of High-Risk Medications in the Elderly	743	7191	10%
Community and Population Health	138	Tobacco Use: Tobacco Screening	30,931	32,109	96%
		Tobacco Use: Cessation Intervention for Tobacco Users	3908	5371	73%
		Tobacco Use: Tobacco Screening and Cessation Intervention for Tobacco Users	29,486	32,109	92%
	147	Influenza Immunization	28,957	46,177	63%
	153	Chlamydia Screening: Women 16-20 years of age	2229	2901	77%
		Chlamydia Screening: Women 21-24 years of age	1560	2255	69%
	155	Weight Assessment & Counseling: Age 3-11 years old—BMI Percentile, Height, & Weight	9909	11,169	89%
		Weight Assessment & Counseling: Age 3-11 years old—Counseling for Nutrition	8965	11,169	80%
		Weight Assessment & Counseling: Age 3-11 years old—Counseling for Physical Activity	8832	11,169	79%
		Weight Assessment & Counseling: Age 12-17 years old—BMI Percentile, Height, & Weight	6130	7002	88%
		Weight Assessment & Counseling: Age 12-17 years old—Counseling for Nutrition	5004	7002	71%
		Weight Assessment & Counseling: Age 12-17 years old—Counseling for Physical Activity	4950	7002	71%
Effective Clinical Care	74	Primary Caries Prevention Intervention: 0-5 years old	5641	8067	70%
		Primary Caries Prevention Intervention: 6-12 years old	2274	9073	25%
		Primary Caries Prevention Intervention: 13-20 years old	1016	10,903	9%
	75	Children Who Have Dental Decay or Cavities	1779	3713	48%
	122	Diabetes Hemoglobin A1C Poor Control	2451	8028	31%
	125	Breast Cancer Screening	5697	9245	62%
	130	Colorectal Cancer Screening	9816	18,291	54%
	134	Diabetes: Medical Attention for Nephropathy	7389	8028	92%
		Initiation/Engagement of Alcohol & Drug Dependence Treatment: Ages 13-17, initiated treatment	26	89	29%
	137	Initiation/Engagement of Alcohol & Drug Dependence Treatment: Ages 13-17, multiple services	5	89	6%
		Initiation/Engagement of Alcohol & Drug Dependence Treatment: Ages 18 & older, initiated treatment	433	2536	17%
		Initiation/Engagement of Alcohol & Drug Dependence Treatment: Ages 18 & older, multiple services	104	2536	4%
	144	Heart Failure: Beta-Blocker Therapy for Left Ventricular Systolic Dysfunction	35	38	92%
	165	Controlling High Blood Pressure	8312	14,440	58%

■ PI Activity

- ◇ See Section 5 (Outpatient Safety and Quality Initiatives) for detailed information

1.6. CMS/The Joint Commission Clinical Quality Measures 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.

The FFY 2023 payment determination is based on the CY 2021 reporting period. There were 25 measures (2 chart-abstracted, 10 claims-based, 2 NHSN, 1 web-based, 1 patient experience survey, and 9 electronic). CMS mandated hospitals report at least four of the eight electronic clinical quality measures (eCQMs) that align with the Medicare Promoting Interoperability Program. CMS incorporated three new measures in 2021: COVID-19 Vaccination Coverage Among Health Care Personnel, Safe Use of Opioids—Current Prescribing, and Maternal Morbidity Structural measure and removed Complication Rate Following Elective Primary Total Hip and/or Total Knee Arthroplasty. As shown in Figure 1.6-1, DHHA submitted cases from Q3 and Q4 2021 for six eCQMs.

CMS conducts validation studies of chart-abstracted process measure sets, Healthcare-Associated Infection (HAI) measures, and eCQMs. Hospitals can be randomly selected or specifically targeted based on failing last year's validation study. If a hospital fails validation (<75% agreement), it loses the annual market basket update. DHHA was randomly selected for the FFY 2023 IQR Inpatient Data Validation program and received a 100% validation score.

Program Changes

- ◇ CY 2022: Safe Use of Opioids is a mandatory eCQM. Hospitals will self-select three additional eCQMs.
- ◇ CY 2023: Two new eCQMs available related to harm for severe hypoglycemia and hyperglycemia.
- ◇ CY 2024: Three eCQMs removed: PC-05, ED-2, and STK-6
- ◇ The reporting period for eCQMs increases by an additional self-selected quarter each year, i.e. one self-selected quarter in CY 2020 up to a full year in CY 2023.
- ◇ Hybrid Hospital Wide Readmission (HWR) and Hybrid Hospital-Wide All-Cause Risk Standardized Mortality (Hybrid HWM) will be optional in CY 2022 and mandatory in CY 2023.
- ◇ Hospitals selected for validation studies will submit both chart-abstracted measures and eCQMs.

The Joint Commission ORYX Initiative

The Joint Commission's (TJC) ORYX initiative integrates outcomes and other performance measures into the accreditation process. TJC requires four perinatal care measures (PC-01, PC-02, PC-05, and PC-06) and at least four eCQMs. Chart-abstracted measures are reported for the entire year whereas the eCQM measures are reported for at least two self-selected quarters. DHHA submitted the same six eCQMs to TJC and CMS (Figure 1.6-1). Hospitals that fail to participate will lose their accreditation.

Figure 1.6-1: Electronic Clinical Quality Measures

Measure ID	Electronic Clinical Quality Measure	Program Year 2021*
ePC-05	Exclusive Breast Milk Feeding	46% (642/1385)
eSTK-2	Discharged on Antithrombotic Therapy	95% (42/44)
eSTK-3	Anticoagulation Therapy for Atrial Fibrillation or Flutter	100% (6/6)
eSTK-6	Stroke Patients Discharged on Statin Medication	95% (40/42)
eVTE-1	Venous Thromboembolism Prophylaxis for Non-Intensive Care Unit Patients	93% (3327/3566)
eVTE-2	Venous Thromboembolism Prophylaxis for Intensive Care Units Patients	99% (1237/1255)

* Reporting period is Quarter 3 and Quarter 4 2021

Program Changes

- ◇ CY 2022: TJC is adding an eCQM for severe obstetric complications (ePC-07). For any or all of the chart-abstracted Perinatal Care measures, hospitals may submit a minimum of three quarters of eCQM data instead of four quarters of the corresponding chart-abstracted measure.
- ◇ DHHA will transition from manual abstraction to electronic measures for the perinatal care measures in 2022.
- ◇ Similar to CMS, the reporting period for eCQMs increases by one self-selected quarter per year.

1.6. CMS/The Joint Commission Clinical Quality Measures Hospital Inpatient

Severe Sepsis and Septic Shock (SEP)

Severe Sepsis and Septic Shock Management Bundle (SEP-1) was a mandatory chart-abstracted measure in 2021 for the CMS IQR program and publicly reported on Hospital Compare. CMS plans to monitor compliance on this measure in a pay-for-performance program at a future date.

2021 Results (Figures 1.6-2, 1.6-3, and 1.6-4)

- ◇ 35% of patients passed all applicable measure components in the Sepsis Composite.
- ◇ 92% of patients meeting severe sepsis criteria received antibiotics between 24 hours prior through 3 hours after meeting criteria, exceeding DHHA's stretch goal of 90%.
- ◇ Blood cultures before antibiotics improved from 82% in 2020 to 91% in 2021 thereby exceeding DH's stretch goal of 90%.
- ◇ Fluid resuscitation remains a challenging goal with only 50% compliance.
- ◇ The component that continues to be primarily missed in the 6 Hour Bundle is remeasure lactate if initial lactate is greater than 2.0 with only 64% compliance.

Figure 1.6-2: Early Management Bundle: Severe Sepsis / Septic Shock (SEP-1)

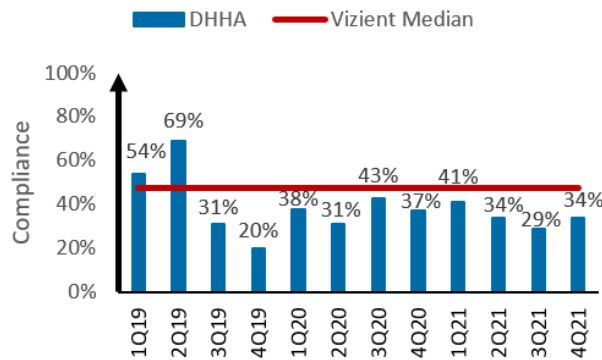
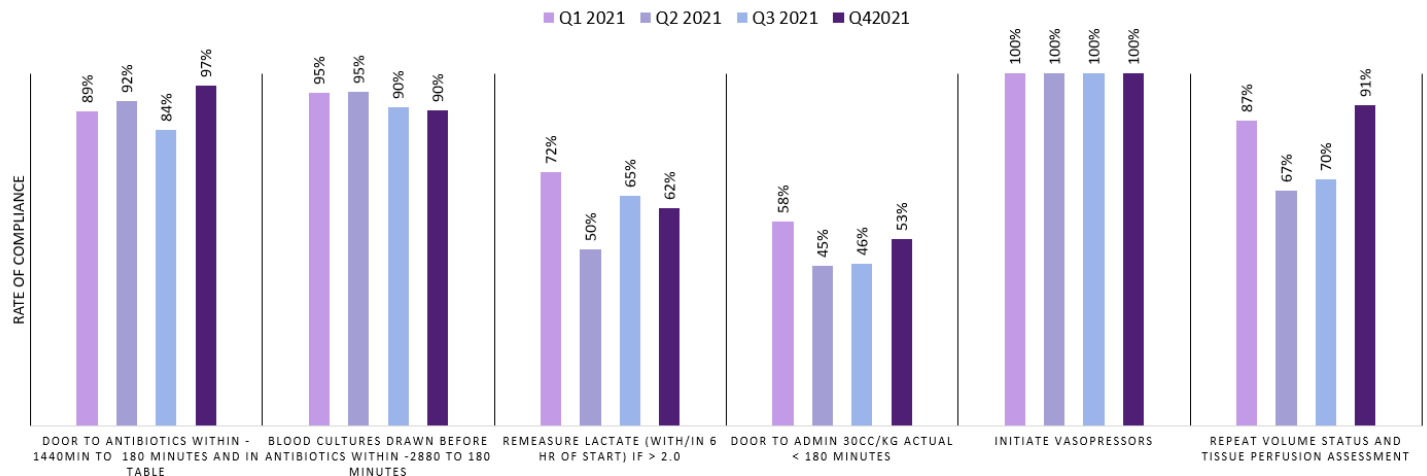


Figure 1.6-3: Denver Health Compliance with Early Management Bundle: Severe Sepsis / Septic Shock (SEP-1)

BUNDLE	MEASURE	TARGET GOAL	STRETCH GOAL	2020 DHHA COMPLIANCE	2021 DHHA COMPLIANCE
3 HOUR BUNDLE	Initial lactate drawn between 6 hours prior through 3 hours after meeting severe sepsis criteria	90%	100%	93%	94%
	Blood cultures drawn between 48 hours prior through 3 hours after meeting severe sepsis criteria	85%	90%	82%	91%
	Antibiotics administered between 24 hours prior through 3 hours after meeting severe sepsis criteria	85%	90%	93%	92%
	Fluid resuscitation (30 cc/kg) administered within 3 hours of initial hypotension or septic shock presentation	70%	75%	67%	50%
6 HOUR BUNDLE	Re-measure lactate (if initial lactate >2.0) within 6 hours of meeting severe sepsis criteria	70%	75%	64%	64%
	Vasopressors given within 6 hours of septic shock presentation if persistent hypotension after fluid bolus	50%	70%	50%	100%
	Physical reassessment after fluid resuscitation started and within 6 hours of septic shock presentation	70%	80%	76%	78%
OVERALL		50%	70%	38%	35%

Below Target Goal	Between Target and Stretch Goals	Above Stretch Goal
-------------------	----------------------------------	--------------------

Figure 1.6-4: DHHA SEP-1 Bundle Components Compliance



PI Activity

- Real time screens of Septic Shock cases in the Emergency Department were sent monthly to Emergency Department Leadership.
- Attending Physicians in the Emergency Department are held accountable for the care of Septic Shock patients via the Ongoing Professional Performance Evaluation (OPPE) process.
- Monthly and continuous education is provided to Medical Intensive Care Unit (MICU) residents and interns on documentation of the physical reassessment, remeasure lactate, diagnosis documentation and sepsis alert process.
- Sepsis screening was implemented for Rapid Response events with a plan to create a standing order for suspected sepsis.
- The initiative, “Revamp of Sepsis,” was started in late 2021 for the emergency department and acute care areas. Revamp of Sepsis discussions included Epic optimizations including BestPractice Advisories, care pathways, and order sets to help guide providers in the care of patients with sepsis.
- Collaborated with the Epic team, Quality and Laboratory services to build and implement a process for a reflex lactate order. This will be an automatic remeasure lactate order based on vital signs and previous initial lactate orders greater than 2.0 mmol/L.
- Developed Epic SmartPhrases to document when 30 cc/kg fluid resuscitation would be detrimental to the patient due to a history of heart failure, end stage renal disease, or morbid obesity.

Future Steps

- In 2022, Epic optimizations will be considered to help screen, document, and provide timely care for suspected sepsis in the inpatient and emergency department settings.

1.6. CMS/The Joint Commission Clinical Quality Measures Hospital Inpatient

Perinatal Care Conditions (PC)

PC-01 was a mandatory chart-abstracted measure in 2020 for the CMS IQR program.

Perinatal Care measure set (PC-01, PC-02, PC-05, and PC-06) must be chart-abstracted for TJC 2020 ORYX program. Quarterly results for the prior three years are displayed in Figures 1.6-5 to 1.6-8.

2021 Results

- ◇ 0% of pregnant women had an elective delivery between 37 and 39 weeks gestation (PC-01).
- ◇ 24% of nulliparous women with a term baby in a vertex position were delivered by cesarean section (PC-02).
- ◇ 51% of full term newborns were exclusively fed breast milk during the inpatient stay following birth (PC-05).
- ◇ 3% of full term newborns with no pre-existing conditions had unexpected complications (PC-06).

Figure 1.6-5: Pregnant Women with Elective Delivery between 37 and 39 Weeks Gestation (PC-01)

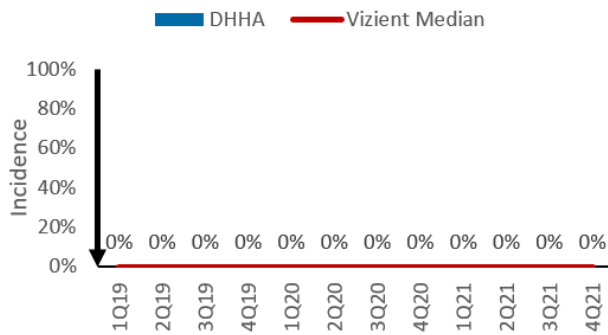


Figure 1.6-6: Nulliparous Women with Term Baby in Vertex Position Delivered by Cesarean Section (PC-02)

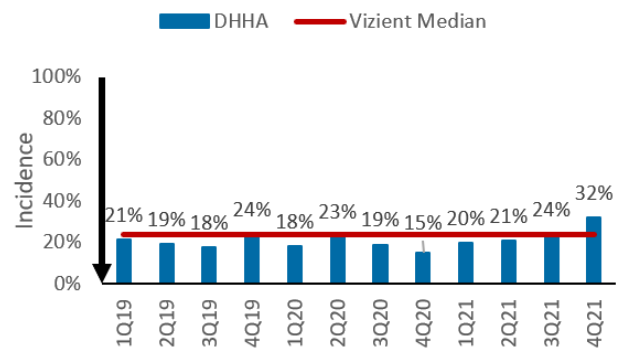


Figure 1.6-7: Exclusive Breast Milk Feeding of Full Term Newborns (PC-05)

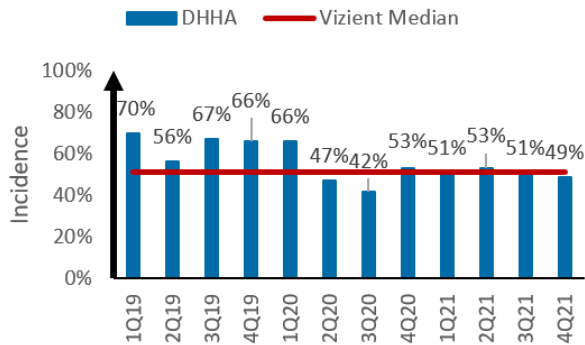
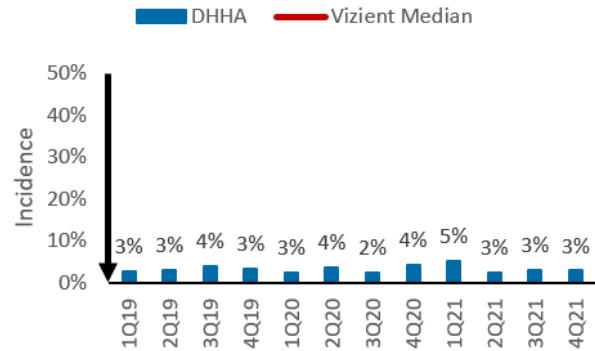


Figure 1.6-8: Unexpected Complications in Full Term Newborns with No Pre-Existing Conditions (PC-06)



PI Activity

- ◇ Exclusive breast milk feeding results are reviewed monthly at the Breast Feeding Council.

1.6. CMS/The Joint Commission Clinical Quality Measures 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 2021 program year (CY 2023 payment determination, there were 14 measures (4 chart-abstracted, 3 web-based, and 7 claims-based).

DHHA was not randomly selected by CMS for Outpatient Data Validation for the CY 2023 annual payment update determination. Hospitals that fail validation (<75% agreement) will lose the annual market basket update.

Chart Abstracted Measures

These measures are based on care in the Emergency Department (ED) so they will be described along with the inpatient ED CQMs in the Emergency Department CQM section of this report.

Claims-Based Measures

These measures are based on Medicare FFS claims. They are all reverse measures, i.e. lower scores indicate better performance. Denver Health providers ordered contrast for abdominal Computed Tomography (CT) scans 32% less often than the national average. Nationally, 4% of non-cardiac low-risk surgeries had an unnecessary cardiac image to access preoperative risk whereas DHHA did not perform any of these cardiac images. (Figure 1.6-9).

Figure 1.6-9: CMS Hospital Outpatient Quality Reporting Program: Claims-Based Measures

ID	Measure	DHHA	National	Encounters
OP-10	Abdomen Computed Tomography (CT) — Use of Contrast Material	1.3%	1.9%	7/1/19-12/31/19
OP-13	Cardiac Imaging for preoperative risk assessment for non-cardiac low-risk surgery	0%	4.1%	7/1/19-12/31/19
OP-32	7-Day Risk-Standardized Visit Rate after Outpatient Colonoscopy	1.49	1.39	1/1/18—12/31/20
OP-39	Breast Cancer Screening Recall Rates	tbd	tbd	7/1/20—6/30/21

*Minimum volume thresholds not met due to shortened time period to account for COVID pandemic. This impacted the following measures: OP-8 Magnetic Resonance Imaging (MRI) Scan of Lumbar Spine for Lower Back Pain, OP-35 Admissions and ED Visits for Patients Receiving Outpatient Chemotherapy, OP-36 Hospital Visits After Hospital Outpatient Surgery

Web-Based Measures

These measures are submitted annually. ED Patient Left Without Being Seen (OP-22) is reported in the ED CQM section. DHHA had perfect compliance in 2021 for the appropriate follow-up interval for normal colonoscopies compared to a national rate of 90% (Figure 1.6-10).

Figure 1.6-10: CMS Hospital Outpatient Quality Reporting Program: Web-Based Measures

ID	Measure	DHHA				
		2017	2018	2019	2020	2021
OP-29	Appropriate Follow-up Interval for Normal Colonoscopy in Average Risk Patients	100%	98%	100%	100%	100%

Program Changes

- ◇ CY 2022: COVID-19 Vaccination Coverage Among Health Care Personnel (OP-38) added to program.
- ◇ CY 2023: Two measures retired (OP-2 Fibrinolytic Therapy with 30 Minutes of Arrival, OP-3 Median Time to Transfer to Another Facility for Acute Coronary Intervention). Two new voluntary measures (OP-37 Outpatient and Ambulatory Surgery CAHPS, eOP-40 ST-Segment Elevation Myocardial Infarction).
- ◇ CY 2024: OP-37 and OP-40 become mandatory.
- ◇ CY 2025: OP-31 Improvement in Patient’s Visual Function within 90 Days Following Cataract Surgery becomes mandatory.

1.6. CMS/The 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 Inpatient Quality Reporting or Outpatient Quality Reporting programs 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. The Joint Commission only monitors the inpatient ED measures. Results are displayed in Figures 1.6-11 to 1.6-13.

2021 Results

- ◇ 234 minutes was the median time from ED arrival to ED departure for patients discharged from the ED (OP-18b).
- ◇ 40% of stroke patients had a head CT or MRI scan interpreted within 45 minutes of ED arrival (OP-23).

Figure 1.6-11: Arrival to Departure Minutes (OP-18)

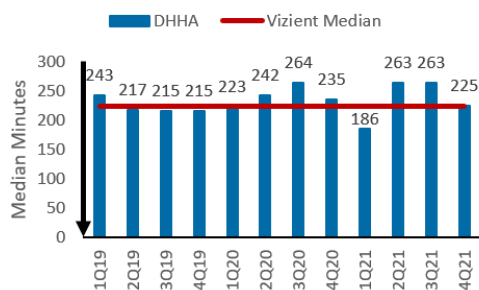
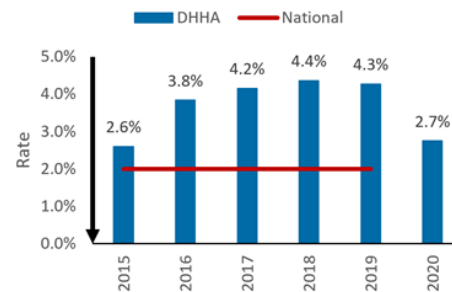
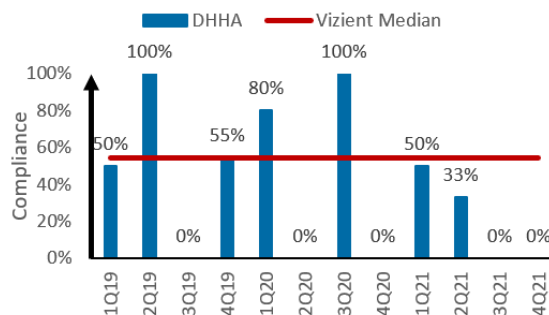


Figure 1.6-12: Left ED Without Being Seen (OP-22)*



* 2021 data not yet available

Figure 1.6-13: Stroke CT or MRI Interpretation within 45 minutes (OP-23)



PI Activity

- ◇ Provided data for stroke imaging studies to Neurology providers and ED nursing leadership.
- ◇ Stroke review and enhancements of care to be established in 2022.

1.6. CMS/The Joint Commission Clinical Quality Measures CMS Inpatient Psychiatric 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. Inpatient Psychiatric Facilities (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 14 measures and 4 sub-measures for the FFY 2022 payment determination. Quarterly results for the prior three years are shown in Figures 1.6-14 to 1.6-24.

Alcohol Use (IPF-SUB)

2021 Results

- ◇ 89% of psychiatric inpatients who screened positive for unhealthy alcohol use, alcohol abuse, or alcohol dependence were offered a brief intervention during the hospital stay (IPF-SUB-2).
- ◇ 75% of psychiatric inpatients who screened positive for unhealthy alcohol use, alcohol abuse, or alcohol dependence received a brief intervention during the hospital stay (IPF-SUB-2a).
- ◇ 83% of psychiatric inpatients who screened positive for unhealthy alcohol use or other drug use disorder were offered treatment at discharge (IPF-SUB-3).
- ◇ 65% of psychiatric inpatients who screened positive for unhealthy alcohol use or other drug use disorder received treatment at discharge (IPF-SUB-3a).

Figure 1.6-14: Brief Intervention Offered in Hospital Stay (IPF-SUB-2)

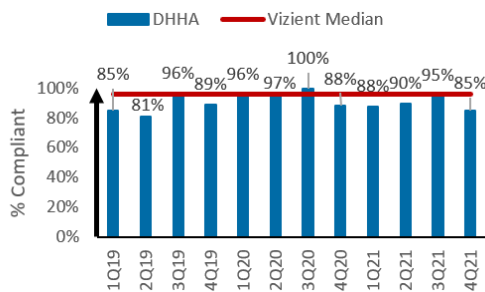


Figure 1.6-15: Brief Intervention Received in Hospital Stay (IPF-SUB-2a)

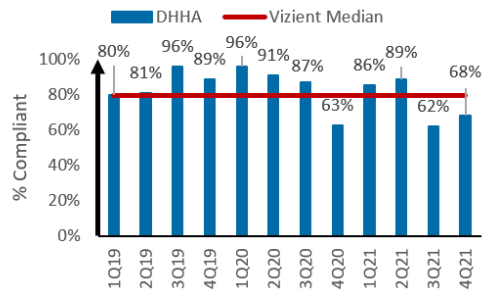


Figure 1.6-16: Alcohol and Other Drug Use Disorder Treatment Offered at Discharge (IPF-SUB-3)

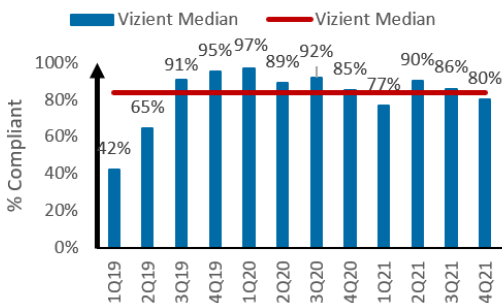
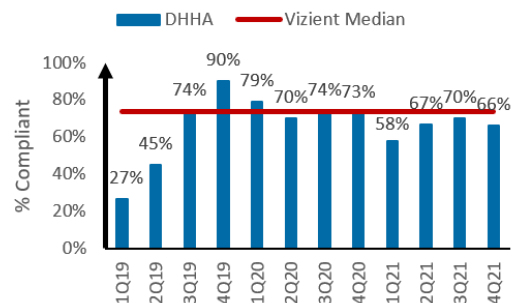


Figure 1.6-17: Alcohol and Other Drug Use Disorder Treatment Provided at Discharge (IPF-SUB-3a)



PI Activity

- ◇ To continue to make improvements as well as to maintain gains, failures are shared with staff in a timely manner, aggregate data is shared regularly, and quarterly quality meetings provide oversight.

1.6. CMS/The Joint Commission Clinical Quality Measures CMS Inpatient Psychiatric Quality Reporting (IPFQR) Program

Tobacco Use (IPF-TOB)

■ 2021 Results

- ◇ 93% of psychiatric inpatients who used tobacco within the past 30 days were offered cessation counseling and tobacco cessation medication during the hospital stay (IPF-TOB-2).
- ◇ 17% of psychiatric inpatients who used tobacco within the past 30 days received cessation counseling and tobacco cessation medication during the hospital stay (IPF-TOB-2a).
- ◇ 38% of psychiatric inpatients who used tobacco within the past 30 days were offered an outpatient counseling referral and tobacco cessation medication at discharge (IPF-TOB-3).
- ◇ 18% of psychiatric inpatients who used tobacco within the past 30 days received an outpatient counseling referral and tobacco cessation medication at discharge (IPF-TOB-3a).

Figure 1.6-18: Tobacco Use Treatment Offered in Hospital Stay (IPF-TOB-2)

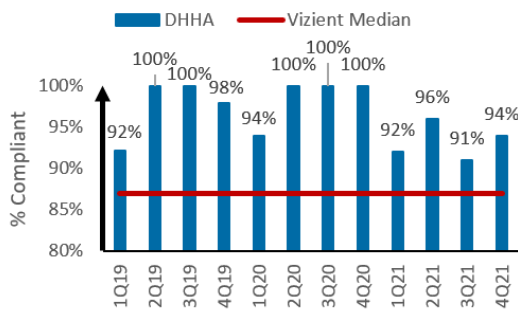


Figure 1.6-19: Tobacco Use Treatment Received in Hospital Stay (IPF-TOB-2a)

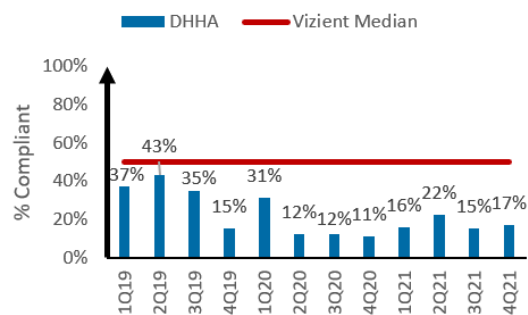


Figure 1.6-20: Tobacco Use Treatment Offered at Discharge (IPF-TOB-3)

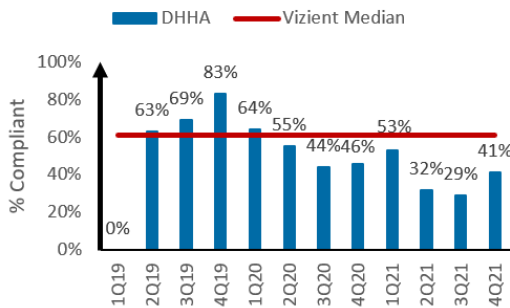
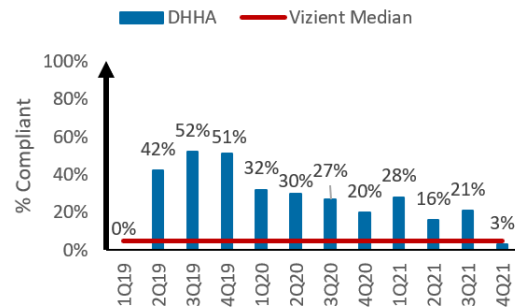


Figure 1.6-21: Tobacco Use Treatment Provided at Discharge (IPF-TOB-3a)



■ PI Activity

- ◇ Measure performance is shared regularly with the Behavioral Health division and discussed quarterly at quality meetings.
- ◇ Failures are shared with staff in a timely manner so the staff recognize where an opportunity was missed.

1.6. CMS/The Joint Commission Clinical Quality Measures CMS Inpatient Psychiatric Quality Reporting (IPFQR) Program

Hospital-Based Inpatient Psychiatric Services (HBIPS)

■ 2021 Results

- ◇ 0.38 hours of physical restraint usage per 1,000 patient hours (HBIPS-2).
- ◇ 0.42 hours of seclusion used per 1,000 patient hours (HBIPS-3).
- ◇ 92% of patients discharged on multiple antipsychotics had appropriate justification documented (HBIPS-5a).

Figure 1.6-22: Physical restraint rate (HBIPS-2a)

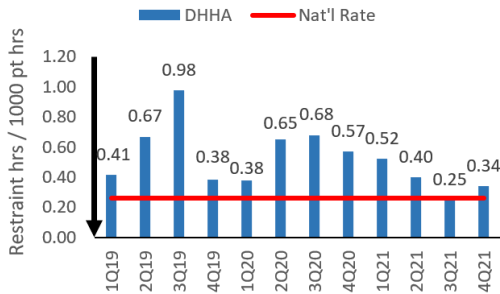


Figure 1.6-23: Seclusion rate (HBIPS-3a)

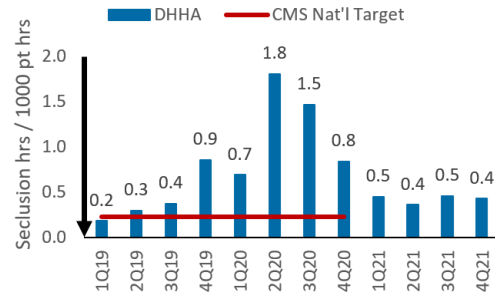
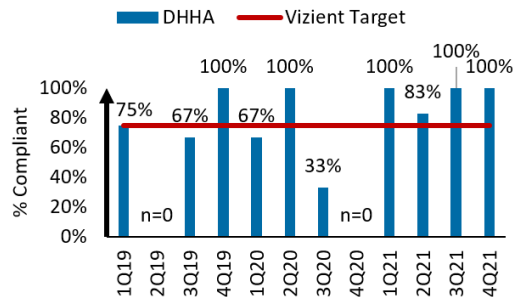


Figure 1.6-24: Discharged with Multiple Antipsychotics Justified (HBIPS-5a)



■ PI Activity

- ◇ Results discussed quarterly with Behavioral Health team.
- ◇ Unit managers notified of outlier restraint/seclusion cases for additional review.
- ◇ 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. This improvement accounted for a 49% increase in HBIPS-5a from 2020 to 2021.
- ◇ Realtime feedback process was developed for learning and ongoing improvement.

Influenza Immunization (IPF-IMM-2)

- ◇ 100% of psychiatric inpatients received their influenza immunization in 1st quarter 2021
- ◇ 99% of psychiatric inpatients received their influenza immunization in 4th quarter 2021

■ PI Activity

- ◇ DPSQ staff reviewed all discharges within the previous 24 hours for missed documentation on vaccine status. The discharging unit nurse manager and clinical nurse educator were apprised of the missed opportunity. Feedback was provided for unit staff education. If appropriate, retrospective documentation was facilitated.

1.6. CMS/The Joint Commission Clinical Quality Measures CMS Inpatient Psychiatric Quality Reporting (IPFQR) Program

Transitions of Care (IPF-TTR) and Screening for Metabolic Disorders (IPF-SMD)

2021 Results

- ◇ 92% of psychiatric inpatients received their transition record with the 11 mandatory elements (IPF-TTR-1).
- ◇ 83% of psychiatric inpatients received their transition record within 24 hours of discharge (IPF-TTR-2).
- ◇ 85% of patients discharged with at least one routinely scheduled antipsychotic medication received a metabolic screening in the 12 months prior to the discharge or during the inpatient psychiatric stay (IPF-SMD-1).

Figure 1.6-25: Transition Record with Specified Elements Received by Discharged Patients (IPF-TTR-1)

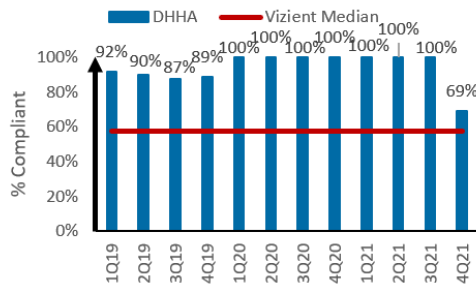


Figure 1.6-26: Timely Transmission of Transition Record (IPF-TTR-2)

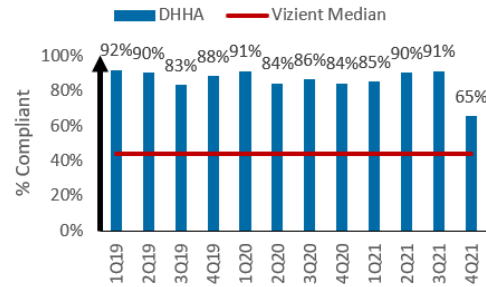
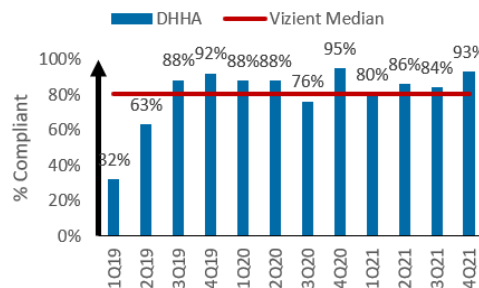


Figure 1.6-27: Screening for Metabolic Disorders (IPF-SMD-1)



PI Activity:

- ◇ A multidisciplinary committee is developing standard work to ensure advanced directive elements appear appropriately on the transition record.
- ◇ Failures are shared with staff in a timely manner which helps to identify potential issues sooner.
- ◇ Aggregate data is shared regularly, and quarterly quality meetings were established for oversight.

Claims-Based Measures

Higher rates for Follow-up After Hospitalization and Medication Continuation indicates better performance whereas lower rates for Unplanned Readmission indicates better performance. DHHA performed better than the national rate for medication continuation after psychiatric discharge (79.8% vs. 73.1%, respectively) (Figure 1.6-28). Follow-up within 30 days after a behavioral health admission increased from 36% in 2020 to 43% in 2021.

Figure 1.6-28: CMS Inpatient Psychiatric Facility Quality Reporting Program: Claims-Based Measures

Measure ID	Measure	DHHA	National Rate
FUH-30	Follow-Up within 30 Days After Hospitalization for Mental Illness*	42.6%	49.5%
FUH-7	Follow-Up within 7 Days After Hospitalization for Mental Illness*	19.7%	27.9%
READM-30-IPF	30-Day All-Cause Unplanned Readmission Following Hospitalization in an Inpatient Psychiatric Facility**	23.1%	20.2%
n/a	Medication Continuation Following Inpatient Psychiatric Discharge†	79.8%	73.1%

* Encounters from 07/01/2019 - 12/31/2019

** Based on index discharges from 07/01/2019 - 12/31/2019

† Encounters from 7/1/2018—12/31/2019

1.7. CMS Overall Hospital Quality Star Rating

CMS developed the Overall Hospital Star Ratings in response to consumer and patient feedback that information displayed on *Hospital Compare* was difficult to understand. Existing quality measurements were aggregated into a 5-star rating system. CMS was unable to maintain quarterly releases due to methodology concerns. The 2021 release replaced the latent variable model with the arithmetic mean, added peer groups, and retired 25% of the measures.

DHHA has achieved a 3-Star rating since 2019 (Figure 1.7-1) and performed similar to other hospitals in the nation on many domains (Figure 1.7-2). The next release of the Overall Hospital Star Ratings is expected in July 2022.

Figure 1.7-1: CMS Overall Hospital Star Rating

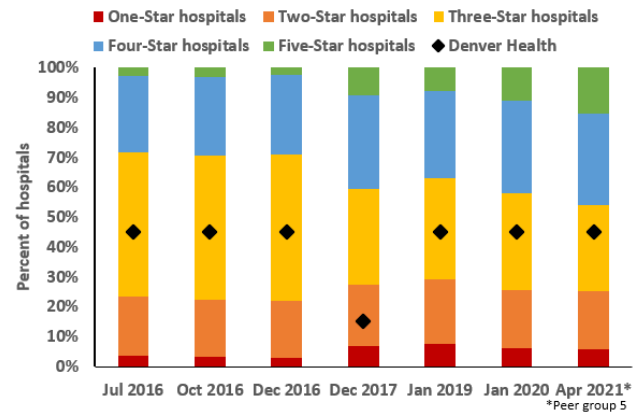


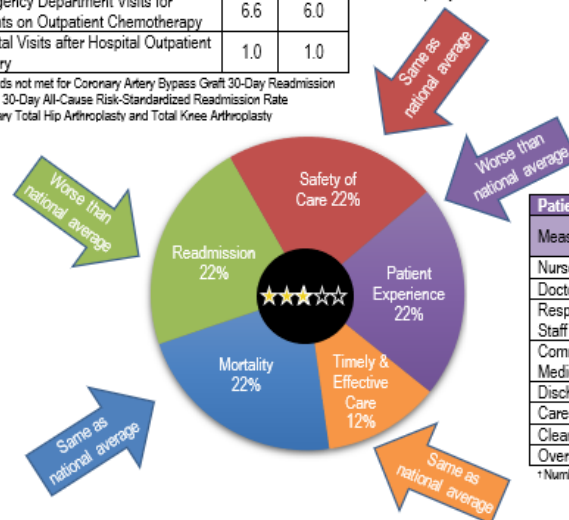
Figure 1.7-2: Overall Hospital Star Rating for Denver Health—April 2021

Readmission*			
Measure ID	Measure Description	DHHA Result	National Rate
READM-30-COPD	30-Day Readmission Rate: COPD	18.8%	19.6%
READM-30-HOSP-WIDE	Hospital-Wide All-Cause Unplanned Readmission	15.2%	15.5%
EDAC-30-AMI	Excess Days in Acute Care after Hospitalization for AMI	5.9	6.3
EDAC-30-HF	Excess Days in Acute Care after Hospitalization for Heart Failure	50.4	4.2
EDAC-30-PN	Excess Days in Acute Care after Hospitalization for Pneumonia	-4.1	4.8
OP-32	7-Day Hospital Visit Rate after Outpatient Colonoscopy	16.7	16.5
OP-35-ADM	Admissions for Patients Receiving Outpatient Chemotherapy	12.0	12.6
OP-35-ED	Emergency Department Visits for Patients on Outpatient Chemotherapy	6.6	6.0
OP-36	Hospital Visits after Hospital Outpatient Surgery	1.0	1.0

* Minimal volume thresholds not met for Coronary Artery Bypass Graft 90-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 of Care*			
Measure ID	Measure Description	DHHA Result	National Rate
CLABSI	Central-Line Associated Bloodstream Infection	0.46	0.69
CAUTI	Catheter-Associated Urinary Tract Infection	1.54	0.72
SSI-Colon	Surgical Site Infection - Colon Surgery	0.70	0.81
MRSA	Methicillin-Resistant <i>Staphylococcus aureus</i> Bacteremia	0.59	0.81
CDI	Clostridium difficile Infection	0.57	0.58
PSI-90	AHRQ Patient Safety and Adverse Events Composite	0.88	0.99

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



Patient Experience		
Measure Description	DHHA Result	National Rate†
Nurse Communication	3.00	3.50
Doctor Communication	2.00	3.09
Responsiveness of Hospital Staff	3.00	3.28
Communication About Medicines	3.00	3.07
Discharge Information	3.00	3.23
Care Transition	2.00	3.12
Cleanliness and Quietness	2.50	3.05
Overall Rating of Hospital	3.00	3.24

† Number of stars

Mortality*			
Measure ID	Measure Description	DHHA Result	National Rate
MORT-30-AMI	Acute Myocardial Infarction 30-Day Mortality Rate	12.2%	12.7%
MORT-30-COPD	Chronic Obstructive Pulmonary Disease 30-Day Mortality Rate	7.1%	8.5%
MORT-30-HF	Heart Failure 30-Day Mortality Rate	12.0%	11.5%
MORT-30-PN	Pneumonia 30-Day Mortality Rate	12.4%	15.7%
MORT-30-STK	Acute Ischemic Stroke 30-Day Mortality Rate	13.2%	13.6%
PSI-4	Death Rate Among Surgical Inpatients with Serious Treatable Complications	171	164

* Minimal volume thresholds not met for Coronary Artery Bypass Graft

Timely & Effective Care			
Measure ID	Measure Description	DHHA Result	National Rate
OP-8	MRI Lumbar Spine for Low Back Pain	55.6%	39.9%
OP-10	Abdomen CT Use of Contrast Material	0.5%	6.5%
OP-13	Cardiac Imaging for Preoperative Risk Assessment for Non-Cardiac Low-Risk Surgery	1.5%	4.1%
ED-2b	Minutes from Admit Decision to ED Departure	98	99
OP-18b	Minutes from ED Arrival to Departure for Discharged Patients	220	142
IMM-3	Healthcare Personnel Influenza Vaccination	97%	90%
OP-22	ED-Patient Left Without Being Seen	4%	1%
OP-29	Appropriate Follow-up Interval for Normal Colonoscopy in Average Risk Patients	98%	89%
PC-01	Elective Delivery Prior to 39 Completed Weeks Gestation	0%	2%
SEP-1	Severe Sepsis and Septic Shock	44%	59%

* Minimal volume thresholds not met for OP-3b, OP-5, OP-30, OP-33

1.8. Hospital Transformation Program (HTP)

Health Care Policy and Financing (HCPF) received a waiver from the Centers for Medicare and Medicare Services (CMS) to create the Hospital Transformation Program (HTP). This value-based care initiative applies to Colorado's acute care hospitals participating in Health First Colorado. HTP ties supplemental payment dollars from Hospital Provider Fees to activities and performance related to 10 outcomes (Figure 1.8-1). While this five-year program was tentatively scheduled to begin April 2020, it was officially launched October 1, 2021. During the pre-program period, requirements were fulfilled in order to participate in the program and retain some Year 0 supplemental payment dollars.

Figure 1.8-1: HCPF HTP Outcomes Tied to Value-Based Payments

Required State-Wide Metrics	Selected Metrics
SW-RAH1: Adult 30-day all-cause risk adjusted hospital readmission rate	RAH1: Follow up appointment with a clinician made prior to discharge and notification to the Regional Accountable Entities (RAE) within 1 business day
SW-CP1: Social needs screening and notification and referral to appropriate entity and RAE	PH1: Increase the Percentage of Patients who had a Well-Visit within a Rolling 12-month Period.
SW-BH1: Collaboratively develop and implement a discharge and notification process with the appropriate RAEs for patients with a mental illness or Substance Use Disorder (SUD) as primary or secondary diagnosis (dx).	COE1: Increase the successful transmission of a summary of care record to a patient's primary care physician or other healthcare professional within one business day of discharge from an inpatient facility to home
SW-BH3: Using alternatives to Opioids (ALTO's) in hospital ED's	COE3: Implementation/Expansion of electronic-Consults (e-consults)
SW-COE1: Hospital Index (Prometheus)	
SW-PH1: Severity Adjusted Length of Stay	

Financial Impact

- Varies by Year. The program has a total estimated \$46M real dollars at-risk over the life of the five-year program, including dollars at risk for reporting on program progress, community engagement and outcome performance. There is also potential for upside risk tied to shared savings and outcome performance. Approximately \$2.4M is at risk for performance on each of the ten HTP outcomes.
- The dollars at risk are from supplemental payment dollars derived from Hospital Provider Fees. Lost dollars are not anticipated to be offset by Disproportionate Share payments.
- The program is designed to be budget neutral so upside dollars are available for overall Medicaid payment savings over the five-year program, and any unearned supplemental payment dollars from hospitals will be redistributed to highest performing hospitals in the state.
- DHHA has retained the \$842,512 that was at risk for performance in the pre-program period for its timely submission of Denver Health's HTP Implementation Plan.

PI Activities

- Submitted an implementation plan for the 5-year program, including specific milestones for each intervention
- Denver Health formed the Preventable Inpatient Readmissions Reduction Steering Committee to follow-up on the department's 2020 tactic and provide guidance on DH's participation in HTP along with other pay-for-performance programs. The committee is responsible for three of the ten HTP outcomes: SW-RAH1: Adult 30-day readmission rate, RAH1: Follow up appointment with a clinician made prior to discharge, and COE1: Successful transmission of a summary of care record within one business day of discharge. These three measures are worth an estimated \$7.2M in payments based on our performance.
- Used baseline data to identify priority readmission areas and conducted related Lean event activities
- Three readmission-related metrics were included in the provider dashboard that launched in December 2021
- Work is underway to develop and validate Epic Risk of Readmission predictive analytics model that could be integrated with workflows to prioritize resources.
- Work is underway to increase timely post-hospitalization care and telemonitoring via a newly formed Comprehensive Care Clinic which combines our existing Intensive Outpatient Clinic, Hospital Transitions Clinic, and Virtual Home Hospital program with the aim to reduce both length of stay index (LOSI) and inpatient readmissions.

1.9. Hospital Quality Incentive Payment Program (HQIP)

The Colorado Department of Health Care Policy and Financing (HCPF) started the Hospital Quality Incentive Payment Program (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 2021, HCPF added new measures focused on peripartum disparities, sepsis, antibiotics, handoffs, and suicide.

DHHA received full points on the Patient Safety domain and 100% compliance with the Advance Care Planning measure. DHHA's patient experience scores for discharge information and care transition were in the worst quartile while communication about medications was slightly worse than the median. DHHA received a final score of 84%, which was the best quintile of hospitals. (Figure 1.9-1). DHHA has "earned" over \$53 million in incentive payments from this program (Figure 1.9-2). DH's Disproportionate Share (DSH) supplemental payments already provide most of this incentive due to the upper payment limit (UPL) cap. DH did receive an additional \$420,000 in payments because we had not reached the UPL. If federal DSH cuts start in FFY 2024 as required by the Affordable Care Act, DHHA's DSH payments will decrease and the HQIP incentives will become true dollars.

Figure 1.9-1: HQIP Program Year 2021

Measure Group	Measure Name	Rate/Result	Points
Maternal Health and Perinatal Care	Exclusive Breast Milk Feeding (PC-05)	52%	1 of 1
	Cesarean Section rate for nulliparous women with term baby in vertex position (PC-02)	18.7%	3 of 5
	Perinatal Depression and Anxiety—readiness, recognition and prevention, response, reporting (5 Rs)	Yes	5 of 5
	Maternal Emergencies and Preparedness—policy, electronic process, resources, formal debriefs	Yes	5 of 5
	Reproductive Life/Family Planning—counseling offered	Yes	5 of 5
	Reduction of Peripartum Racial and Ethnic Disparities—5 Rs	Yes	10 of 10
Patient Safety	Zero Suicide	Yes	10 of 10
	Hospital Acquired <i>Clostridioides difficile</i> Standardized Infection Ratio (SIR)	Better than US	5 of 5
	Sepsis—protocols, staff education, provider feedback, measurement	Yes	7 of 7
	Antibiotic Stewardship—leadership commitment, education, guidance, collaboration	Yes	10 of 10
	Adverse Event Reporting	Yes	5 of 5
	Culture of Safety Survey	Yes	5 of 5
	Handoffs and Signouts—process, measurement	Yes	7 of 7
Patient Experience	Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) • Communication about Medications • Discharge Information • Care Transition	65% 87% 46%	1 of 15
	Advance Care Planning for patients 65 years or older	100%	5 of 5

Figure 1.9-2: HQIP Incentive Payments to Denver Health by Program Year

	2014	2015	2016	2017	2018	2019	2020	2021
Points	21 of 46	30 of 50	27 of 50	30 of 40	64 of 80	82 of 100	45 of 65	84 of 100
Incentive Payment	\$3,402,655	\$5,857,931	\$4,612,904	\$7,933,197	\$7,551,062	\$7,957,310	\$5,548,155	\$10,504,207

PI Activity:

- ◇ DH participated in the state's Zero Suicide initiative (see section 3.4 Zero Suicide for details).
- ◇ The Patient Experience Department is working to expand opportunities for patients and families to provide their feedback so we can identify opportunities to improve education around medications as well as resources for patients after being discharged from the hospital. The department is also exploring how to best meet the care transition needs of our patients through the current Leader Rounding on Patients initiative.
- ◇ Cesarean sections are reviewed to determine if they were medically necessary.

Program Changes

- ◇ Reduction of Racial and Ethnic Disparities is expanding to a hospital-wide assessment
- ◇ Zero Suicide is expanding to solicit input and work collaboratively with people in the community, especially those affected by marginalization that leads to health inequities. Furthermore, process and outcome measures need to be analyzed for health equity.
- ◇ Sepsis measure will award points for improvement.
- ◇ Handoffs and Signouts will award points for reporting measurement results from the previous year.

1.10. 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 28 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>.

DHHA received a letter grade of C during 2021 due to a single adverse event that occurred in 2018 (Figure 1.10-1). Results for individual measures are shown in Figure 1.10-2. DHHA received perfect compliance on half of the process measures.

Figure 1.10-1: Denver Health Hospital Safety Grades

Spring 2014	Fall 2014	Spring 2015	Fall 2015	Spring 2016	Fall 2016	Spring 2017	Fall 2017	Spring 2018	Fall 2018	Spring 2019	Fall 2019	Spring 2020	Fall 2020	Spring 2021	Fall 2021
B	B	B	C	C	C	C	C	C	A	A	B	B	C	C	C

Figure 1.10-2: Denver Health Performance on Leapfrog Hospital Safety Grade Measures

Outcome Measures	DHHA Spring 2021	DHHA Fall 2021	Process Measures	DHHA Spring 2021	DHHA Fall 2021
Foreign object retained [†]	0.359	0.359	Doctors order medications through a computer [†]	100	100
Air embolism [†]	0.000	0.000	Safe medication administration [†]	100	100
Patient falls and trauma [†]	0.770	0.770	Specially trained doctors care for ICU patients [†]	100	100
Central line associated blood stream infection ^{**}	0.457	0.409	Effective leadership to prevent errors [†]	120	110.77
Catheter associated urinary tract infection ^{**}	1.536	1.464	Staff work together to prevent errors [†]	120	120
Surgical site infection after colon surgery ^{**}	0.704	0.230	Enough qualified nurses [†]	100	100
Methicillin resistant <i>Staph aureus</i> infection ^{**}	0.588	0.843	Hand hygiene [†]	-	-
<i>C. difficile</i> infection ^{**}	0.573	0.501	HCAHPS: Communication with nurses [‡]	90	90
PSI 3: Pressure ulcers [†]	0.21	-	HCAHPS: Communication with doctors [‡]	90	90
PSI 4: Death from treatable serious complications ^{***}	171.35	157.71	HCAHPS: Responsiveness of hospital staff [‡]	84	84
PSI 6: Iatrogenic pneumothorax [†]	0.23	-	HCAHPS: Communication about medicines [‡]	80	80
PSI 11: Postop respiratory failure [†]	6.37	-	HCAHPS: Communication about discharge [‡]	87	87
PSI 12: Perioperative PE/DVT [†]	3.43	-			
PSI 14: Postop wound dehiscence [†]	0.89	-			
PSI 15: Abdominopelvic accidental puncture/laceration [†]	1.72	-			
PSI 90: Patient safety and adverse events composite ^{***}	-	0.90			

Performance Period:

[†] 7/1/2017-6/30/2019

^{**} Q2 2019, Q3 2019, Q4 2019, Q3 2020

^{***} Spring CY 2019 & Fall is 7/1/18-12/31/19

Performance Period:

[†] Spring is CY 2020 & Fall is CY 2021

[‡] CY 2019

Perfect Score

Within Mean ±
Standard Deviation

Worse than Mean ±
Standard Deviation

1.11. Colorado Department of Public Health and Environment (CDPHE)

Colorado Department of Public Health and Environment (CDPHE) publishes Healthcare-Associated Infection (HAI) rates annually per legislation for state licensure. These HAIs include infections associated with surgeries, central lines, and hospital acquired *Clostridioides difficile* infections. Data are reported by each institution to the CDC's National Healthcare Safety Network (NHSN). Denver Health performed better than the national comparison for healthcare-associated *Clostridioides difficile* infections in 2020 (Figure 1.11-1). Improvement efforts are described in the Infection Control section.

Figure 1.11-1: Denver Health Healthcare-Associated Infections

		2018				2019				2020			
		Procedures	Infections	SIR	National Comparison	Procedures	Infections	SIR	National Comparison	Procedures	Infections	SIR	National Comparison
Breast Surgery (Inpatient)		43	1	0.9	Same	54	1	0.7	Same	48	0	0.0	Same
Breast Surgery (Outpatient)		154	1	0.5	Same	101	0	0.0	Same	162	0	0.0	Same
Colon Surgery		121	5	0.6	Same	126	4	0.5	Same	118	3	0.4	Same
Hip Replacement		143	2	1.0	Same	180	4	1.6	Same	156	3	1.5	Same
Knee Replacement		156	2	1.7	Same	192	4	3.0	Same	135	2	2.0	Same
Abdominal Hysterectomy		79	1	0.5	Same	95	2	0.8	Same	71	0	0.0	Same
Unit Type		Central Line Days	Infections	SIR	National Comparison	Central Line Days	Infections	SIR	National Comparison	Central Line Days	Infections	SIR	National Comparison
Central Line-Associated Blood-stream Infections	Critical Care	3,712	7	1.5	Same	3,435	3	0.7	Same	5,911	6	0.8	Same
	Neonatal Critical Care	845	1	0.9	Same	855	1	1.0	Same	826	1	1.0	Same
	Acute Care Wards	5,672	3	0.5	Same	5,560	1	0.2	Better	6,482	3	0.5	Same
	Inpatient Rehab	201	0	***	***	41	***	***	***	84	0	***	***
		Patient Days	Infections	SIR	National Comparison	Patient Days	Infections	SIR	National Comparison	Patient Days	Infections	SIR	National Comparison
C. difficile Infections		102,669	75	0.8	Same	97,439	47	0.6	Better	101,724	52	0.6	Better

Abbreviation: SIR, Standardized Infection Ratio

*** Data suppressed because predicted number of infections was less than one or facility had fewer than 20 procedures in the year

1.12. The Federal Information Blocking Committee (FIBR)

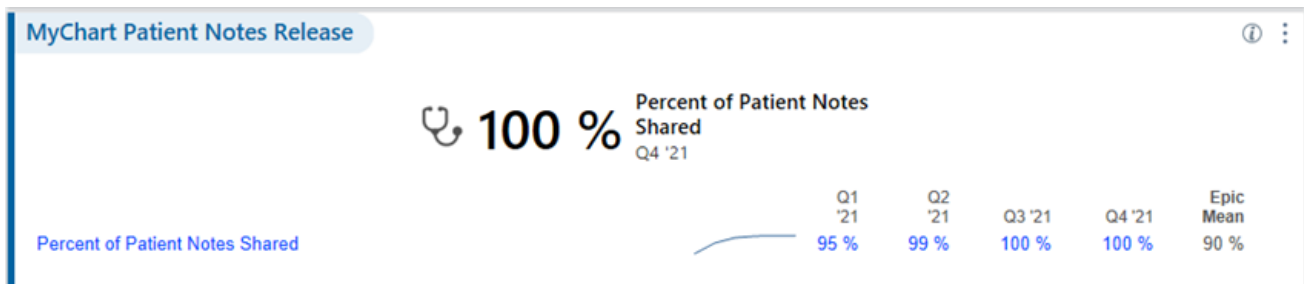
On March 19, 2020, a new provision called Information Blocking was added to The 21st Century Cures Act. This regulation requires actors, defined in the regulation as health care providers, health IT developers of certified health IT, health information networks, and health information exchanges, to not “interfere with access, exchange, or use of electronic health information” in cases where it is “likely to interfere with, prevent, or materially discourage access, exchange, or use of electronic health information.”

The regulation came in two phases, the first phase focused on not blocking any elements covered in the United States Core Data for Interoperability (USCDI) version 1 data set. The compliance date for this phase was originally set for November 2, 2020, but was extended to April 5, 2021 due to the COVID-19 emergency. The second phase, which expands the data set to include all Electronic Health Information (EHI) was also pushed out, and is set to go into effect October 6th of 2022.

DHHA formed a committee, the Federal Information Blocking Committee (FIBR), for this shift in data sharing. This committee consists of experts throughout the organization including representatives from the legal, compliance, privacy, health information management, Department of Patient Safety and Quality, medical and nursing informatics, Information Technology (IT), and marketing departments. The committee is chaired by DHHA’s Chief Quality Officer.

The FIBR committee made decisions to ensure that DHHA was compliant with this new regulation during the course of 2020. Even though the initial date was extended, we made the necessary changes in our system, and built policies and processes, to be compliant by the original date of Nov 2, 2020. These changes included, but were not limited to, sharing more information on DHHA’s MyChart (patient portal), updating DHHA’s Fast Health Interoperability Resources (FHIR) build to the new R4 standards, sharing lab results with patients as soon as the results were final, and ensuring that we were sharing notes (as defined by USDCI) with patients. In the year of 2021, DHHA shared 98.5% of these notes with patients. The percentage of notes shared with patients, via the patient portal, for each quarter in 2021 is shown in Figure 1.12-1.

Figure 1.12-1: MyChart Patient Notes Release



During the course of 2021, the FIBR committee focused on addressing and overcoming challenges to this rule brought to us by physicians, clinicians, and patients. The policies and processes were fine tuned, as well as our Epic and other IT build, to further support this regulation. As we worked through these challenges, we ensured that any data we were not sharing was covered by one of the eight exceptions, and that these exceptions were added to the policy.

Future Steps

In 2022, the FIBR group will shift its’ focus to the next phase of the regulation, ensuring that DHHA is sharing all electronic health information (EHI) as mandated in the statutory rule.

2. NATIONAL COLLABORATIVES

2.1. Vizient Inpatient Quality and Accountability (Q&A) Scorecard

Vizient created the Quality and Accountability (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 similar institutions. Vizient applies a proprietary risk adjustment methodology, thereby allowing hospitals to be compared using observed to expected (O/E) ratios. DHHA ranked 30th out of 117 large, specialized complex care medical centers. This translated into four of five stars in 2021 (Figure 2.1-1). Performance improved in Equity, Efficiency, and Safety compared to the prior year. DHHA performed better than the median on five of six domains (Figure 2.1-2).

Figure 2.1-1: Vizient Q&A Scorecard Star Ratings for Denver Health

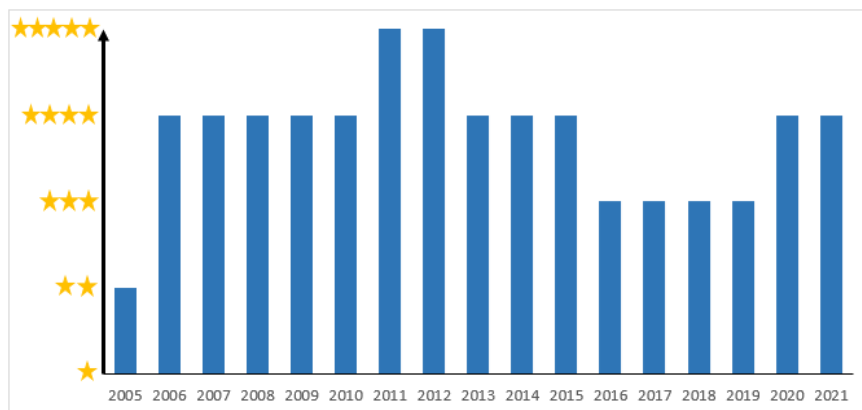
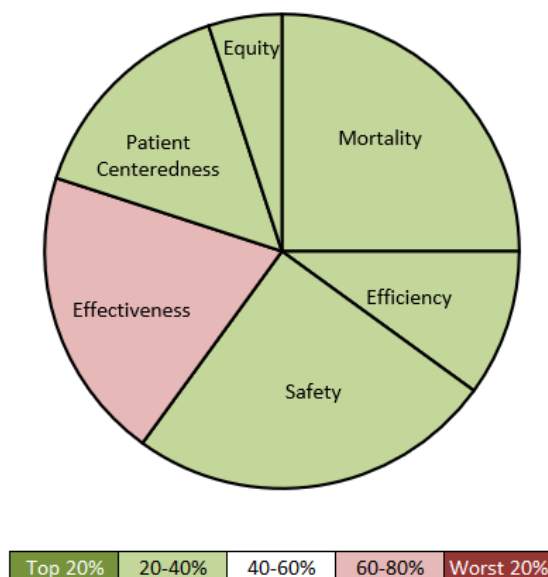


Figure 2.1-2: Vizient 2021 Q&A Scorecard Summary for Denver Health



PI Activity

- ◇ The Patient Flow Committee continued its work to decrease length of stay.
- ◇ A Readmission Reduction Committee was initiated in 2021 and involves staff from DPSQ, Ambulatory Care Services (ACS), medical providers, case management, and managed care.
- ◇ At Datapalooza, a multidisciplinary group reviews data for mortality, length of stay, readmissions, excess days, and AHRQ PSIs.
- ◇ Workqueues were built in Epic which allow CDI staff to review potential PSI cases prior to billing thereby avoiding unnecessary rebilling if the PSI is averted.
- ◇ A Patient Experience dashboard was created within Epic to allow staff to easily see DHHA's most recent performance on HCAHPS and thereby identify issues sooner.

As shown in Figure 2.1-3, DHHA was in the best performing decile for pulmonary/critical care mortality, communication about medications, responsiveness of hospital staff, postoperative iatrogenic pneumothorax, postoperative respiratory failure, and hypoglycemia after insulin use. Patient centeredness scores improved in 88% of the HCAHPS dimensions and all patient safety indicators improved compared to the 2020 Q&A. However, DHHA was in the worst performing quintile for postoperative sepsis and catheter-associated urinary tract infection. The Clinical Documentation Integrity and Infection Prevention teams are actively working to improve these two metrics.

Figure 2.1-3: Vizient 2021 Quality and Accountability Scorecard for Denver Health (continued on next page)

Mortality* (25%)			
Vizient Service Line	O/E	Decile Rank	Compared to Q&A 2020
Cardiology	0.69	2 nd	▲
Gastroenterology	1.02	5 th	▼
Medicine General	0.58	3 rd	▼
Neurology	0.95	5 th	▼
Neurosurgery	1.02	5 th	▲
Oncology	0.68	4 th	▲
Ortho/Spine	0.45	3 rd	▲
Pulmonary/Critical Care	0.98	1 st	▲
Surgery General	0.84	5 th	▼
Trauma	0.85	3 rd	▼
Vascular Surgery	1.14	8 th	▼

*Timeframe: July 2020 - June 2021

Patient Centeredness* (15%)			
HCAHPS Dimension	% Top Box	Decile Rank	Compared to Q&A 2020
Nurse communication	79.3	5 th	▲
Doctor communication	84.1	2 nd	▲
Medication communication	71.7	1 st	▲
Cleanliness and quietness	66.6	3 rd	▲
Responsiveness of staff	68.8	1 st	▲
Discharge information	88.0	4 th	▼
Overall rating of hospital	75.6	4 th	▲
Transition of care	51.7	7 th	▲

*Timeframe: July 2020 - March 2021

Safety* (25%)				
AHRQ PATIENT SAFETY INDICATORS				
Metric ID	Description	O/E	Decile Rank	Compared to Q&A 2020
PSI-3	Pressure ulcer	0.79	4 th	▲
PSI-6	Postoperative iatrogenic pneumothorax	0.00	1 st	▲
PSI-9	Postoperative hemorrhage or hematoma	1.24	7 th	▲
PSI-11	Postoperative respiratory failure	0.00	1 st	▲
PSI-13	Postoperative sepsis	1.31	9 th	▲
NHSN HEALTHCARE ASSOCIATED INFECTIONS				
Metric ID	Description	SIR	Decile Rank	Compared to Q&A 2020
CAUTI	Catheter-associated urinary tract infection	1.41	9 th	▲
CLABSI	Central line-associated blood stream infection	0.60	4 th	-
C-Diff	<i>Clostridioides difficile</i> infection	0.64	8 th	▼
SSI	Surgical site infections: colon	0.70	4 th	▼
OTHER				
Description	%	Decile Rank	Compared to Q&A 2020	
Hypoglycemia and insulin use	0.87	1 st	▲	
Elevated INR after warfarin administration	4.80	7 th	▼	

*Timeframe: AHRQ & lab measures July 2020 - June 2021; NHSN July 2020 - March 2021; THK April 2020 - March 2021

Figure 2.1-3 (continued): Vizient 2021 Quality and Accountability Scorecard for Denver Health

DHHA was in the best performing decile for length of stay for Otolaryngology, sepsis lab timing, and direct cost for six service lines (SLs). However, DHHA was in the worst performing decile for Pulmonary/Critical Care length of stay, 30-day all-cause unplanned readmissions for Vascular Surgery, excess days for three SLs, and return within 7 days of outpatient biliary procedure. No significant difference was found in 94% of the equity measures. Non-whites had a slightly worse outlook in heart failure than whites.

Efficiency* (10%)			
LENGTH OF STAY			
Vizient Service Line	O/E	Decile Rank	Compared to Q&A 2020
Cardiology	0.99	9 th	▼
Gastroenterology	0.91	5 th	▼
Gynecology	0.88	3 rd	▼
Medicine General	0.84	4 th	▼
Neurology	1.02	8 th	▼
Neurosurgery	0.95	6 th	▲
Obstetrics	0.88	5 th	▼
Oncology	1.02	9 th	▼
Ortho/Spine	0.93	6 th	-
Otolaryngology	0.63	1 st	-
Pulmonary/Critical Care	2.01	10 th	▼
Surgery General	0.96	8 th	▼
Trauma	0.97	6 th	▼
Urology	1.06	9 th	▼
Vascular Surgery	0.81	4 th	▲
DIRECT COST			
Vizient Service Line	O/E	Decile Rank	Compared to Q&A 2020
Cardiology	0.68	1 st	▼
Gastroenterology	0.56	1 st	▲
Gynecology	0.78	3 rd	▼
Medicine General	0.55	1 st	-
Neurology	0.59	1 st	▲
Neurosurgery	0.74	2 nd	▲
Obstetrics	0.61	1 st	▲
Oncology	0.70	2 nd	▼
Ortho/Spine	0.81	3 rd	▲
Otolaryngology	0.62	1 st	-
Pulmonary/Critical Care	1.13	4 th	▼
Surgery General	0.63	2 nd	▲
Trauma	0.87	4 th	▲
Urology	0.68	3 rd	▼
Vascular Surgery	0.80	3 rd	▲

Effectiveness* (20%)			
30-DAY ALL CAUSE UNPLANNED READMISSIONS			
Vizient Service Line	Rate (%)	Decile Rank	Compared to Q&A 2020
Cardiology	13.5	7 th	▲
Gastroenterology	13.2	5 th	▲
Medicine General	12.8	6 th	▲
Neurology	7.7	6 th	▼
Neurosurgery	9.7	8 th	▲
Oncology	13.2	6 th	▲
Ortho/Spine	5.6	5 th	▲
Pulmonary/Critical Care	10.0	5 th	▼
Surgery General	11.6	9 th	▲
Trauma	5.4	3 rd	▼
Vascular Surgery	25.8	10 th	▼
EXCESS DAYS			
Vizient Service Line	Days	Decile Rank	Compared to Q&A 2020
Cardiology	15.3	10 th	▼
Gastroenterology	24.7	10 th	▼
Medicine General	5.8	8 th	▲
Neurology	15.8	9 th	▼
Neurosurgery	14.5	8 th	▼
Oncology	-4.74	5 th	▼
Ortho/Spine	4.5	7 th	▲
Pulmonary/Critical Care	8.2	8 th	▼
Surgery General	17.2	10 th	▲
Trauma	5.4	7 th	▲
Vascular Surgery	-20.35	2 nd	▼
OTHER			
Description	Rate (%)	Decile Rank	Compared to Q&A 2020
Return within 7 days of outpatient procedure: Colonoscopy	0.8	3 rd	▼
Return within 7 days of outpatient procedure: Biliary	8.8	10 th	▼
Return within 7 days of outpatient procedure: Urological	5.8	7 th	▼
Return within 7 days of outpatient procedure: Arthroscopy	2.82	8 th	▼
Sepsis: Lactate level not done within 12 hours of admit labs	1.33	1 st	▲
Transfusion for hemoglobin ≥ 9 prior to first RBC transfusion	1.21	5 th	▼

*Timeframe: July 2020 - June 2021

*Timeframe: July 2020 - June 2021

Equity* (5%)						
Metric	Gender		Race		Socioeconomic status	
	Male	Female	White	Non-white	Non-low SES	Low SES
Sepsis lactate timing (hours)	0.99	0.96	1.02	0.88	1.24	0.78
Sepsis mortality O/E	0.65	0.55	0.66	0.51	0.73	0.52
NSTEMI troponin timing (hours)	0.48	0.31	LV	LV	0.67	0.01
NSTEMI mortality O/E	LV	LV	LV	LV	LV	LV
Heart Failure BNP Improvement	0.06	0.06	0.04	0.08	0.07	0.05
Heart Failure Mortality O/E	LV	LV	0.37	0.68	LV	LV
Maternal hemoglobin change (g/dL)	-	-	0.54	0.47	0.5	0.51
Maternal transfusion rate	-	-	0.01	0.02	0.01	0.01

*Timeframe: July 2020 - June 2021

Equal Caution Unequal Low Volume

2.2. Vizient Ambulatory Quality and Accountability (AQA) Scorecard

The Vizient Ambulatory Quality and Accountability (AQA) Scorecard provides a holistic view of ambulatory performance thereby enabling institutions to deliver high quality, accessible, and cost efficient care. Fifty-three academic medical centers and their affiliate physician organizations participated in 2021. Organizations were ranked on five domains composed of 14 metrics and 141 sub-metrics. DHHA received three stars with its ranking of #40 (Figure 2.2-1). DHHA performed best in the domain of Efficiency (Figure 2.2-2). Performance on each metric is shown in Figure 2.2-3. Equity discrepancies reflect that Medicaid patients had timelier new patient visits in Primary Care and Commercial patients had timelier new patient visits in Ophthalmology and Surgery.

Figure 2.2-1: Denver Health AQA Star Rank

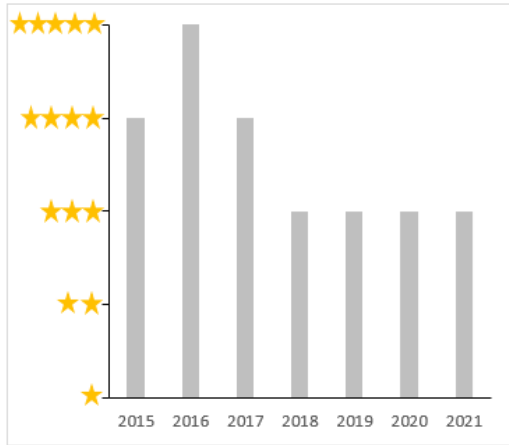


Figure 2.2-2: Vizient 2021 AQA Scorecard Summary for Denver Health

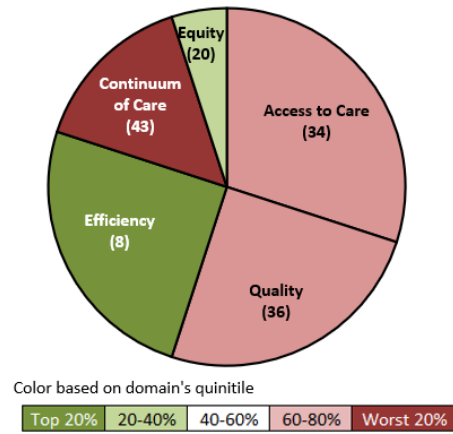


Figure 2.2-3: Vizient 2021 Ambulatory Quality and Accountability Scorecard for Denver Health

Domain	Metric	Specialty																
		Cardiology	Dermatology	Endocrinology	ENT	GI & Hepatology	Hematology & Oncology	Infectious Disease	Nephrology	Neurology	OB/GYN	Ophthalmology	Orthopaedics	Primary Care	Pulmonology	Rheumatology	Surgery	Urology
Access to Care	New patient visits	22%	4%	11%	46%	20%	15%	24%	LV	33%	4%	22%	21%	12%	LV	20%	26%	26%
	New patients seen within 10 days of scheduling an appointment	32%	LV	LV	24%	30%	30%	94%	LV	20%	49%	35%	54%	49%	LV	42%	23%	53%
	Median days from scheduling appointment to visit for new patients visits	18	LV	LV	27	21	19	1	LV	43	11	29	9	12	LV	13	29	9
Efficiency	Appointments cancelled by provider/clinic within 30 days of the appointment date	3.3%	2.0%	4.8%	6.7%	4.0%	2.5%	2.2%	0.5%	4.1%	1.9%	4.2%	3.1%	1.9%	0.6%	2.8%	4.9%	4.5%
	Median encounters per provider per hour	1.0	1.8	1.4	1.6	1.5	1.5	1.3	1.5	1.3	1.5	1.7	2.0	2.0	1.3	1.4	1.7	1.3
	Consistency in encounters per provider per hour	0.4	0.8	0.7	0.7	0.5	0.4	0.5	0.5	0.5	0.6	0.8	0.8	0.8	0.5	0.4	1.0	0.5
Equity	Disparity in new patients seen within 10 days of scheduling an appointment by Commercial vs. Medicaid payer	-	-	-	-	-	-	-	-	-	-	D	-	D	-	-	D	-

Continuum of Care Domain		
Metric	Performance	
Low acuity ED visits	43%	
Patients with 4 or more ED visits	5.6%	
Patients returning to ED within 7 days	11%	
Follow up visit within 7 days of admission for ..	Pneumonia	26%
	Urinary tract infection	7%
	Chronic obstructive pulmonary disease	13%
	Heart failure	32%
	Diabetes short-term complications	14%
	Diabetes long-term complications	39%
	Uncontrolled diabetes	6%
	Lower extremity amputation diabetes	42%

Quality Domain		
Metric	Performance	
Hospitalization rate for ambulatory care-sensitive conditions	Pneumonia	0.02%
	Urinary tract infection	0.03%
	COPD or Asthma	2.9%
	Heart failure	13.4%
	Diabetes short-term complications	0.7%
	Diabetes long-term complications	0.8%
	Uncontrolled diabetes	0.2%
Returns within 7 days post outpatient procedure	Lower extremity amputation diabetes	0.5%
	Colonoscopy	2.9%
	Arthroscopy	1.2%
	Urology	7.8%

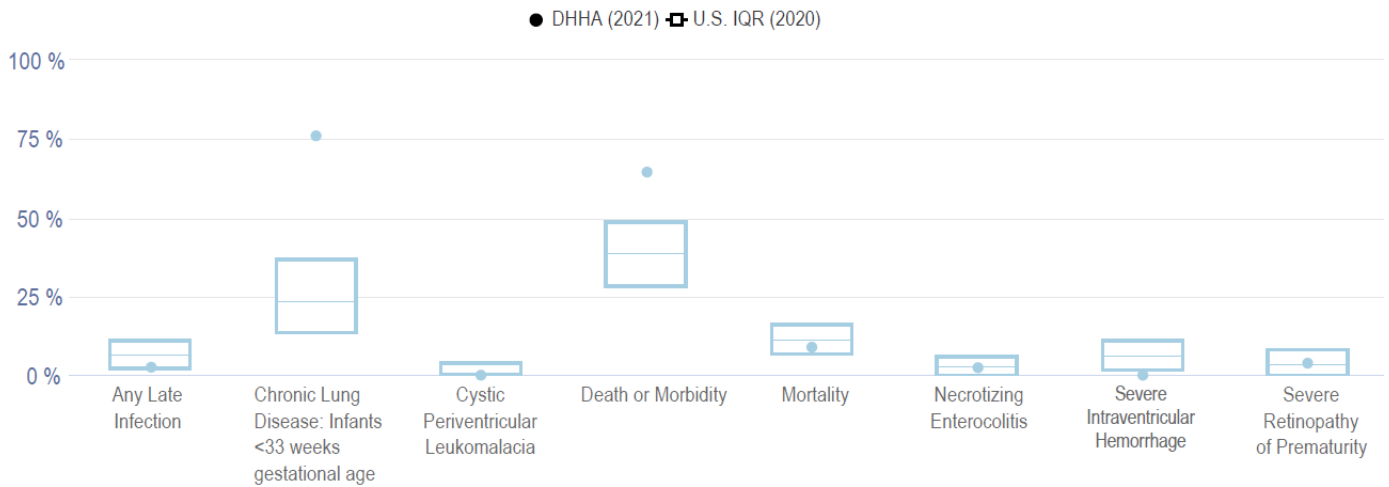
LEGEND	
Best Decile	(Blue)
Best Quartile	(Light Green)
25-50%	(Yellow)
50-75%	(Orange)
Worst Quartile	(Red)
Low volume	(Grey)
Significant difference	(Purple)
- is no difference	(White)

2.3. 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 hospital-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.

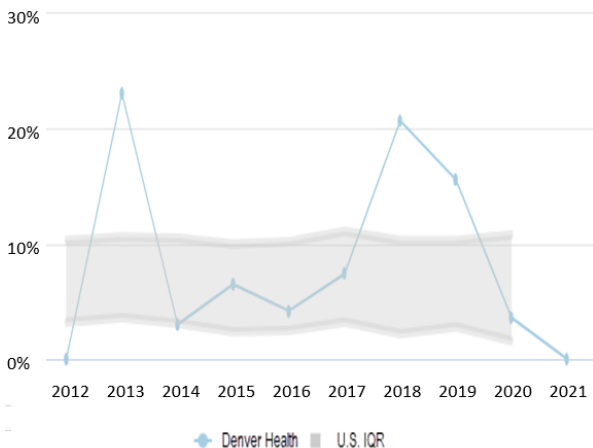
VON's very low birthweight (VLBW) database includes infants born between 501 and 1500 grams. Denver Health performed in the best quartile for late infection, cystic periventricular leukomalacia, and severe intraventricular hemorrhage (IVH) (Figure 2.3-1). DHHA has seen a dramatic decrease in severe IVH over the past four years with zero cases reported in 2021 (Figure 2.3-2). DHHA performed worse than the national interquartile range for chronic lung disease when born before 33 weeks gestation and death or morbidity (Figure 2.3-1). Both the chronic lung disease measure and the death or morbidity measure are greatly affected by Denver's high altitude. An infant's need for supplemental oxygen is much higher in Denver compared to those born at sea level and any child who is discharged on oxygen is in the numerator for both these measures. The entire state of Colorado has significantly worse performance than the overall U.S. and DHHA performs within the Colorado interquartile range for chronic lung disease (Figure 2.3-3).

Figure 2.3-1: Vermont Oxford Network Key Performance Measures for Very Low Birth Weight Infants



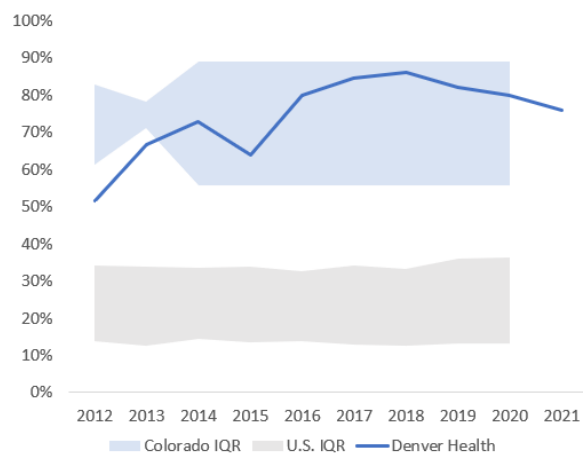
Source: VON

Figure 2.3-2: Severe Intraventricular Hemorrhage among Very Low Birth Weight Infants



Source: VON

Figure 2.3-3: Chronic Lung Disease in Very Low Birth Weight Infants Born Before 33 Weeks Gestation



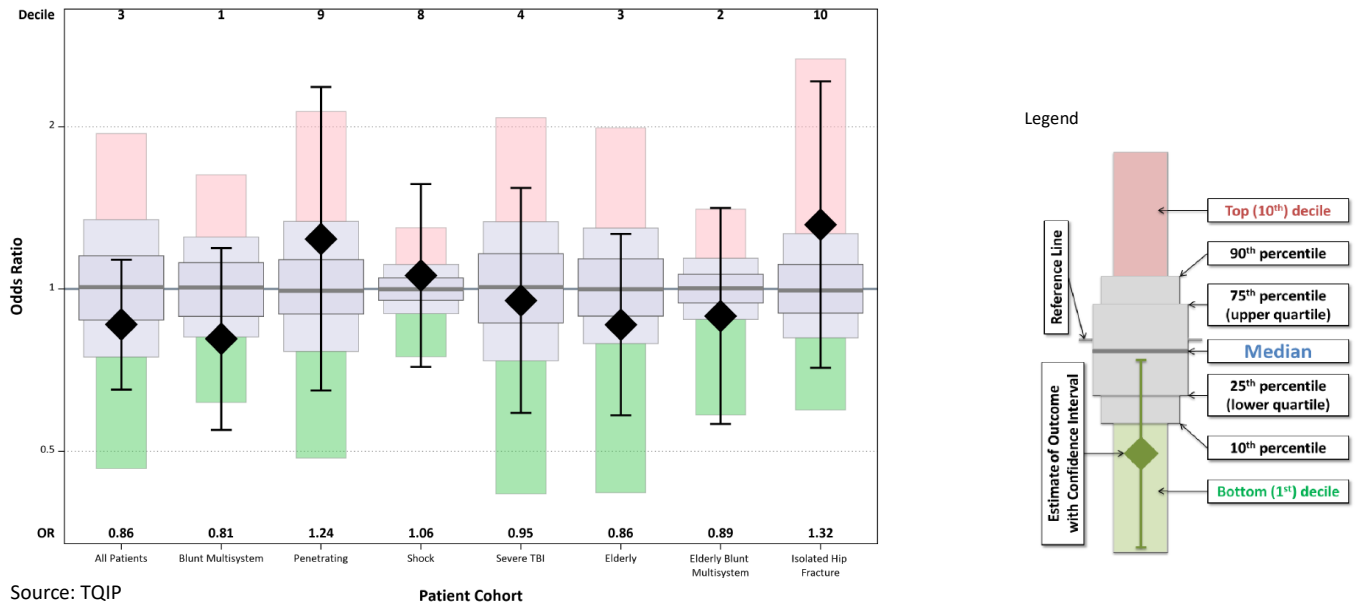
2.4. American College of Surgeons Trauma Quality Improvement Program (TQIP)

The American College of Surgeons Trauma Quality Improvement Program (TQIP) has approximately 500 participating Trauma Centers throughout the United States. The program is designed to raise the bar for facilities providing trauma care. Its goals are to collect data from Trauma Centers, evaluate the data and provide feedback about each center's performance. Trauma centers are benchmarked against other facilities to provide best practice standards in trauma care. The data below are based on admissions from 2020 and Q1 2021.

Risk-Adjusted Mortality

TQIP defines mortality as death in the hospital, emergency department, or discharge/transfer to hospice care. Overall, DHHA performed similar to other trauma hospitals with a risk-adjusted mortality odds ratio of 0.86 (Figure 2.4-1). DHHA is in the best decile for blunt multisystem related mortality.

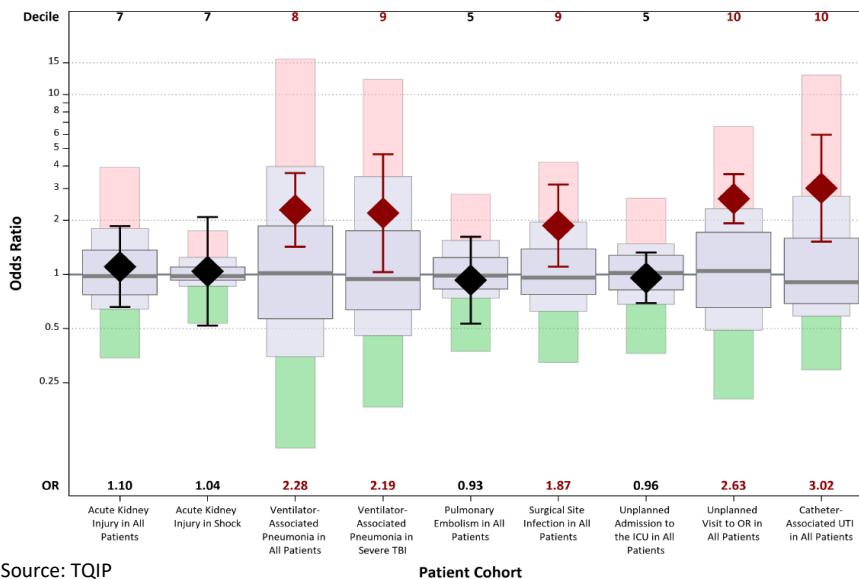
Figure 2.4-1: Risk-Adjusted Mortality by Cohort



Risk-Adjusted Adverse Events

Figure 2.4-2 represents opportunities for improvement identified by DHHA's TQIP data and discussed during the American College of Surgeons Verification Review Committee Survey in February 2022. Trauma Services, in conjunction with the Subspecialty Liaisons to the Trauma Committee and Infection Prevention, have implemented Quality Improvement projects in each of the categories under a red diamond, i.e. worst quintile performance. Progress will be reviewed at the monthly Trauma Committee meeting and reported at regular intervals to the CDPHE, as described in DHHA's Plan of Correction accepted by CDPHE.

Figure 2.4-2: Risk-Adjusted Adverse Events by Cohort



TQIP Process Measures:

Hip Fracture Repair in Elderly Patients

The goal in the elderly population of patients with hip fractures is to have definitive repair within 48 hours of admission. As identified in Figure 2.4-3, DHHA was 100% compliant with this measure compared to a 92% national average. DHHA's perfect compliance reflects the importance of operating room availability for trauma cases and the need for timely repair of hip fractures.

Figure 2.4-3: First Operative Internal or External Fixation in Elderly Patients with Isolated Hip Fracture

Group	Isolated Hip	Operative	Hours to Operative Fixation	Timely Operative Fixation
Denver Health	58	89.7%	19.5 [14.9-22.8]	100.0%
All Hospitals	47,586	90.5%	21.2 [15.6-28.2]	92.4%

Open Tibia Shaft Fracture Processes to Prevent Infection

In order to prevent infections in open tibia shaft fractures, antibiotics should be administered within 1 hour of arrival and operative irrigation and debridement (I&D) within 24 hours of arrival. DHHA was 100% compliant with antibiotics and provided similar timeliness to other hospitals (Figure 2.4-4). DHHA performed more irrigation and debridement procedures than other hospitals and was still able to perform the procedures in a timely manner.

Figure 2.4-4: Processes to Prevent Infection in Open Tibia Shaft Fractures

Group	Open Tibia Shaft Fractures	Antibiotic Therapy	Antibiotic Therapy within 1 hour of arrival	Irrigation and Debridement	Irrigation and Debridement within 24 hours of arrival
Denver Health	36	100.0%	73.3%	100.0%	88.9%
All Hospitals	6,569	98.7%	71.9%	94.4%	91.8%

[†] Among patients receiving antibiotic therapy after hospital/ED arrival

Hemorrhagic Shock Care

As shown in Figure 2.4-5, 68% of hemorrhagic shock patients at DHHA received surgery for hemorrhage control compared to the national average of 53%. The median time to surgery was nearly 50% faster than the national median (32 vs 56 minutes). The same impressive performance was seen in angiography timing (1.4 hours DHHA vs. 2.7 hours nationally).

Figure 2.4-5: Hemorrhagic Shock Management within First 24 Hours

Group	Hemorrhagic Shock Patients	Surgery for Hemorrhage Control	Minutes to Surgery (Median [IQR])	Angiography	Hours to Angiography (Median [IQR])
Denver Health	79	68.4%	32 [17-72]	20.3%	1.4 [0.7-2.3]
All Hospitals	9,003	52.8%	56 [33-116]	16.2%	2.7 [1.5-4.6]

Note: Patients may have both surgery for hemorrhage control and angiography.

Venous Thromboembolism (VTE) Prophylaxis

Overall, 80% of DHHA's trauma patients received VTE prophylaxis, which is 11% more often than the national rate (Figure 2.4-6). DHHA provided VTE prophylaxis more frequently than the national average in all trauma cohorts. This can be attributed to a hospital-wide focus on VTE prevention.

Figure 2.4-6: Pharmacologic VTE Prophylaxis by Cohort*

Group	All Patients	Blunt Multisystem	Penetrating	Shock	Severe TBI	Elderly	Isolated Hip Fracture
Denver Health	79.6%	90.0%	93.3%	94.3%	72.9%	78.3%	98.3%
All Hospitals	71.8%	83.8%	85.7%	83.4%	70.1%	67.6%	87.2%

*Excluding deaths in the ED, deaths within the first 48 hours of arrival, and deaths with unknown time to death.

3. INPATIENT SAFETY & QUALITY INITIATIVES

3.1. Target Zero

Target Zero is an enterprise-wide initiative to protect patients from preventable harm due to infections, falls, blood clots, and pressure injuries (Figure 3.1-1). Denver Health began this strategic initiative in 2015 and until the COVID-19 pandemic hit, had been experiencing year over year improvements (Figure 3.1-2). In 2020, we experienced a 20% increase in Target Zero events, largely due to complications from COVID-19. While the total number of Target Zero events declined in 2021, we remain higher than our pre-pandemic baseline. With a lower burden of COVID-19 admissions in 2021, a lower percentage of Target Zero events were in patients with COVID-19. Nonetheless it is striking that since April 2020, while approximately 10% of the hospital days were for patients with COVID-19, more than 30% of all target zero cases were in patients with COVID-19 (Figure 3.1-3). Figure 3.1-4 demonstrates the monthly relationship of COVID-19 on Target Zero events.

Target Zero is comprised of seven potentially preventable events:

Catheter-Associated Urinary Tract Infections (CAUTI)

Hospital-acquired CAUTIs are identified by Infection Preventionists (IPs) using the Centers for Disease Control and Prevention (CDC) National Healthcare Safety Network (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.

***Clostridioides difficile* Infections (*C. difficile*)**

Hospital-acquired *C. difficile* infections are identified by IPs using the CDC NHSN criteria, i.e. diagnosed in inpatients after three hospital days.

Falls with Injury

Falls voluntarily reported in Safety Intelligence (SI) which led to moderate or major injury or death.

Hospital Acquired Pressure Injuries (HAPI)

A pressure injury is localized damage to the skin and/or underlying soft tissue usually over a bony prominence or related to a medical or other device. The injury can present as intact skin or an open ulcer and may be painful.

Surgical Site Infections (SSI)

Infection Preventionists (IPs) identified SSI after colon, breast, hip arthroplasty, knee arthroplasty, and abdominal hysterectomy procedures using NHSN criteria from the CDC.

Venous Thromboembolism (VTE)

Hospital-acquired venous thromboembolism, i.e. pulmonary embolism or deep vein thrombosis based on final billing diagnoses.

Goals of Target Zero:

- 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.

Figure 3.1-1: Target Zero Events

Event Category	2015	2016	2017	2018	2019	2020	2021	% Change Since 2015
<i>C. difficile</i> infection	95	93	68	81	49	53	44	-54%
CAUTI	40	33	21	11	32	38	28	-30%
CLABSI	32	20	10	11	5	12	10	-69%
Falls with Injury	24	10	9	9	11	15	9	-63%
HAPI	13	19	22	32	26	31	31	138%
VTE	43	44	29	28	24	39	46	7%
Surgical Site Infection	24	23	28	12	16	14	13	-45%
Total	271	242	187	184	163	202	181	-33%

Lives impacted: 473 more patients would have suffered harm if event rates remained at 2015 levels.

Figure 3.1-2: Average Monthly Target Zero Events

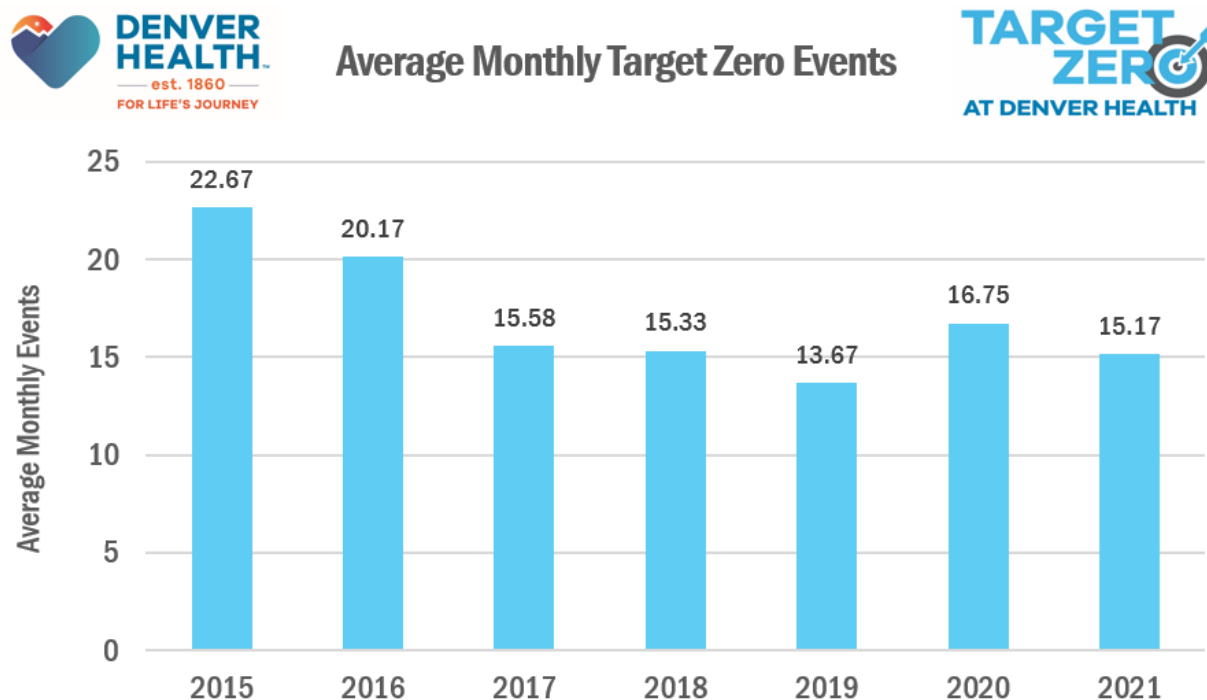
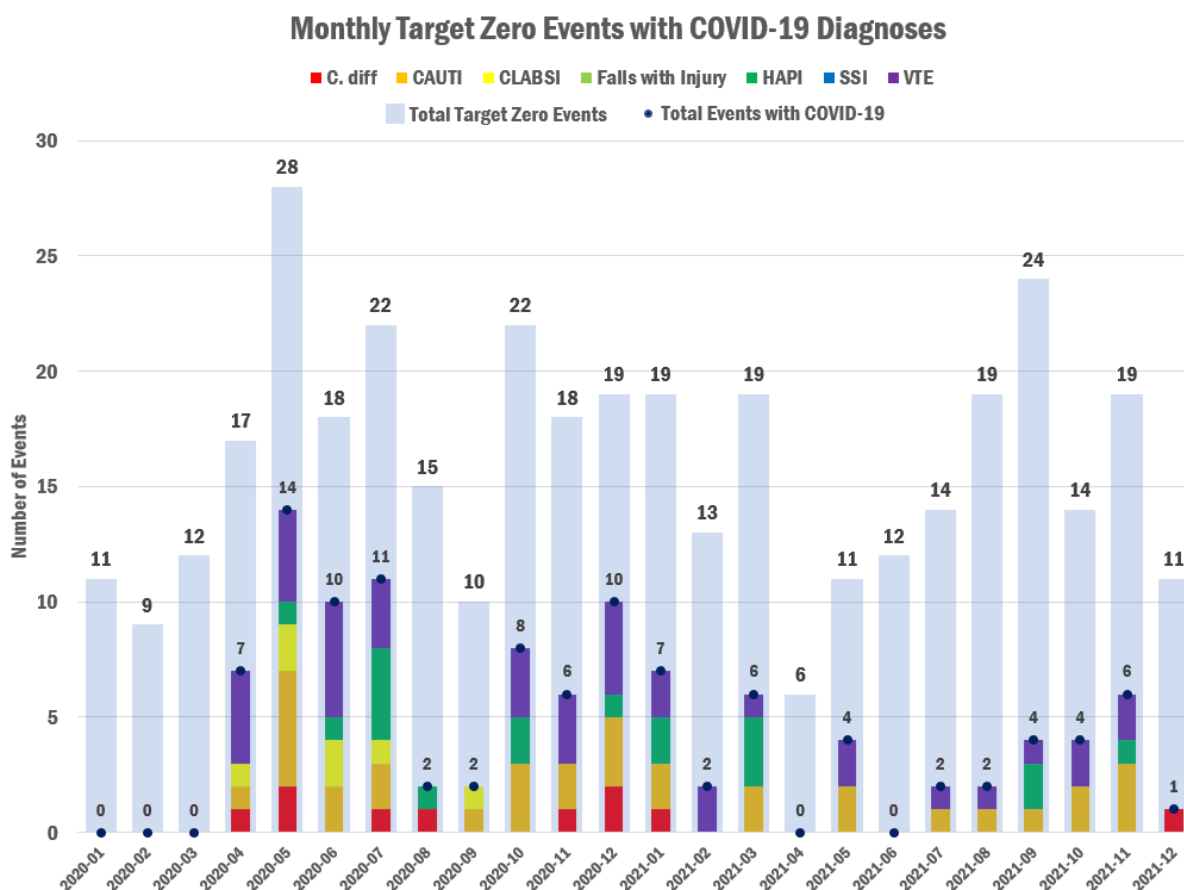


Figure 3.1-3: Number of Patients with COVID-19 Diagnosis at Same Time as Target Zero Event*

Event Type	Total Events	COVID-19+	COVID-19+ Rate
C. diff	86	10	11.6%
CAUTI	60	33	55.0%
CLABSI	22	7	31.8%
Falls with Injury	19	0	0.0%
HAPI	57	18	31.6%
SSI	21	0	0.0%
VTE	85	40	47.1%
TOTAL	350	108	30.9%

* Events between Apr 1, 2020 – Dec 31, 2021

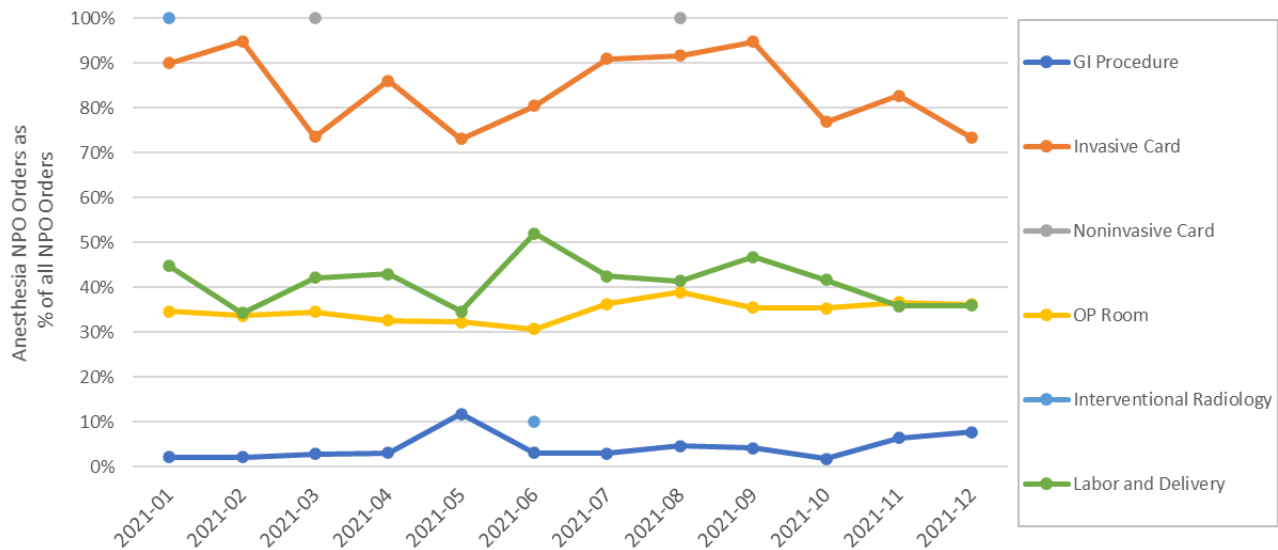
Figure 3.1-4: Impact of COVID-19 on Target Zero Events



3.2 Pre-Procedure Dietary Orders

Denver Health embarked on an effort to improve comfort and safety for patients awaiting surgery. Previously, DHHA had one standardized order—“nil per os (NPO) after midnight”, i.e. nothing through the mouth after midnight. A multi-disciplinary team used evidence-based Enhanced Recovery After Surgery (ERAS) principles to create a new “NPO per Anesthesia” order set, which was designed to provide more liberal diet and oral fluid orders. Effective October 1, 2019, this order set became the default dietary option for elective inpatient surgical cases. Dietary and cafeteria staff are alerted that the patient is NPO, thereby disallowing the patient from ordering food from the cafeteria. Nursing staff, however, can provide the patient with nutrition items from their unit’s floor stock. The NPO per Anesthesia order set is being used in all surgical areas (Figure 3.2-1). The Invasive Cardiology department had the highest compliance. Attention to use of this order set in the main operating room waned during the 2020 pandemic so surgical and anesthesia residents were re-educated in 2021.

Figure 3.2-1 Pre-Procedure Dietary Orders



3.3 Morning Lab Stewardship

The Internal Medicine (IM) residency quality improvement project in academic year 2020-2021 focused on lab ordering stewardship. Residents often order “basic labs” daily on patients even when not necessary for good clinical care. The aim of the project was to reduce daily lab ordering using educational sessions given by one of the chief medical residents along with decision support tools in Epic to reduce unnecessary lab ordering. An order panel available to all providers was developed in Epic to highlight the trend of labs over the past 3 days at the time of ordering morning labs (Figure 3.3-1). Information on recent labs was available to the clinician at the time of making the decision about which labs should be ordered for the next day. In addition, decision support fired at the time of ordering either a basic metabolic panel or complete blood count in the setting of having normal values for those lab panels in the preceding 24 hours (Figure 3.3-2). This BestPractice Advisory was targeted at resident physicians on the medicine floor teams. Residents acted on the suggestion approximately 20-25% of the time (Figure 3.3-3).

Figure 3.3-1: Order Panel for Daily Morning Labs

AM Labs
✓ Accept

Recent CBCs (Last 3 results in the past 72 hours)

	04/18/22 0424	04/17/22 0354	04/16/22 2152
Auto WBC	17.4	14.3	16.8
Hemoglobin	8.6	9.1	8.8
Platelets	164	179	177

Recent BMPs

	04/17/22 0354
Sodium	133
Potassium	4.3
Chloride	102
CO2	22
BUN	12
Creatinine, Ser	0.42
Glucose	86
Magnesium	1.4
Phosphorus	3.0

Recent LFT panels
None

CBC
Morning draw, Starting 4/19/22 for 1 occurrence

CBC auto differential
Morning draw, Starting 4/19/22 for 1 occurrence

Basic metabolic panel
Morning draw, Starting 4/19/22 for 1 occurrence

Magnesium
Morning draw, Starting 4/19/22 for 1 occurrence

ⓘ Next Required
✓ Accept

Figure 3.3-2: Decision Support to Prevent Unnecessary Labs

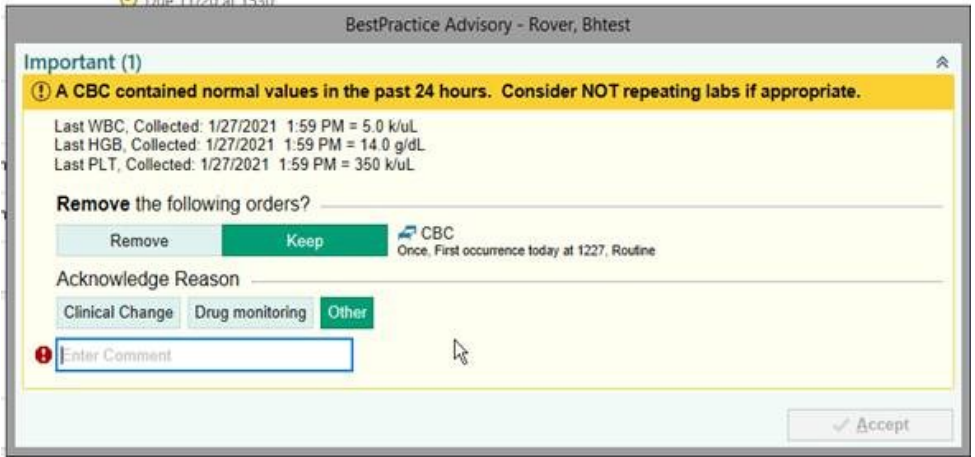
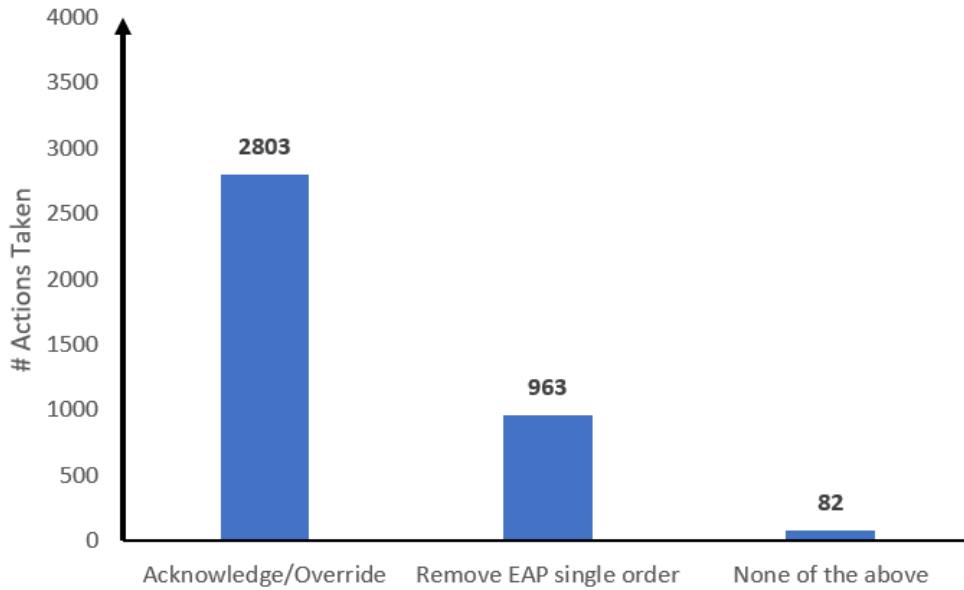


Figure 3.3-3: Action Taken on BestPractice Advisory for Routine Morning Lab Orders*



* February 11, 2021—December 31, 2021

3.4. Zero Suicide Commitment

In 2021, Denver Health made the commitment to strive for the aspirational goal of “Zero Suicide”. Zero Suicide is a framework of evidence based practices that have proven to reduce suicidality in patient populations. The framework is comprised of seven elements: lead, train, identify, engage, treat, transition, and improve. A Zero Suicide committee was established in order to identify current processes, identify gaps in care, and monitor progress towards Zero Suicide goals. This committee leadership is comprised of physician and nursing leaders from behavioral health disciplines, with support provided by the Patient Safety and Quality Team. Committee membership includes leaders from throughout the organization (inpatient and outpatient), including individuals with lived experience.

Details of progress towards this goal include:

- Completion of organization-wide workforce survey
- Formal organizational self-assessment completed
- Committee leadership attended 2-day Zero Suicide Academy
- Increased auditing and compliance reporting to individual departments
- Offered organization wide Suicide Prevention Gatekeeper Training
- Coordinated speaker with “lived experience” at Nursing Grand Rounds.
- Full credit in the HQIP Zero Suicide Measure
- Creation of internal informational subsite

Workforce Survey

The Zero Suicide Framework emphasizes ensuring that the organization’s workforce is “competent, confident, and well trained, regardless of role or responsibility” (www.zerosuicide.edc.org). DHHA utilized an organization wide workforce survey to help the committee assess staff perception of their own knowledge, as well as the comfort level of interacting with patients who may be at risk for suicide. Over 1,300 employees completed the survey. The following graphs show a breakdown of respondents by location (Figure 3.4-1) and role (Figure 3.4-2).

Figure 3.4-1: Employee Location

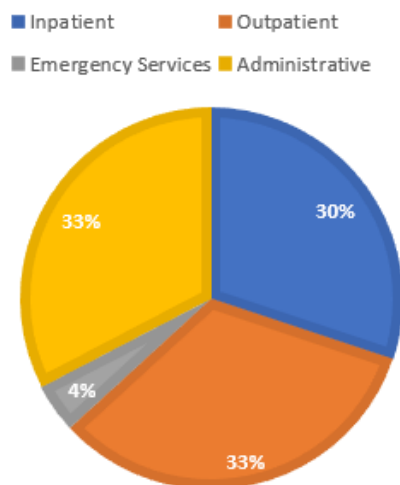
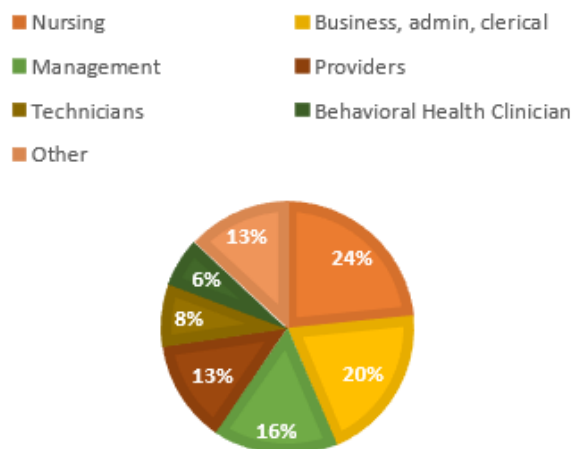


Figure 3.4-2: Employee Role



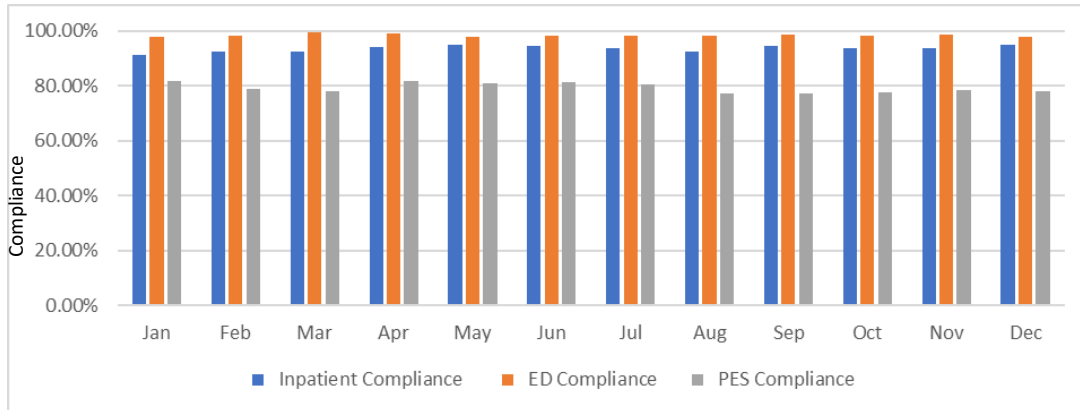
The results show that over half of the responding employees interact with individuals who may be at risk for suicide (68%) and that even more employees (79%) view suicide prevention as an important part of their professional role. DHHA has a favorable culture of safety surrounding suicide with the vast majority of employees reporting that the organization would be responsive to employees bringing up issues regarding the care of suicide patients (75%) and employees did not feel blamed when an individual died by suicide (83%).

The survey also identified areas to focus efforts in 2022. For example, only 37% of respondents are familiar with the Zero Suicide initiative – and even more have not received training. Requested training included identifying warning signs for suicide (61%), suicide prevention and awareness (60%) and how to communicate around suicide (50%). This information guiding the committee’s future initiatives to reach the goal of Zero Suicide. DHHA plans to increase awareness of the institution’s commitment to Zero Suicide as well as work towards identifying appropriate training methods for every level of employee.

Identifying and Assessing Individuals with Suicide Risk

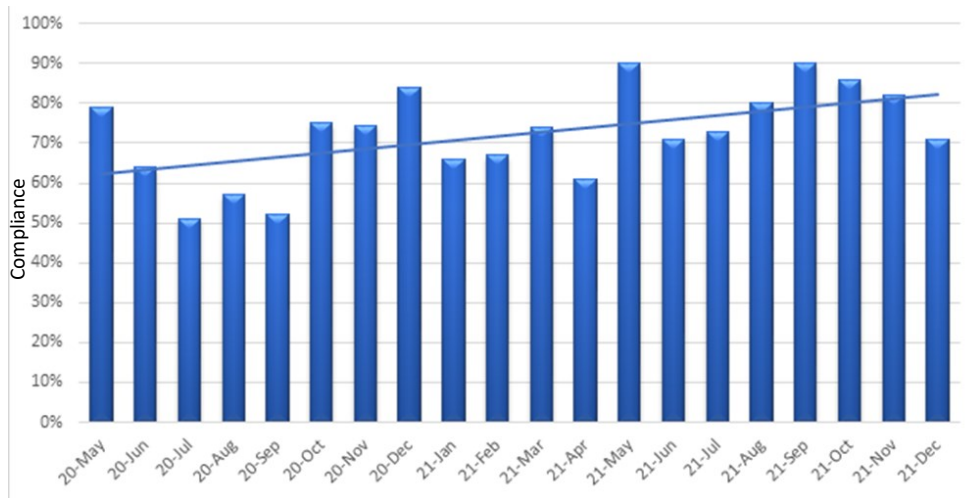
Another core tenant of suicide prevention is accurate identification of patients at risk for suicide. Denver Health screens all patients in the emergency room with a behavioral health complaint and every admitted patient for suicidality using the validated screening tool, the Columbia Suicide Severity Rating Scale (CSSR-S). Compliance is nearly 100% for admitted inpatients (Figure 3.4-3).

Figure 3.4-3: Screening Compliance 2021



A Psychiatric Consult is placed on inpatients who have been identified as high or moderate risk for suicide. This consult allows a trained individual to evaluate the need for further intervention. Routine screening yielded almost 600 “positive screens” during 2021. The graph below shows an overall increase in the compliance of this standard (Figure 3.4-4).

Figure 3.4-4: Consult Order Compliance



PI Activity

- DPSQ continued to work with a multi-disciplinary team to ensure maintenance of performance improvement and on-going improvement to goal.
- Suicide screening, assessment, and prevention data was reported quarterly at the Behavioral Health Quality Meeting.
- Monthly summary sent to leadership with detailed exploration of gaps in performance to identified goals.
- Shared data use agreement completed with CDPHE which allows for the information exchange regarding Denver Health patients who die by suicide. This information allows us to examine data for trends, opportunities, and challenges in providing care.

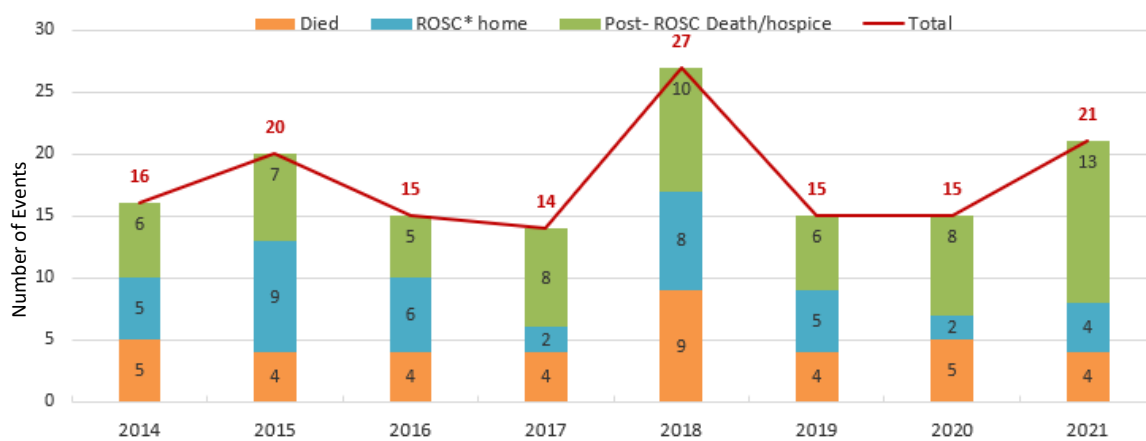
3.5. COR Zero and ICU Transfers

Denver Health is committed to providing care at the right time and in the right setting. In an effort to ensure that high quality of care is provided, DPSQ has standard work in place to review the clinical care of patients who require a rapid assessment and response.

Coronary/Respiratory Arrest (COR Zero and/or Code Blue)

A review of medical emergencies was conducted by the Code Blue Committee. In 2021, there were 21 “Code Blue” events on the Acute Care units (Figure 3.5-1). An ACLS trained Code Blue team is called to the patient’s room to assess and resuscitate the patient. DHHA experienced high patient capacities and volumes along with increased staffing shortages yet was still able to maintain its lower level of Code Blue activations in 2021 with only an increase of 6 compared to the prior year. This can be attributed to utilization of a Rapid Response Team proactively rounding, utilization of team escalation huddles, and utilization of the 24/7 Rapid Response Team. In 2021, the Rapid Response Committee was organized and met every other month. Ongoing review of rapid response and transfer events takes place. Processes are evaluated for performance improvement opportunities, including monitoring utilization of Epic tools such as Deterioration Index (DI).

Figure 3.5-1: Acute Care COR Zero / Code Blue Events

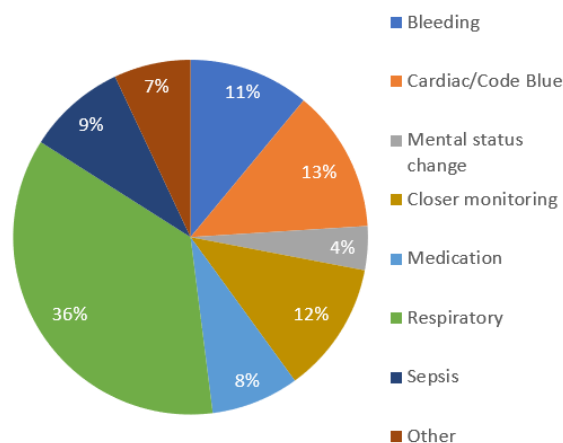


*ROSC: Return of Spontaneous Circulation

Intensive Care Unit (ICU) Transfers

Transfers from Acute Care units to ICUs decreased between 2020 and 2021 (491 and 400 transfers, respectively). After careful analysis of the events, respiratory conditions contributed to 36% of all transfers in 2021 (Figure 3.5-2). Other key factors included cardiac issues, bleeding, sepsis, mental status change and the need for closer monitoring. COVID-19 continued to challenge the hospital in 2021 with pandemic patient surges, increased length of stay, lack of placement options, and hospital divert status; however, patients were able to be managed effectively on the acute care units as evidenced by the decrease in overall transfers. Continued reinforcement of the DI Score and Rapid Response team helped to identify patients quickly and thus start treatment to prevent the patient from decompensating further.

Figure 3.5-2: Reason for Transfer from Acute Care to Intensive Care Units, 2021



3.6. Procedural Sedation

Procedural Sedation is a high-risk intervention that requires well written guidelines for practice and demonstration of ongoing competency. 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 drive performance improvement activities. The Procedural Sedation Committee reviews data and makes recommendations to ensure ongoing performance improvement. Figures 3.6-1 and 3.6-2 display the bundle pass rate for outpatient and inpatient documentation, respectively. Adherence to bundle documentation compliance varied throughout 2021. 2022 plans include evaluation of the procedural sedation documentation bundle and auditing practices. Targeted performance improvement will be implemented as necessary.

Figure 3.6-1: Outpatient Procedural Sedation Bundle Pass Rate

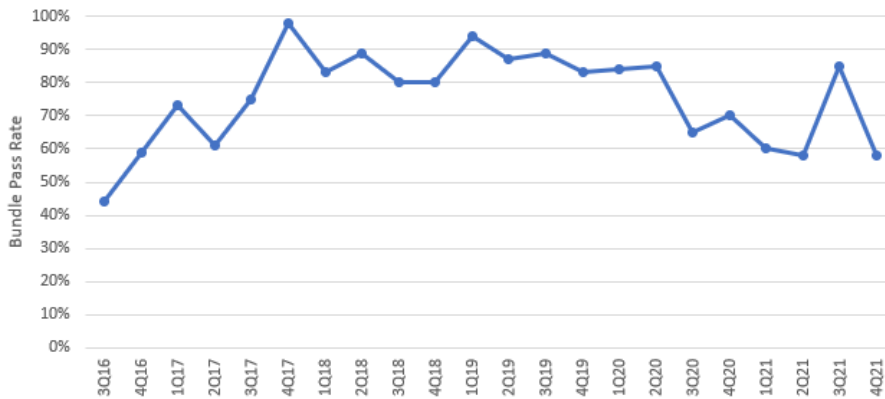
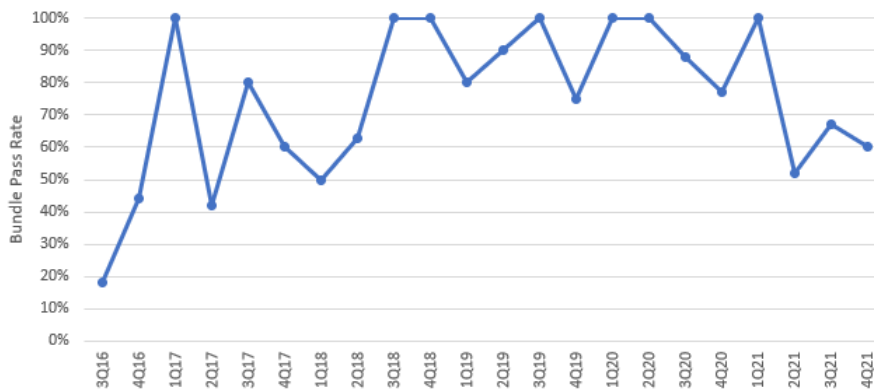


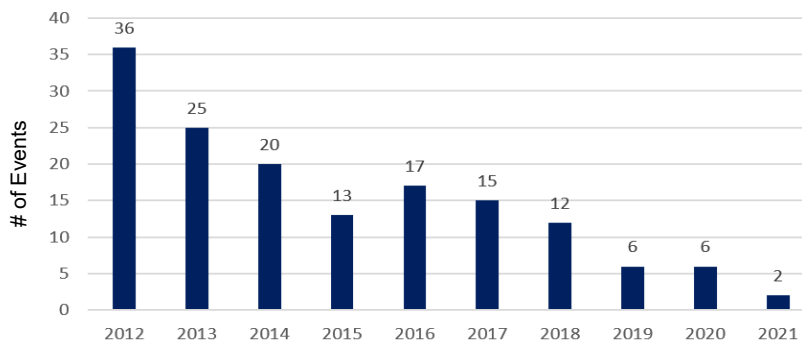
Figure 3.6-2: Inpatient Procedural Sedation Bundle Pass Rate



Procedural Sedation Occurrence/Safety Events

In 2021, there were two self-reported safety events related to procedural sedation (Figure 3.6-3). All events were immediately recognized and there was no patient harm. All cases are reviewed by DPSQ, Anesthesia and individual units for system and process improvement opportunities.

Figure 3.6-3: Procedural Sedation Safety Events by Year*



* Procedural sedation areas include Emergency Department (ED, PEDUC, Winter Park), Invasive and Non-Invasive Cardiology, Interventional Cardiology, GI Lab, Bronchoscopy, Oral Maxillofacial Services, Adult Critical Care (MICU, SICU, PCU), and Pediatrics Critical Care (PICU, NICU).

3.7. Diabetes Education Program

Despite the ongoing challenges of working and living with COVID-19, 2021 was an exceptionally productive year for inpatient and outpatient diabetes care and education specialists at DHHA. Increased demand for high-quality and evidence based diabetes care continues to grow, and at present there are over 14,000 people on DHHA's diabetes registry. National trends also demonstrate that the “pandemic” of diabetes continues unabated. According to the CDC’s 2020 National Diabetes Statistics Report, approximately 34 million people are living with diabetes in the United States (up from 30 million in 2017). The following are some highlights of this past year’s accomplishments:

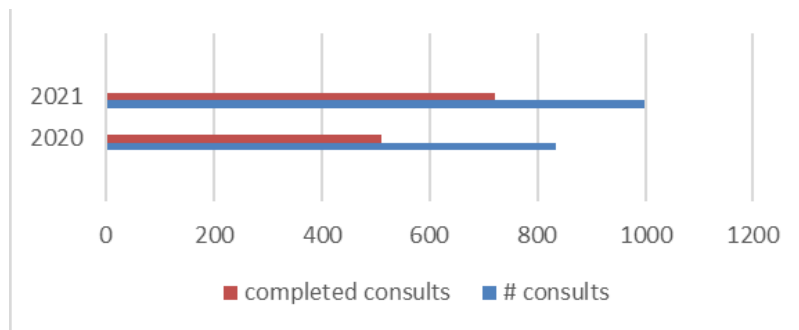
2021 Continuing Education (CE) offerings:

- Three virtual lunch and learn sessions focused on:
 - ◇ Continuous glucose monitoring
 - ◇ Rejecting diet culture, increasing awareness of weight bias, and highlighting a “healthy-at-every-size” approach
 - ◇ 1 Nursing CE offered per lunch and learn
- Annual November Diabetes Education Conference at DHHA
 - ◇ 8-hour virtual conference
 - ◇ 7 content experts presented on a variety of diabetes-related topics
 - ◇ 8 Nursing CEs offered
- February Nursing Grand Rounds
 - ◇ COVID-19 and diabetes
 - ◇ 1 Nursing CE offered
- More than 300 Denver Health employees received diabetes education through lunch and learns, ongoing staff trainings, and conferences organized by DHHA certified diabetes care and education specialists (CDCES) in 2021.

Inpatient diabetes services:

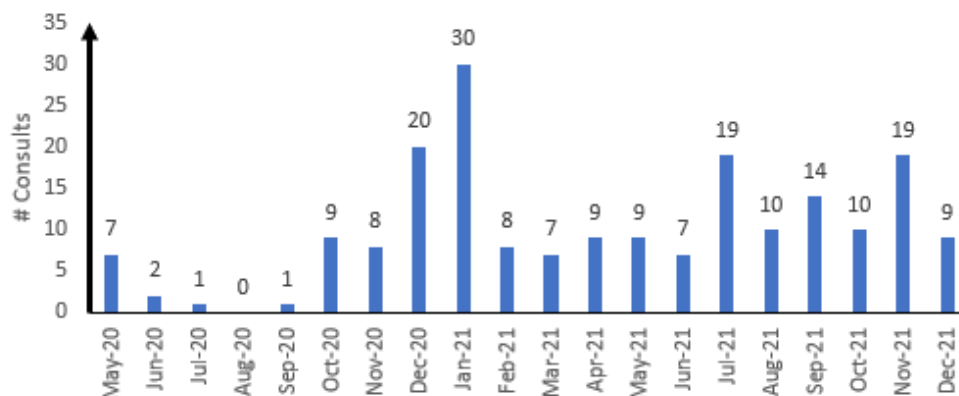
- Consults for an inpatient CDCES increased by 20% since 2020 (Figure 3.7-1).

Figure 3.7-1: Inpatient Certified Diabetes Care and Education Specialists Consults



- Inpatient continuous glucose monitoring (CGM) continues to be available primarily for hospitalized patients with COVID-19 who require glucose monitoring (N=146 for 2021). CGM has been safely utilized in approximately 230 patients since May 2020 (Figure 3.7-2) and has helped decrease thousands of instances of personal protective equipment (PPE) usage and staff exposure to COVID-19.

Figure 3.7-2: Inpatient CGM Consults



2021 inpatient quality improvement:

- In response to an October 2020 Lean event, efforts were made to improve efficiency around ordering and administering subcutaneous insulin
 - ◇ After reviewing the literature and surveying other institutions and Denver Health nursing staff, the decision was made to eliminate the second registered nurse (RN) co-sign needed to remove insulin from the Pyxis machine
 - ◇ This project was successfully piloted on two inpatient units (9A and 3Flex)
 - ◇ No increase in safety events were observed during the pilot
 - ◇ Nursing staff had an overwhelming positive response to the change
 - ◇ Nurses administered insulin within 30 minutes of the most recent point of care glucose result (standard of care) more frequently with this process
 - ◇ Removal of second RN co-sign for insulin was implemented in most adult inpatient units in summer 2021
 - ◇ Very few safety events related to the administration of insulin (due to lack of a second RN co-sign) were reported
 - ◇ Updates were made to the diabetes management and medication order set per request to improve provider efficiency and workflow
 - ◇ A long-awaited pediatric diabetes management and medication order set was built, and is currently in the final stage of review.

Outpatient diabetes care services:

- To meet increased ambulatory demand, the Endocrinology department added two mid-level providers. One of these mid-level providers also sees hospitalized patients with the inpatient Endocrine service and plays a key role in ensuring a smooth transition to outpatient care and timely follow-up.
- The adult Endocrinology clinic recently added a full-time diabetes care and education specialist. This role will bolster support for Endocrinology providers and clinic patients and will also ensure newly diagnosed patients who plan to follow-up with Endocrinology have ongoing education and support after discharge from the hospital.
- A guideline was created to provide outpatient staff with evidence-based recommendations for the safe adjustment of diabetes medications prior to an elective procedure.
- A diabetes education curriculum was created for ambulatory care nurses in Cornerstone.

Additional accomplishments

- Poster presented at virtual ENDO 2021
 - ◇ Finn, E, Pereira, RI, Schlichting, L. Implementation of a continuous glucose monitoring program at a safety net hospital during Covid-19 pandemic. Poster presented at: ENDO 2021; 2021 March 20-23; virtual conference.
- Publication of a “Teachable Moment” in JAMA Internal Medicine:
 - ◇ Coffey S, Schlichting L, Cunningham JM. Insulin Pump Treatment for the Hospitalized Patient. *JAMA Intern Med.* 2021;181(5):685–686. doi:10.1001/jamainternmed.2021.0106
- Denver Diabetes Care and Education Specialists YouTube channel
 - ◇ Created by Denver Health diabetes care and education specialists at the beginning of the pandemic to provide patients with diabetes-related video resources (English and Spanish)
 - ◇ Has over 100,000 views
 - ◇ Most watched video is *Como inyectar con la pluma de insulina* (>130K views)

Looking ahead, diabetes care and education specialists at Denver Health look forward to:

- Creating more original content and useful educational resources for inpatient and outpatient staff
- Continuing to leverage the use of technology to enhance both inpatient and outpatient care and outcomes
- Increasing inpatient and outpatient diabetes-related services to meet the demand for high-quality, individualized, and evidenced-based diabetes care, education, and support.

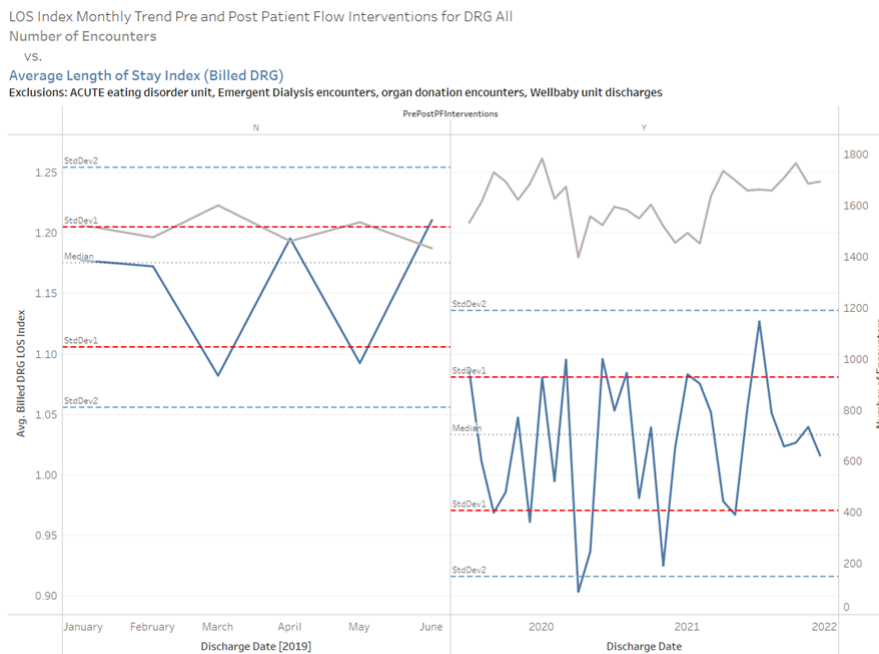
3.8. Patient Flow Workgroups / Length of Stay

In 2021, the Patient Flow workgroup efforts were focused on process improvements for throughput in several areas:

- The Clinical Decision Unit (CDU) was opened on the first floor. The CDU enables caring for a large majority of observation patients in a protocol-driven unit which dramatically decreases the observation average length of stay (LOS) and opens up more of our inpatient-licensed beds to treat inpatients.
- The Patient Flow Center was opened. The Patient Flow Center brings together many of the disciplines focused on patient flow into one area, with new workflows to identify and remove barriers for hospital discharge. In addition, we updated our Hospital Capacity Management Plan and created a new capacity escalation huddle for when the hospital reaches a critical bed capacity level. This huddle pulls in additional resources including ancillary services and directors of service to identify patients with barriers to discharge that can be removed immediately for discharge. This opens beds expeditiously.
- Identify patients' expected discharge dates. Each day, care teams identify the expected discharge date for each patient. This information is automatically included in ancillary team lists to enable prioritization of patients who are expected to be discharged each day. The lists of expected discharges by unit are displayed in DHHA's Capacity Management dashboard to bring awareness for staff to see how many patients are expected to discharge from each unit.
- Introduction of multidisciplinary inpatient antibiotics rounds. These rounds bring together care team members from the primary care team, infectious disease, addiction, and care management to create a plan for some of our more complex discharges for patients requiring IV antibiotics for severe infections.
- Partnered with DHHA's Outpatient clinicians to reinstitute the remote monitoring of COVID-19 patients in time for the Fall/Winter surge, as well as the addition of more diagnoses that can be remotely monitored, enabling an earlier discharge from the hospital or an avoided admission.

Length of Stay Index (LOSI) is the ratio of a patient's actual length of stay to the expected length of stay for the patient's diagnosis related group (DRG). Denver Health's average LOSI decreased dramatically once the interventions began in mid-July 2019 (Figure 3.8-1) and have maintained a significantly lower median (despite the impacts of COVID-19 internally and externally to the hospital, as well as the addition of contracted long-stay Psychiatric patients). Median LOSI for the 18 months pre-intervention (January 2018 – June 2019) was 1.15, and the 30 months post-intervention (July 2019 – December 2021) was 1.03. In addition, the Obstetrics and Psychiatric service lines did an excellent job maintaining their LOSI gains based on a targeted improvement project in July 2019. This allowed our whole hospital LOSI to remain stable despite decreased community resources like post-acute facility placement beds.

Figure 3.8-1: Length of Stay Index vs. Average Length of Stay Index



In 2022, DHHA will focus on:

- Additional throughput efforts, such as discharge milestones, patient placement on optimal units, and improving targeted throughput metrics
- Reduction of Length of Stay Index for Congestive Heart Failure patients
- Continued ramp-up of transitions of care to the new Comprehensive Care Center with the goal of discharging patients sooner with required follow up as well as help avoid readmissions.

3.9 Rapid Response System Redesign

In 2019 DHHA set a goal to integrate an Epic predictive model known as the Deterioration Index (DI) into clinical workflows and to redesign the organization’s rapid response process. In 2021 this program continues to flourish and provide valuable clinical information to front line staff. The Rapid Response Committee meets every other month and reviews call volume, type of calls, and call outcomes. See Figure 3.9-1 for number and type of calls since October 2020 and Figure 3.9-2 for reasons for calls. Cardiac issues including hemodynamic instability was the primary reason for rapid response calls.

Figure 3.9-1: Number of Rapid Response Calls and Escalation Huddles

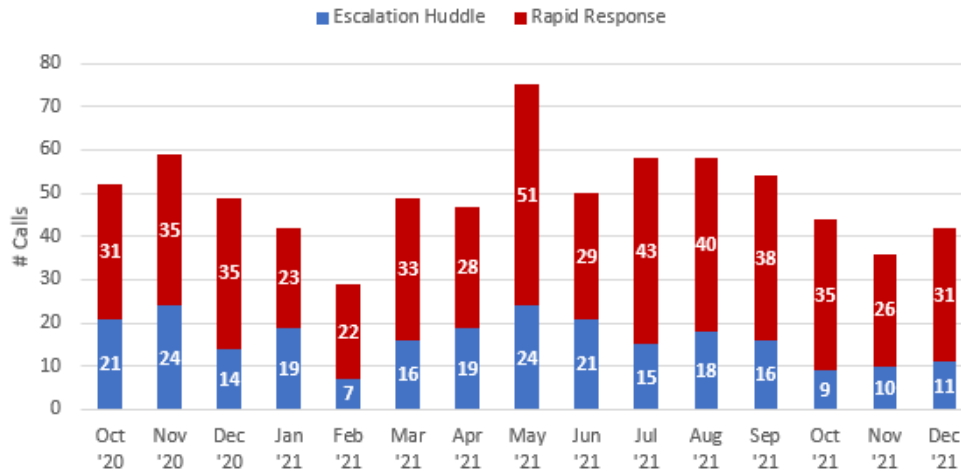
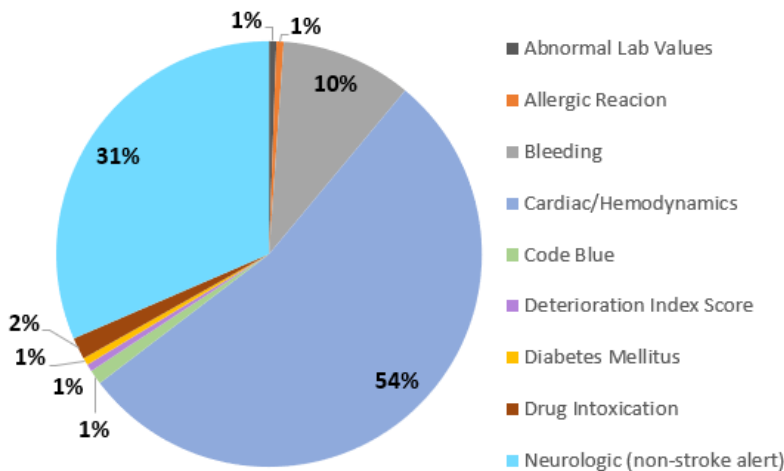


Figure 3.9-2: Reasons for Rapid Response Call, 2020-2021



RAPID RESPONSE: Reason for Call		
	2021	Percent of Total
Abnormal Lab Values	1	1%
Allergic Reaction	1	1%
Bleeding	18	10%
Cardiac/Hemodynamics	97	54%
Code Blue	2	1%
Deterioration Index Score	1	1%
Diabetes Mellitus	1	1%
Drug Intoxication	3	2%
Neurologic (non-stroke alert)	57	31%
TOTAL	181	100%

PI Activity

- The Rapid Response Committee meets every other month. The focus of the committee is to analyze data (both performance and outcome) in order to identify areas of improvement and create targeted improvement plans.
- The committee provides regular feedback to process end users and solicits their thoughts for ongoing improvement efforts.
- Rapid Response Team protocols are being developed for efficiency of patient care

2022 Plans

There are plans to drive more efficient care with Rapid Response Team protocols.

3.10 COVID-19 Pandemic

The Department of Patient Safety and Quality played a large role in supporting DHHA's COVID-19 planning, response, and recovery in 2021 in a number of ways.

Incident Command

Denver Health's Chief Quality Officer, Medical Director of Infection Prevention, and Medical Director of Antibiotic Stewardship served as Safety Officers in the Incident Command structure throughout 2021.

Vaccination

The Safety Branch provided oversight of the initial vaccination efforts of healthcare workers and high risk patients. The Manager of Infection Prevention served as a vaccine clinic manager for several of the early vaccine clinics primarily targeted at healthcare workers and high risk community members. The Safety Branch evaluated the risks and benefits of mandating the COVID-19 vaccine for healthcare workers and announced the mandatory vaccine requirement in July 2021. The Infection Prevention team, in coordination with COSH, collected vaccination data on over 8000 employees, contractors, students, and volunteers. Members of the Department of PSQ were participants on the committees that reviewed both medical and religious declinations. We are proud to report that over 96% of our employees are fully vaccinated for COVID-19 and less than 20 employees were terminated for failure to receive COVID-19 vaccine.

Testing

COVID-19 testing strategy was coordinated by a subcommittee of the Safety Branch. This committee included Drs Young and Jenkins. The committee managed shortages in rapid testing supplies, worked with DHHA's Operations Branch to optimize testing appointment spots, and pivoted the outpatient COVID-19 testing strategy as rates declined in the community.

Outbreak investigation

During the Omicron surge in late 2021, the Infection Prevention team was notified of a number of outbreaks that occurred in congregate inpatient settings including on the Oasis unit, the psychiatry unit, 3- and 4-person acute care rooms, and the CARES treatment center. Infection Prevention worked with the unit leadership, the administrative care coordinators, and the laboratory to coordinate surveillance testing, admission strategy, and patient quarantine.

Policies and procedures

In 2020, a COVID-19 subsite was developed on the Denver Health intranet. All recent documents were placed onto this subsite for easy access by clinical staff. However, the subsite rapidly became disorganized with outdated documents continuing to exist. The Director of PSQ recognized this enormous issue and began to organize the COVID-19 specific documents into PolicyStat in order to ensure that the information accessed was most accurate and up-to-date. As the COVID-19 pandemic slowed over the summer of 2021, the Director of Patient Safety and Quality and the Program Manager of Document Management worked with document holders to integrate COVID-19 policies into existing policies or to retire documents.

Visitation

The Department of Patient Experience, nursing leadership, and members of the Department of PSQ met to revamp the visitation policy. DHHA tried to balance the risk of COVID-19 being brought into the facility and the stress of visitors on nursing staff with the benefits to patient safety that visitors bring to their hospitalized friends and family members. Thus, DHHA developed a tiered approach to visitation that could be flexed as COVID-19 rates in the community changed and as the number of hospitalized patients with COVID-19 changed.

Personal Protective Equipment (PPE) and Isolation

- PPE
 - ◇ The Infection Prevention (IP) team continued to optimize PPE for COVID-19 throughout 2021. IP continues to recommend an N95 mask, face shield, gown, and gloves for patients with known or suspected COVID-19 infection, although the most recent guidance from the Infectious Diseases Society of America does consider a medical mask to also be appropriate for patients with COVID-19 who are not undergoing an aerosol-generating procedure. The Infection Prevention team hopes to disseminate this messaging to the institution in 2022.
- Negative pressure rooms
 - ◇ Denver Health was able to change the entire Pavilion B to negative pressure rooms through the HVAC system. While this was beneficial during surges of COVID-19, it puts additional pressure on the HVAC system and may lead to earlier failure of these units. It also makes temperature regulation far more challenging throughout the hot and cold seasons of the year. The Infection Prevention team reviewed the recent literature and CDC recommendations with regards to negative pressure isolation rooms. Negative pressure rooms are recommended, but not required, for COVID-19 patients when undergoing an aerosol-generating procedure. However, standard pressure rooms are considered adequate for COVID-19 patients when they are not undergoing an aerosol-generating procedure. Thus, the Infection Prevention team worked with nursing staff, physician leaders, and the engineering department to begin returning the rooms to standard pressure.

- Isolation duration
 - ◇ The Infection Prevention team reviewed recent guidance from CDC and was able to safely shorten the duration of isolation from 10 days to 5 days for some hospitalized patients with COVID-19. This logic was built into Epic by DH's Infectious Disease Physician Informaticist and his informatics colleagues, leading to better standardization and earlier discontinuation of isolation for patients with mild-moderate severity of illness.

Staff Communication

DPSQ staff have been frequent presenters on the Weekly Leadership Call, where important information is disseminated to hospital leadership. Some of the presentations included General COVID-19 Updates and COVID-19 Vaccine Updates.

3.11 Policy Management

Denver Health had unprecedented staff turnover which contributed to challenges with user and policy management. However, DHHA achieved its lowest ever number of past due documents at 19 during 2021. The average number of past documents in 2021 was 36 (2.3% of all documents). Figure 3.11-1 displays PolicyStat document management statistics. In 2022, DHHA will be integrating PolicyStat into the new incident, complaints, and claims system.

Figure 3.11-1: PolicyStat Management Statistics for 2021

	Main DHHA Site	DHHA Human Resources Site	Denver Health Medical Plan (DHMP) Site
Total documents	1,525*	68	237*
New documents	97	4	26
Retired documents	28	3	12

*30 documents are on both DHHA and DHMP sites

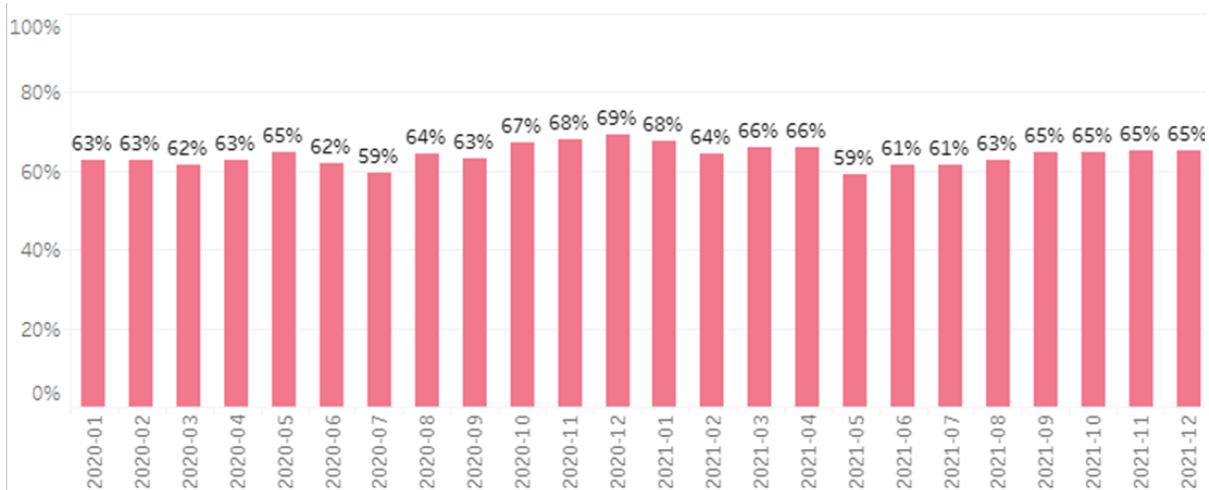
3.12. VTE Prophylaxis Taskforce

According to the CDC, Venous Thromboembolism (VTE) events are a leading cause of preventable hospital death in the United States, and they remain a major cause of post-hospitalization ED visits, unplanned readmissions, and morbidity. In 2018, the American Society of Hematology declared that all acutely ill medical (hospitalized) patients are at risk for VTE, including patients in observation status. Luckily, studies have shown that up to 70% of hospital acquired VTEs are preventable through the use of blood thinning medications called anticoagulants or use of compression devices.

Denver Health responded to these guidelines by organizing a VTE Prophylaxis Task Force to address the ongoing management of these at-risk patients. This a quality-driven multidisciplinary workgroup established risk-stratified guidelines for the prevention of inpatient VTEs and provided guidance for prescribing pharmacological or mechanical therapies. This taskforce has been able to influence inpatient provider ordering behavior, COVID-19-specific guidelines, and policies and procedures.

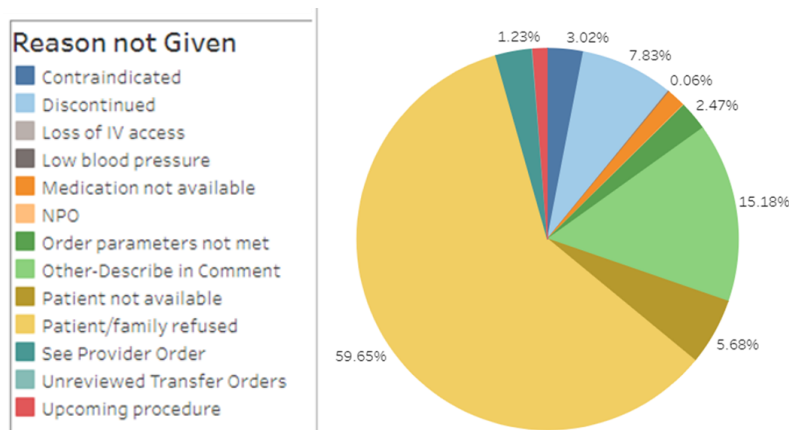
The Taskforce currently meets bi-monthly to review clinical and coding data, discuss national guideline recommendation changes and recent literature, and support internal quality improvement projects. To meet the data needs of the Taskforce, the Department of Patient Safety and Quality Data Team implemented a VTE Prophylaxis Dashboard to monitor quality outcomes, which can be stratified by patient admission location and COVID-19 status. Nearly two-thirds of hospitalized patients have an order written for VTE prophylaxis or therapeutic anticoagulation (Figure 3.12-1). This is a significant increase from 2018, when average performance was around 50% for targeted inpatients. When ordered, there are hundreds of anticoagulant doses not administered each year, with over half of missed doses being refused by patients or their families (Figure 3.12-2). In response to this data, the Task Force has outlined many alternatives to injections/infusions including several oral therapeutic anticoagulants.

3.12.-1: Percent of Inpatients with a Prophylactic or Therapeutic Anticoagulant Order*



*Data exclude Pediatric and Psychiatric admissions and Boarder patients

Figure 3.12.-2: Missed Doses by Reason not Given



3.13. Provider Scorecard

A goal for DHHA over the last 10 years has been to showcase reliable performance data on our many quality and safety improvement efforts, not only for the institution as a whole, but for every practicing clinician. While this has been in place for many years in the primary care setting, it has been challenging to link patient outcomes to individual clinicians in the inpatient setting.

To simplify this problem, the Department of Patient Safety and Quality Data Team, with input from many directors of service, developed and validated an internal Provider Attribution Algorithm designed to assign responsibility of care for every inpatient to a single provider based on their note charting activity during the patient's encounter (Figures 3.13-1 and 3.13-2). This was done by giving each note type a unique point value, allotting more weight to note types with a higher acuity of care (Operative Reports or L&D Delivery Notes), aggregating note points for each provider, and then awarding assignment to the provider with the most note points. The algorithm was implemented in 2018 with the known limitation that many of the provider-specific metrics that would be showcased are not under the sole control of the patient's attributed provider.

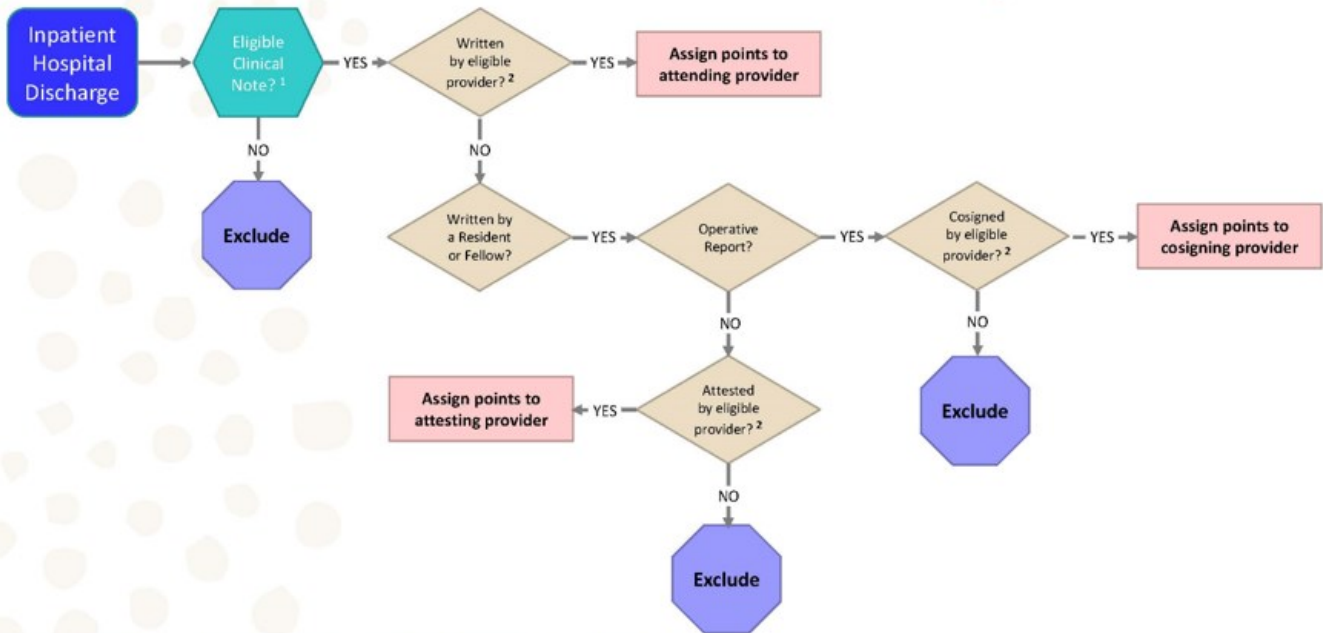
With this new tool in hand, development began in 2021 on a new Provider Scorecard Dashboard designed to give insight into individualized care patterns for all hospitalized patients, aggregated across a provider's patients relative to all providers in their specialty. Metrics were split into seven domains of care including Patient Flow, Prevention of Harm, Standardization of Care, Discharge Preparedness, Pain Management, Antibiotic Stewardship, and Patient Experience. Each measure was carefully vetted by subject matter experts to ensure its relevance and reliability. Within the Dashboard, each metric has "hover-over" details regarding its numerator, denominator, and how it is assigned to the provider. Metrics can be assigned by the attributed provider, admitting provider, ordering provider, or discharging provider. Figure 3.13.-3 shows a screenshot of the scorecard in Epic which is accessible to all medical staff.

Another unique feature of the Dashboard is its drill-through capabilities, allowing providers to "view patient level details" for an individual metric (Figure 3.13-4). The resulting list of patients represents all patients assigned to the login provider for any of the metrics on the scorecard. For each patient, the "*" represents an outcome result that was assigned to another provider.

The Department of Patient Safety and Quality appreciates ideas and feedback on the Dashboard, including additional metric suggestions for future versions and questions about the current report. The hope is that this Dashboard will become an ever-evolving part of provider-centered quality improvement in the inpatient setting.

Figure 3.13.-1: Assigning Notes to each Provider

Inpatient Provider Attribution Algorithm

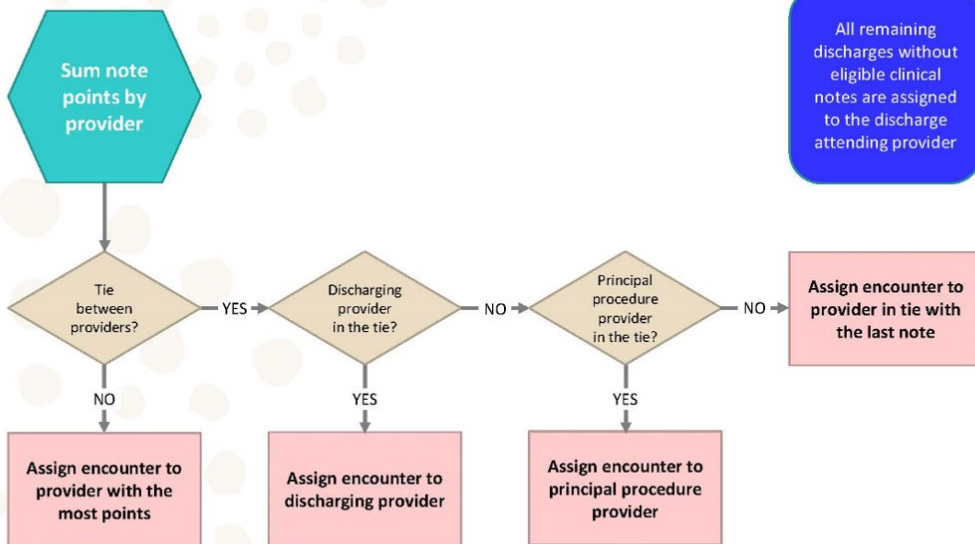


¹ See table on next page for a full list of eligible clinical notes and the points allocated for each.

² Eligible providers include Physicians, Midwives, Nurse Practitioners, Physician Assistants, and Dentists in all specialties except Anesthesiology, Radiology, and Emergency Medicine.

Figure 3.13.-2: Aggregating Points and Assigning an Attributed Provider

Inpatient Provider Attribution Algorithm



Eligible Clinical Note Types

Note Type	Points
Addendum Note	1
Advance Care Planning	3
Assessment & Plan Note	3
Brief Death Note	1
Brief Op Note	6
Code Documentation	1
Discharge Summary	3
Family Meeting	1
H&P	3
Haiku Subjective Dictation	3
Hospital Course	3
Interim Summary	3
Interval H&P Note	3
L&D Delivery Note	22
OB Triage	1
Operative Report	22
Patient Care Conference	3
Pediatrics Delivery Note	3
PMR Pre-Admission Note	3
Post-Procedure Note	3
Pre-Procedure Note	3
Procedural Sedation Note	1
Procedures	3
Progress Notes	3
Significant Event	1
Subjective & Objective	3
Tertiary Survey	1
Transfer Note	3
Treatment Plan	1



Figure 3.13.-3: Provider Scorecard

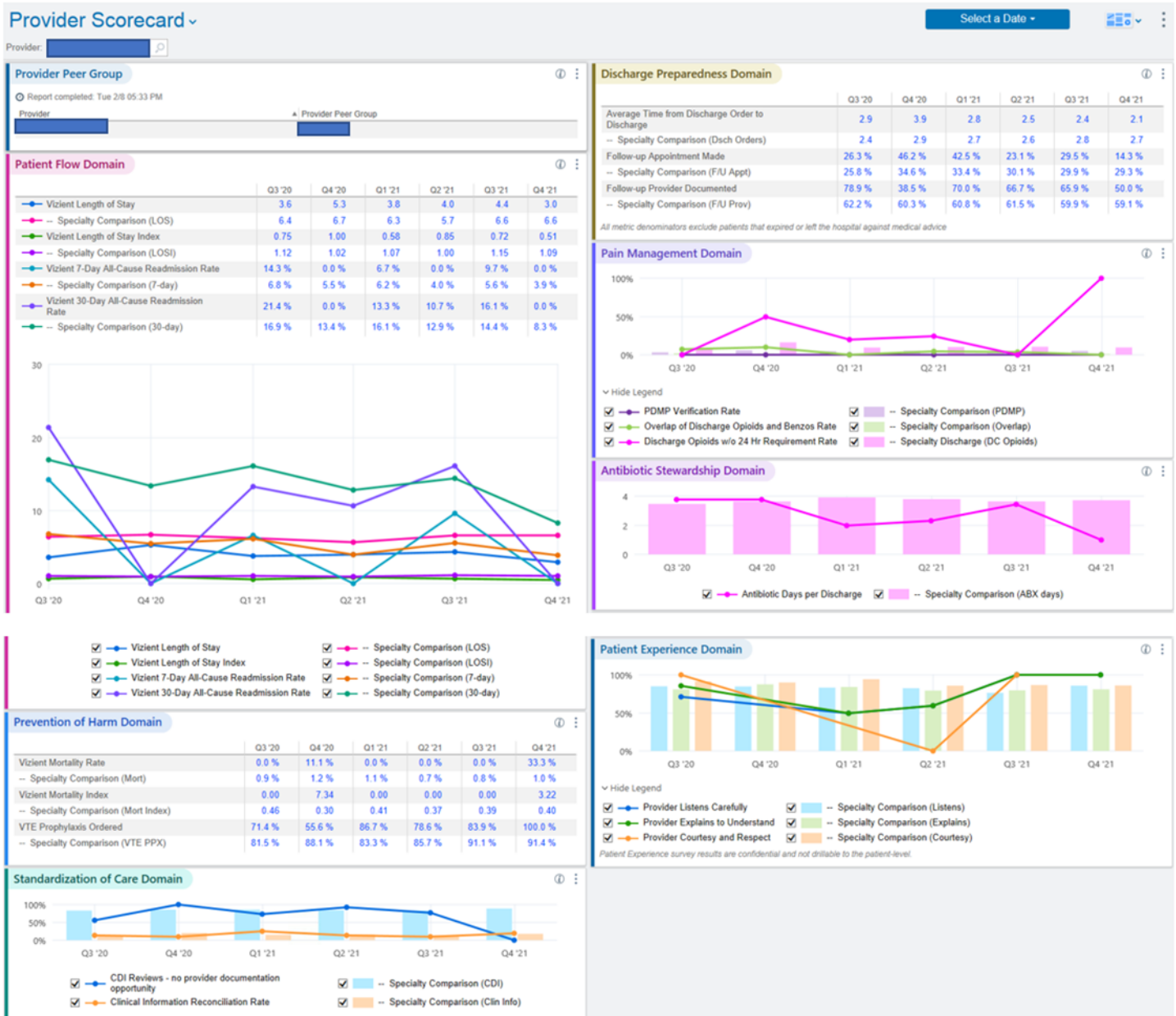


Figure 3.13-4 – Patient Drill-through options within the Provider Scorecard

Vizient Length of Stay - Patient Level Details

[Return To Dashboard](#)
[Open Chart](#)

Discharge Date	Mortality	Length of Stay	VTE Prophyla	CDI Query Needed	Readmission	Clinical Info Recon	Antibiotic Days	Order to D/C Time (H)	Follow-up Appt	Follow-up Provider	PDMP Verificati	Benzo and Opioid	D/C Opioid w/o Any in 24H
	N		Y*	N*	N	N*	—	9.3*	N	Y	N*	N	—
	Y	6	Y	Y	N	N	3*		—	—	N	N*	—
	N*	3*	Y*		N*	N*	—	1.2*	N	N	N*	N	—
	N		Y*		N	Y*	5*	3.9*	N	N	—	—	—
	N	2	Y		N	N	—	2.4	N	N	—	—	—
	N		Y		N	Y	1*	2.8	Y	N	—	—	—
	N*	7*	Y*	N*	Y (7-day)*	N*	3*	2.4*	N	Y	N*	N	—
	N*	7*	Y*		N*	N*	—	2.8*	N	N	—	N	—
	N		Y*	N*	N	Y*	3*	1.9*	N	Y	N*	N	Y
	N*	5*	Y*		Y (7-day)*	Y*	—	4.2*	N	Y	N*	N	—
	N*	2*	Y*		N*	N*	—	1.9*	N	N	—	—	—

3.14. Clinical Equity Dashboard

In 2021, Denver Health launched a new dashboard within Epic that displays important inpatient and outpatient outcome measures stratified by demographic variables. For the 12 inpatient-focused measures (including length of stay, mortality, readmissions, target zero, falls, post-partum hemorrhage, c-section, hypertension of pregnancy, opioid use, and Alternatives to Opioids use), users can review trend lines of performance stratified by race/ethnicity, gender, language, and homelessness. Additionally, performance can be displayed by any combination of those 4 variables (Figure 3.14-1). On the same dashboard, more than 100 ambulatory measures can be displayed overall or for each clinic stratified by any one or two of the following variables: gender, race/ethnicity, language, and insurance status (Figure 3.14-2). These dashboards represent a major step forward in our efforts to increase the transparency of our clinical outcome data. While they are not intended to show where disparities in care exist, the measure displays are intended to generate hypotheses about potential disparities.

Figure 3.14-1: Clinical Equity Dashboard—Inpatient

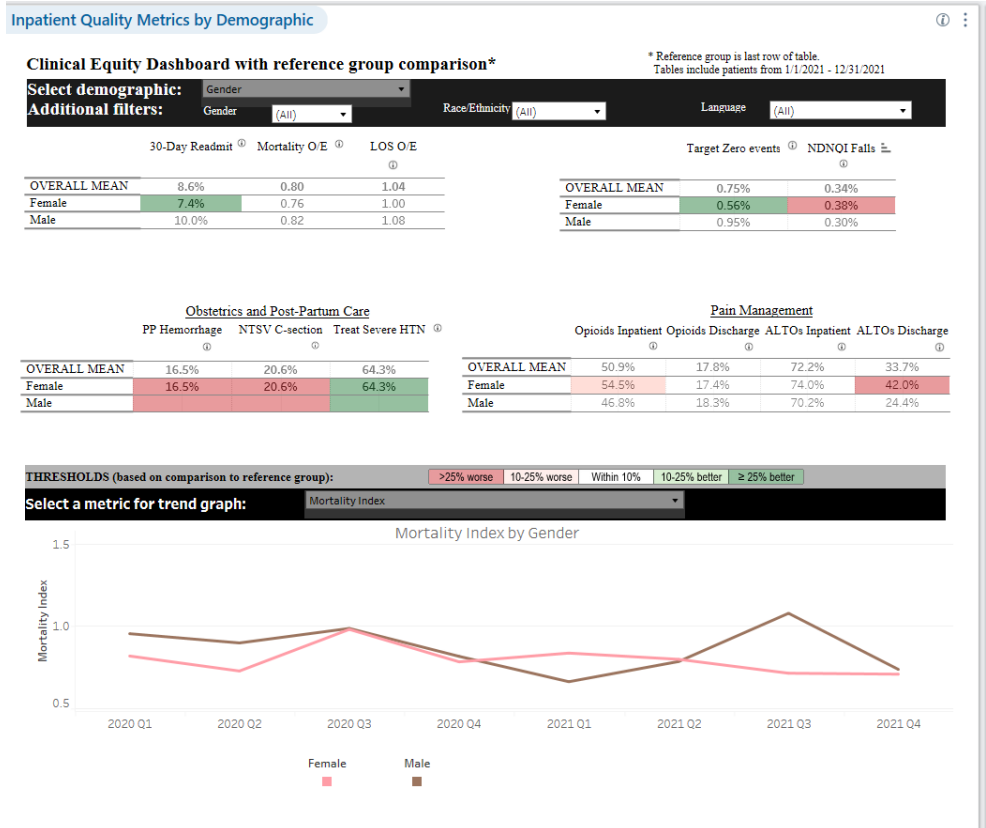
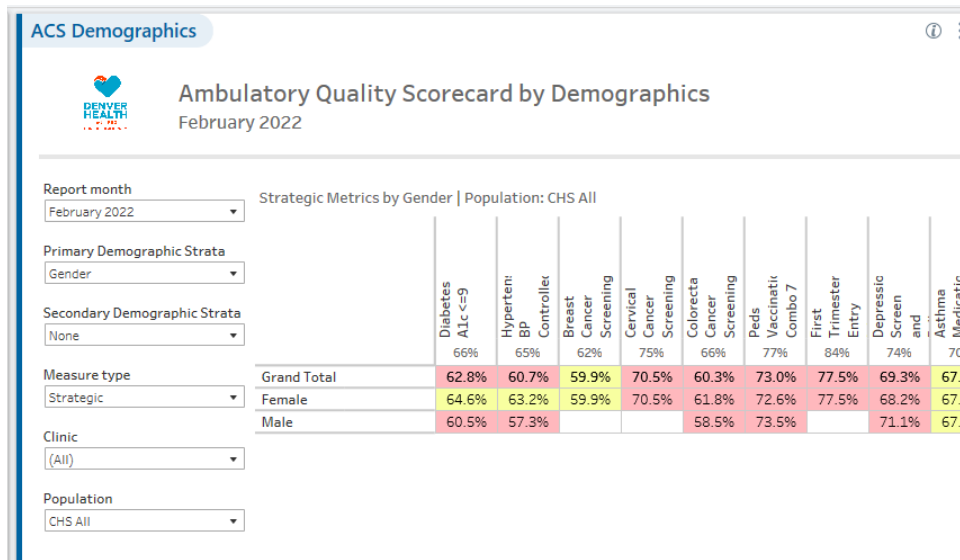


Figure 3.14-2: Clinical Equity Dashboard—Outpatient



4. INPATIENT NURSING SENSITIVE INDICATORS

4.1. National Database of Nursing Quality Indicators (NDNQI)

The National Database of Nursing Quality Indicators (NDNQI) is a nursing quality improvement program that examines the relationship between nursing and patient outcomes. NDNQI tracks more than 250 structure, process, and outcome measures and delivers actionable data to guide quality improvement initiatives. Furthermore, this national database of nursing-sensitive quality indicators provides benchmarks to comparable institutions. DH's nursing department collaborates with NDNQI to identify evidence-based interventions to improve patient safety and quality. Data collected and reported to NDNQI are used to meet regulatory requirements.

4.2. Hospital-Acquired Pressure Injuries (HAPI)

Wound Care Nurses and the Nursing Education and Research Department led an NDNQI pressure injury data collection team that included didactic and hands-on components. In 2021, this focused team met on February 20th, April 23rd, September 4th, and November 19th.

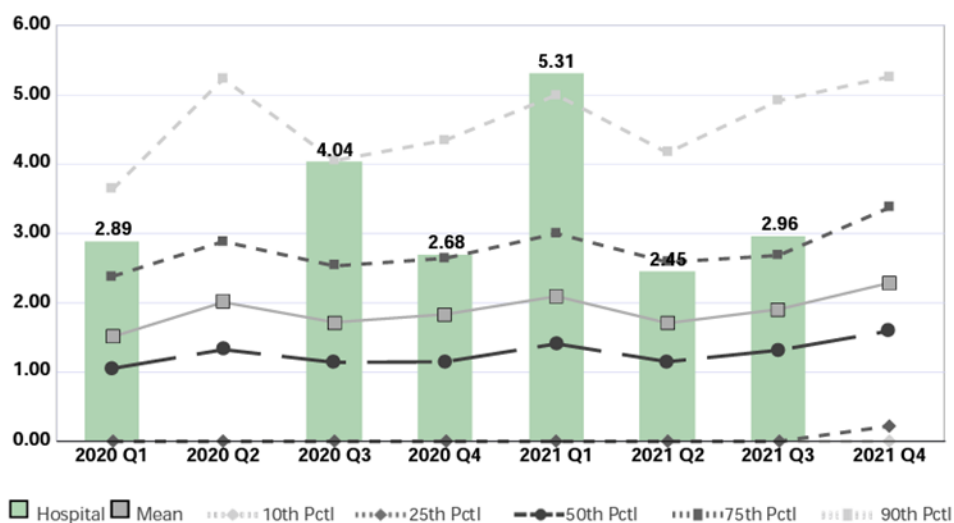
The origins of pressure injuries must be determined (hospital, hospital/unit or community acquired) for patients with pressure injuries. Calculation of the Hospital-Acquired Pressure Injuries (HAPI) rate requires the medical record for all patients admitted at the time of the survey be examined for evidence of a pressure injury. If a review of the patient record finds no evidence of the pressure injury being present upon admission, then the pressure injury is considered "hospital-acquired".

HAPI Reduction

DHHA's HAPI rate has been worse than the benchmark since 2019 Q3. HAPI data were not collected in 2020 Q2 in response to the COVID-19 pandemic (Figure 4.2-1). In response to this increased rate, a multidisciplinary HAPI Taskforce was created in 2020. The taskforce identified several interventions for improvement and the goal for 2021 was to sustain the interventions:

- Developed a workflow with Clinical Documentation Integrity (CDI) for reviewing provider documentation of HAPIs.
- Revised the Braden Score interventions in Epic.
- Improved communication of HAPIs through a weekly Pressure Injury Report to Nursing Leadership.
- Started a multidisciplinary rounding pilot in the ICUs.
- Initiated a HAPI Target Zero campaign.

Figure 4.2-1: NDNQI Pressure Injury Outcomes, Stage II and Above



Source: NDNQI; graph displays standardized HAPI scores. Green bars are DHHA's performance while the gray line is the benchmark performance. Green bars underneath the gray line indicate low HAPI rates. No data available for Q2 2020 due to the COVID-19 surge response.

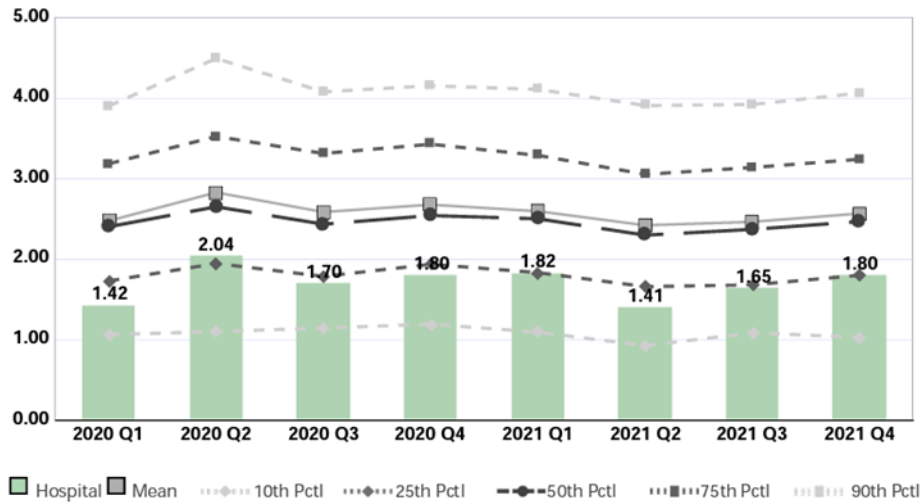
4.3. Patient Falls

The 2021 goal of Denver Health's Fall Prevention Program was to use current evidence to reduce the total number of falls by 7.5%. Injury fall prevention is a Target Zero initiative and falls with injury reporting is a requirement for Magnet®. The fall prevention work is ongoing and every unit in the hospital focuses on fall prevention and improved reporting. Preventing patient falls requires a collaborative, evidence-based, data-driven, multidisciplinary approach.

Fall Reduction

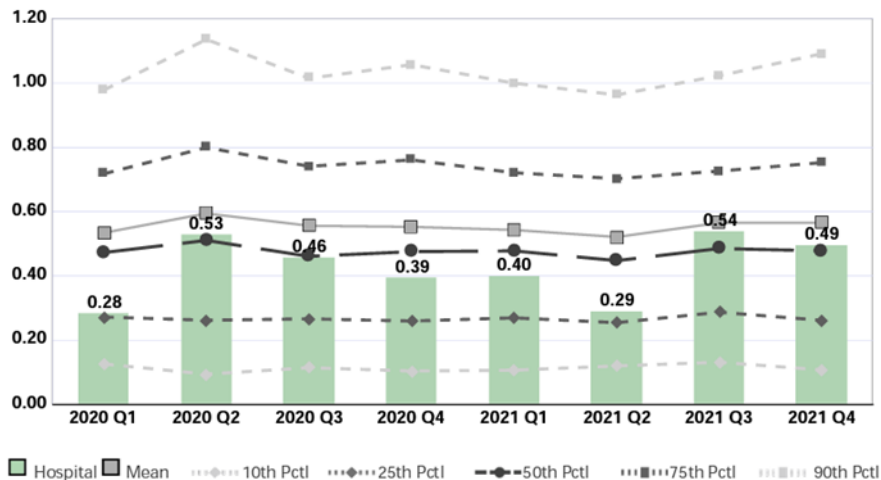
Hospital falls decreased 7.4% between 2020 and 2021 and 23% over the past five years. Furthermore, DHHA outperformed NDNQI's benchmark for total falls (Figure 4.3-1) and injury falls (Figure 4.3-2) for the past 8 quarters.

Figure 4.3-1: Number of Inpatient Falls per 1000 Patient Days for Inpatient Units



Source: NDNQI graph displays standardized injury fall scores. Green bars are DHHA's performance while the gray line is the benchmark performance. Green bars underneath the gray line indicate low injury fall rates.

Figure 4.3-2: NDNQI Total Falls per 1000 Patient Days for Inpatient Units



Source: NDNQI; graph displays standardized injury fall scores. Green bars are DHHA's performance while the gray line is the benchmark performance. Green bars underneath the gray line indicate low injury fall rates.

Acute Care Division Fall Prevention

Total falls in the Acute Care Division outperformed the benchmark in 12 out of 12 months in 2021 (Figure 4.3-3). According to the Colorado Hospital Association Report Card, the acute care division at DHHA was ranked 4th in 2021 when compared to other hospitals in the state of Colorado with over 100 beds (Figure 4.3-4). Quality improvement initiatives conducted in 2021 by the Acute Care Division include:

- Maintained “The Big 3” of fall prevention.
- Increased awareness and accountability through revisions to standard work.
- Piloted Epic’s Inpatient Risk of Falls predictive analytics model on 6A, 7A, 9A, & 4B.

Figure 4.3-3: Acute Care Total Fall rate per 1000 patient days (Excludes Oasis)

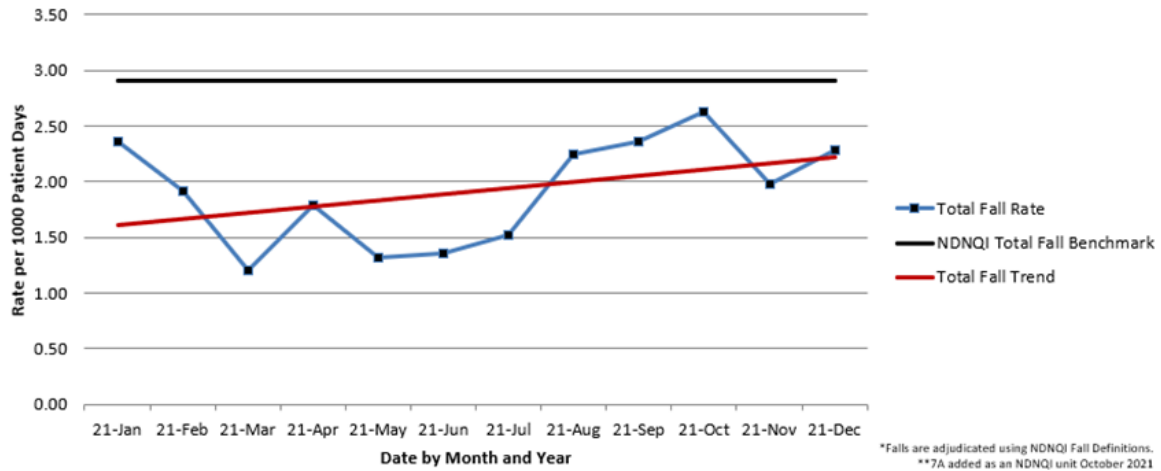
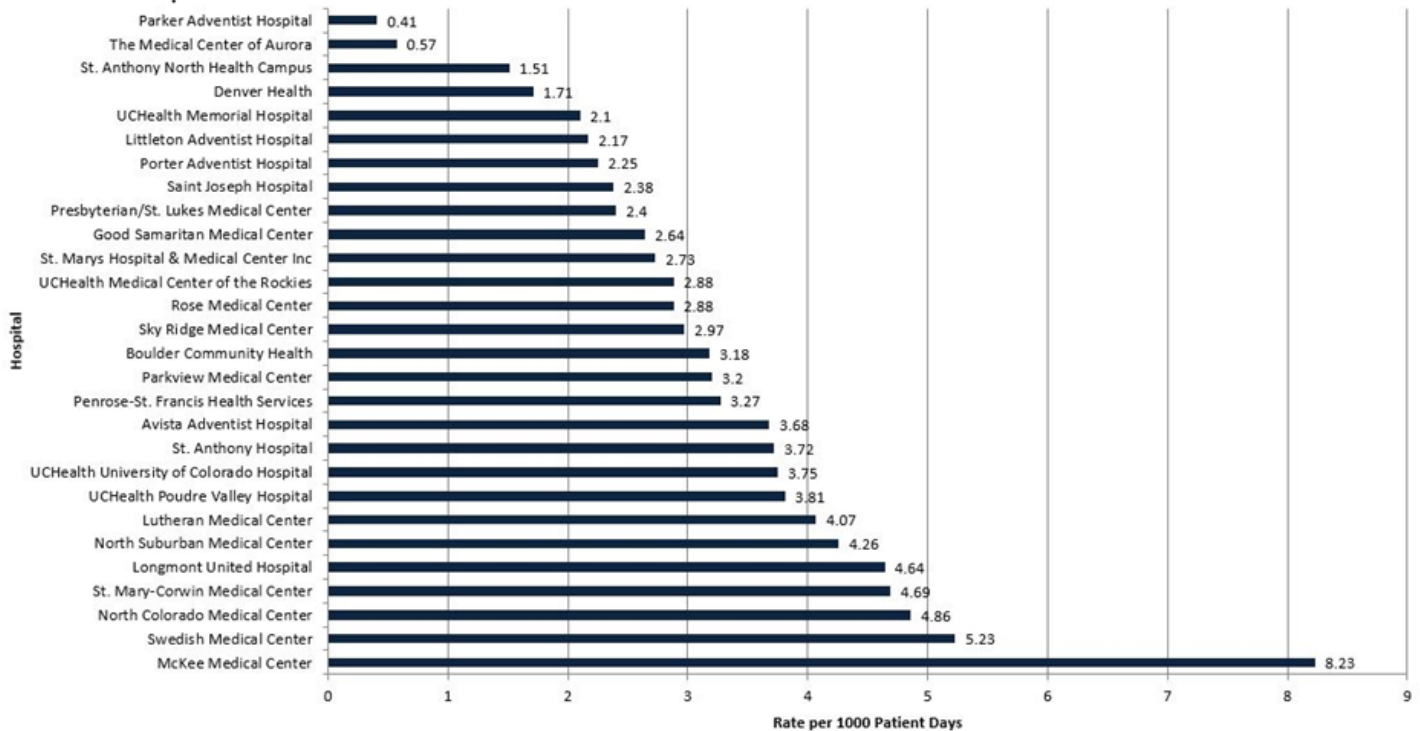


Figure 4.3-4: Colorado Hospital Association Total Falls per 1000 Patient Days (2021)



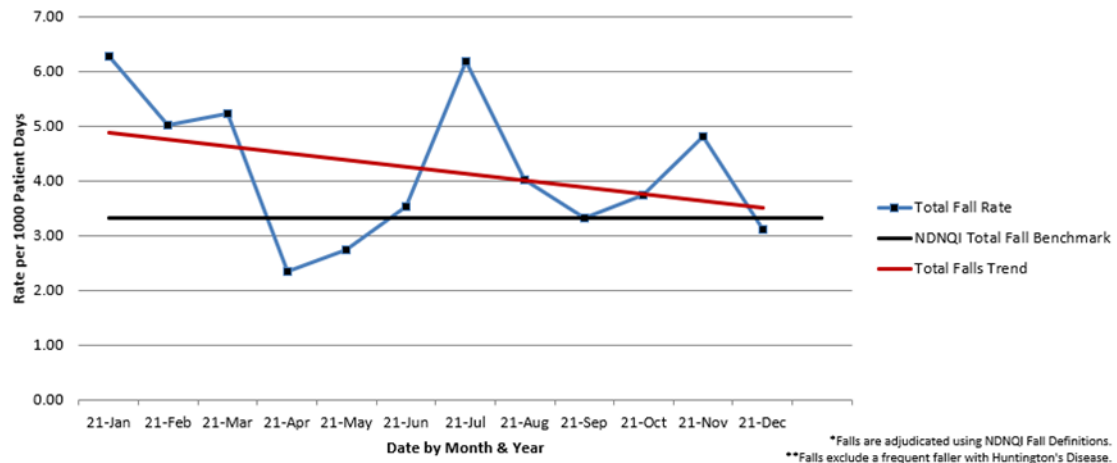
*CHA uses the same total fall definition as NDNQI.
**Includes Medical-Surgical Units only. For Denver Health, this is Acute Care Division.

Behavioral Health Division Fall Prevention

Total falls in the Behavioral Health Division decreased by 27% compared to 2017. In 2021 the number of total falls remained the same when compared to the prior year. Adult psychiatry falls were above the NDNQI benchmark for the majority of 2021; however there was an overall decrease in falls throughout the year (Figure 4.3-5). Patients with Huntington's disease are excluded from NDNQI fall reporting unless they sustain a moderate or major injury. Quality improvement initiatives conducted in 2021 by the Behavioral Health Division include:

- Reinforced the falls prevention bundle
- Sustained wireless chair alarms
- Continued to educate staff on best practices for preventing falls in patients with Huntington's disease

Figure 4.3-5: Number of Falls in Inpatient Behavioral Health per 1000 Patient Days



5. OUTPATIENT SAFETY & QUALITY INITIATIVES

5.1. Ambulatory Care Services (ACS) Quality Improvement (QI) Committee

The Ambulatory QI Committee (QIC) is a multidisciplinary committee which monitors QI performance efforts and vets potential new processes in the Ambulatory Care Services (ACS) primary care clinics. The 18 QI Workgroups (Figure 5.1-1) provide regular updates to QIC on measure performance and improvement initiatives. Projects involving DH clinics (from interventions developed in clinics to research projects to national initiatives) must be evaluated and approved by QIC.

Figure 5.1-1: Ambulatory Quality Improvement Committee Workgroups

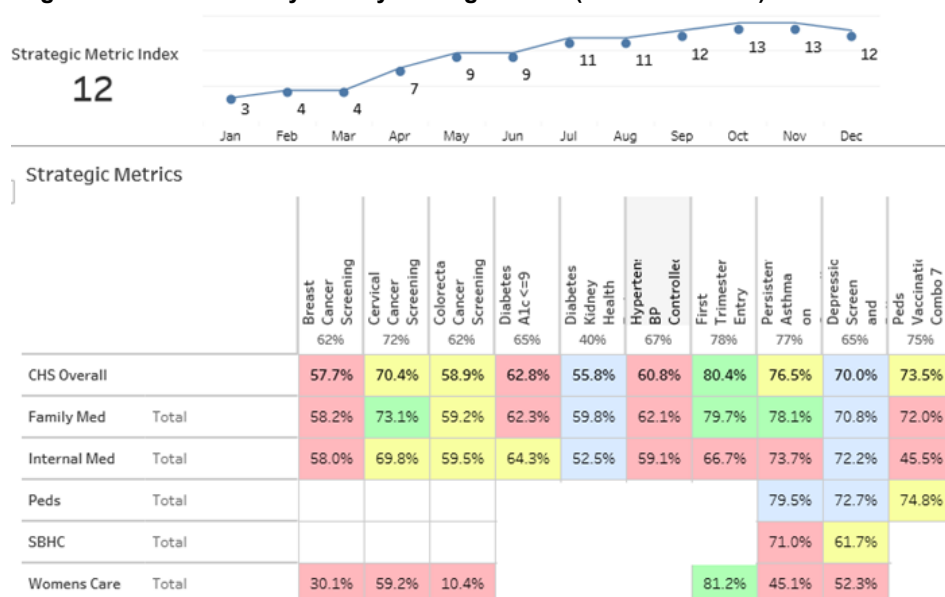
Asthma Management	Anticoagulation
Diabetes Care	Medical Neighborhood
Cardiovascular Disease (CVD) prevention and treatment	Care Management of complex patients
Cancer Screening (colorectal, breast, and cervical cancer)	Transition of Care from inpatient to outpatient setting
Integrated Behavioral Health	Sexually Transmitted Infections
Immunization for pediatric and adult patients	Perinatal Health
Chronic pain management and opioid use	Tobacco Cessation
Health Equity	Epic Optimization to facilitate QI
Pediatrics	Weight Management

5.2. ACS Strategic Clinical Performance Metrics

ACS and DHHA leadership annually identify strategic clinical performance metrics based on national key performance indicators from organizations such as NCQA, HEDIS, Bureau of Primary Healthcare, CMS, and PCMH Recognition. QIC works with ACS QI workgroups to define targets for these metrics. ACS developed a scoring system, Ambulatory Quality Strategic Index, to monitor progress throughout the year. The index is an aggregate score of the individual strategic metrics meeting the target goal. Ten Strategic Indicators were identified for 2021. Threshold and target values for the Index Score were set at 6 and 11, respectively. DHHA reached its target goal in July 2021 with a maximum score of 13 in October and November 2021. The index score dropped to 12 in December but was still above the target goal (Figure 5.2-1). Of the 10 indicators, breast cancer screening, diabetes metabolic control and blood pressure control remained below the threshold values.

The COVID-19 pandemic greatly impacted QI performance in 2020 but we rebounded in 2021 as patient care shifted more to face-to-face visits from virtual or telehealth visits. Although we continued to focus on the prevention and treatment of COVID-19, we were able to re-prioritize the implementation of our strategies and interventions to improve clinical performance in 2021.

Figure 5.2-1: Ambulatory Quality Strategic Index (December 2021)



Diabetes Control and Attention to Kidney Health Education

- Metrics:
 - ◇ Percent of adult patients in the diabetes registry whose last hemoglobin A1c was below 9.0% (Goal is 65%)
 - ◇ Percent of patients in the diabetes registry who had both an eGFR/serum creatine and a microalbumin creatinine ratio in the past year (Goal is 40%).
- Results:
 - ◇ 62.8% of adult diabetes patients had a last hemoglobin A1c below 9.0% which was an improvement from January 2021 at 56.5%. The decrease to 56.5% was likely due to the effects of the COVID-19 pandemic, more sedentary lifestyles and non-compliance with medications. As we shifted to more face-to-face visits, we were able to implement during-visit interventions with patients.
 - ◇ 55.8% of patients had a Kidney Health Evaluation by the end of 2021 which was an increase from 35.7% in January 2021.
 - ◇ DHHA's diabetes registry has grown by a net of 683 patients over the past year (N=14,178)
- QI Activities:
 - ◇ Diabetes Management efforts were driven by the Diabetes workgroup using a multi-pronged approach. Strategies included provider education of guidelines, diabetes facesheets at point of care, diabetes SmartSets, utilization of medical-therapy-management with a clinical pharmacist, nurse insulin titration clinics, and utilization of continuous glucose monitoring.
 - ◇ Key interventions for 2021 included:
 - Outreach efforts to improve adherence to medications in our Medicare population by ACS Central Population Health Team.
 - Patient report card letters reminding patients about gaps in their care and encouraging them to schedule appointments with their primary care provider.
 - Implementation of BestPractice Advisories which prompt medical assistants to pend orders or lab tests, such as evaluation for kidney health.
 - During the end of 2021, DHHA also started the implementation of SmartRx which is a real-time guide for providers when prescribing medications for diabetes based on national guidelines and medications commonly used in our formulary.

Hypertension Control

Metric: Percent of patients in the hypertension registry with their most recent blood pressure taken in ACS during the last 18 months < 140/90 mmHg (age < 80) or < 150/90 mmHg (age ≥ 80). Goal is 67%.

- Results:
 - ◇ 60.8% of patients with hypertension had their last recorded blood pressure at goal.
 - ◇ Blood pressure control peaked at 63% in July 2021 then decreased through the rest of the year.
 - ◇ Inadequate blood pressure control was multifactorial:
 - Steady increase in the number of patients with hypertension to our clinics (24,810 patients in January to 26,389 patients in December 2021).
 - Poorer compliance with blood pressure rechecks during the visit check-in process. As the number of patients coming in for clinic visits increased, the check-in process became more "hurried", thereby not allowing for a second blood pressure recheck. Blood pressure rechecks allow the patient time to relax and sit in the proper position which resulted in an increase of nearly 30% to blood pressure values in the normal range. The number of medical assistant vacancies also greatly contributed to the decline in blood pressure rechecks with as high as 50 vacancies throughout the year.
 - Provider's lost inertia to intensify medications in response to an elevated blood pressure during a clinic visit.
- QI Activities:
 - ◇ Hypertension Management efforts were driven by the Cardiovascular Disease workgroup using a multi-pronged approach. Strategies included provider education of guidelines, utilization of medical-therapy-management with a clinical pharmacist, nurse blood pressure follow up clinics, and home blood pressure monitoring.

-
- ◇ Key interventions for 2021 included:
 - Outreach efforts to improve adherence to medications in our Medicare population by ACS Central Population Health Team.
 - Patient report card letters reminding patients about gaps in their care and encouraging them to schedule appointment with their primary care provider.
 - Implementation of BestPractice Advisories (BPAs) in late 2021 which prompt medical assistants to recheck blood pressure if the first reading is elevated.
 - During the end of 2021, we also started the implementation of SmartRx which is a real-time guide for providers when prescribing medications for hypertension based on national guidelines and medications commonly used in our formulary.
 - Leveraged HRSA and the National Hypertension Control Initiative (American Heart Association) grant funding to promote the distribution of home blood pressure monitors which can sync with our electronic health record to allow virtual management of blood pressures.

Depression Screening and Follow-Up Plan

- Metric: Percent of visits by empaneled patients >=12 years old in the previous year, screened negative for depression OR screened positive and had a follow-up plan documented on that day. (Goal is 65%)
- Results:
 - ◇ 70.0% of patients had a depression screen during the visit, and if screened positive, a follow-up plan.
 - ◇ This improved by 10.4% during the year despite an increase of nearly 4,000 patients in the denominator.
- QI Activities:
 - ◇ Similar to the above metrics, the intervention was driven by the medical assistants screening at the check-in utilizing BPAs.
 - ◇ The Integrated Behavioral Health providers in our clinics over the past 2 years have noted increasing stress not only in our patient population during the COVID19 pandemic but also in our workforce.

Cervical Cancer Screening

- Metric: Percent of active female patients with a Pap test in the past 3 years (age 24 – 64) or a Pap + HPV test in the past 5 years (age 30 – 54). Goal is 77%.
- Results:
 - ◇ Performance increased from 67.6% to 70.4% by December 2021. Performance improved through the year as more patients came in for a face-to-face visit.
 - ◇ The number of patients increased from 45,144 to 48,278 by December 2021.
- QI Activities:
 - ◇ The Cancer Screening workgroup led DHHA's efforts for this metric. Their efforts focused on implementing the BPAs which prompted medical assistants to set up a pap smear.
 - ◇ Patient report card letters reminding patients to address their gaps in care and encouraging them to schedule an appointment for cervical cancer screening if appropriate.
 - ◇ ACS continued efforts to obtain medical records for new patients that may have had a cervical cancer screening outside Denver Health.

Breast Cancer Screening

- Metric: Percent of active female patients age 51-74 years with a mammogram in the past 2 years. (Goal is 62%)
- Results:
 - ◇ Performance increased during the year from 54.6% to 57.7%
 - ◇ Similar to the other metrics, DHHA reached an all-time low in terms of performance by the end of 2020 due to the COVID-19 pandemic. As patients started returning for clinic visits and services, access to our mammograms was limited due to the mobile mammogram unit suffering mechanical issues along with mammogram technician vacancies. All positions were filled by the fall of 2021 with plans to further increase access on the downtown campus.
- QI Activities:
 - ◇ The Cancer Screening workgroup led DHHA's efforts for this metric.
 - ◇ Implemented BPAs to prompt medical assistants to schedule mammograms during the check-in process, if appropriate.
 - ◇ ACS' Population Health Team continued their efforts to outreach patients who need breast cancer screening with a focus on Medicare patients

-
- ◇ Patient report card letters reminding patients to address their gaps in care which included making an appointment for their mammograms if appropriate. We saw a statistically significant increase with the letters.

Colorectal Cancer Screening

- **Metric:** Percent of active adult patients age 51-75 years with at least one of the following services: FIT in the past 15 months, flexible sigmoidoscopy in the past 5 years or colonoscopy in the past 10 years. (Goal is 66%)
- **Results:**
 - ◇ Performance increased from 53.7% to 58.9% by December 2021. Our major efforts are focused on FITs as opposed to colonoscopy. We have had some access problems with screening colonoscopies as an option.
 - ◇ Our patient population increased from 28,151 to 29,509 in December 2021.
- **QI Activities:**
 - ◇ The Cancer Screening workgroup led DHHA's efforts for this metric. The major efforts focused on implementing the BPA's by our medical assistants during the visits.
 - ◇ We also worked with Denver Health Medical Plan to coordinate processes to mail FIT cards to patients with follow up phone calls reminding the patient to return the card Efforts continued to focus on ordering and giving FIT kits during each patient's visit.

Persistent Asthma on Controller Medication

- **Metric:**
 - ◇ Percentage patients with persistent asthma 5-64 years old, who have an active controller medication. (Goal is 77%)
- **Results:**
 - ◇ Performance demonstrated only a slight increase from 76% to 76.5% by December 2021. We peaked at 77.8% in October 2021.
- **QI Activities:**
 - ◇ The Asthma workgroup oversees performance for this metric. This includes updating guidelines for asthma management, developing and implementing tools to better assess asthma status and manage the patient's disease.
 - ◇ The focus is integrating the most recent guidelines into our electronic health record to aid providers in prescribing the correct asthma medications.
 - ◇ We are also focusing on improving the implementation the Asthma Control Test during the visit to help assess the patient's asthma status.
 - ◇ In 2022, will be changing this metric the Asthma Medication Ratio (AMR) which is more patient dependent as it looks at actual patient prescription fills for controller medications.

Pediatric Vaccination (Combo 7)

- **Metric:**
 - ◇ Percentage of patients who have received 4 DTaP, 3 Polio, 1 MMR, 3 HIB, 3 Hepatitis B, 1 Varicella, 4 Pneumococcal immunizations, 1 Hepatitis A, 2 Rotavirus by 24 months of age. (Goal is 73%)
- **Results**
 - ◇ This indicator remained relatively flat with slight increase from 72.7% to 73.5% by December 2021.
 - ◇ This a complex metric with multiple components which has been difficult to coordinate. If a patient misses just one component early in the year can result in not being able to meet the metric at all.
- **QI Activities:**
 - ◇ The Pediatric QI workgroup along with the immunization workgroup help develop and oversee this metric. The major focus is educating families about and addressing vaccination hesitancy.
 - ◇ Key interventions for this metric include:
 - Making sure that the medical assistants reconcile CIIS information within our electronic medical records.
 - Making sure the BPA's are followed by the medical assistant to give the vaccinations during the visit.
 - Continued efforts to pre-schedule patients for 2, 4, and 6 month Well Child Checks (WCC) which is when the vaccinations are given.
 - Outreach efforts to get patients in for their well-child visits and focus on "no-shows" for rescheduling.

First Trimester Entry into Prenatal Care

- Metric:
 - ◇ Percent of pregnant women who received care at DHHA during the calendar year and had an OB intake date within 14 weeks into their pregnancy. (Goal is 78%)
- Results:
 - ◇ Clinical performance improved from 74% to 80.4% by December 2021.
- QI Activities
 - ◇ The Perinatal workgroup helps develop strategies and interventions and oversee performance of this metric.
 - ◇ The main focus of activities is increasing the number of prenatal intake visits to decrease lag to the first OB intake visit to under 7 days. This closely monitored by the workgroup with goals to retain the patients so they deliver at Denver Health if they can.
 - ◇ Developing a Telehealth strategy the ensures an in-person visit is schedules well before the 14 weeks based on the information obtained on the phone.
 - ◇ Encourage outreach by OB navigators for patients who “no-show”.
 - ◇ We are also looking to partner with Community Based Organizations to streamline scheduling the OB intakes.

5.3. During and Between Visit Interventions

ACS continues to utilize “during-visit” and “between-visit” strategies and followed a team-based approach utilizing resources available in the clinics. Strategic Metric Guides were created and updated for each QI indicator based on best practices. Strategic Metric Guide (SMG) are dynamic documents which provides the definition of the metric along with the goals for performance for the year. The specific QI workgroup along with clinic input helps define the activities for each member of the clinic team which include the clerks (patient access specialists), medical assistants, patient navigators, nurses, clinical pharmacists and the provider. The SMG also outlines the vetted interventions that they can utilize for their clinic.

During-Visit Intervention

A “Gaps in Care Dashboard” was created to track utilization of Epic’s Best Practice Advisories (BPA). These scorecards help monitor Medical Assistant responses to the BPAs and provides leading metrics to achieve completion of the Strategic Indicator with which it is associated. Figure 5.3-1 shows an example of the daily scorecard. The Gaps in Care Dashboard allowed clinic managers to review their performance at the clinic, medical assistant, and provider levels (Figure 5.3-1 and Figure 5.3-2).

The COVID-19 pandemic resulted in a transition from face-to-face visits to telehealth visits and medical assistants were not involved in the visits. Thus, clinics were unable to use the Gaps in Care Scorecard. During the late summer and early fall, DHHA started seeing more patients in clinics as procedures were developed to mitigate exposure and infection from COVID-19. Unfortunately, medical assistant priorities shifted towards processes focused on COVID-19 mitigation with less emphasis on addressing BPAs during the check in process.

Figure 5.3-1: Gaps in Care Daily Performance Scorecard

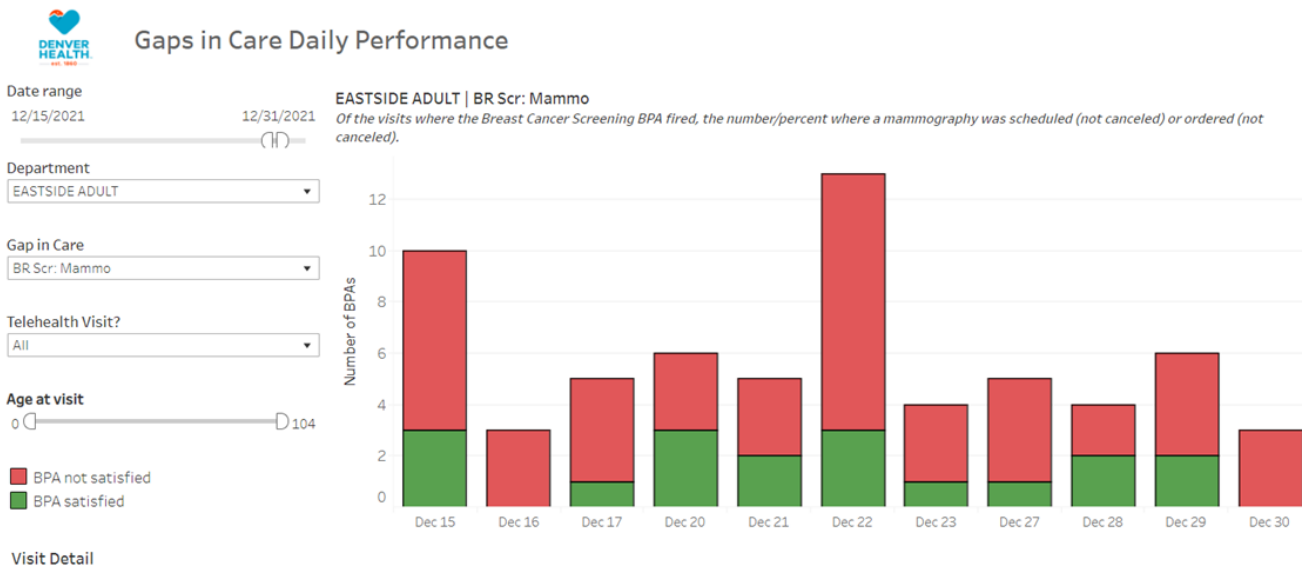



Figure 5.3-1: Gaps in Care Medical Assistant Scorecard



Gaps in Care MA Scorecard

Select a date range: December 1, 2021 to December 31, 2021
 Select department: EASTSIDE ADULT
 MA or RN?: Null, Medical Assistant, Registered Nurse
 Float Y/N: All
 Telehealth Visit?: All

Age at visit: 0 to 104
 Gaps in Care: Multiple values

EASTSIDE ADULT

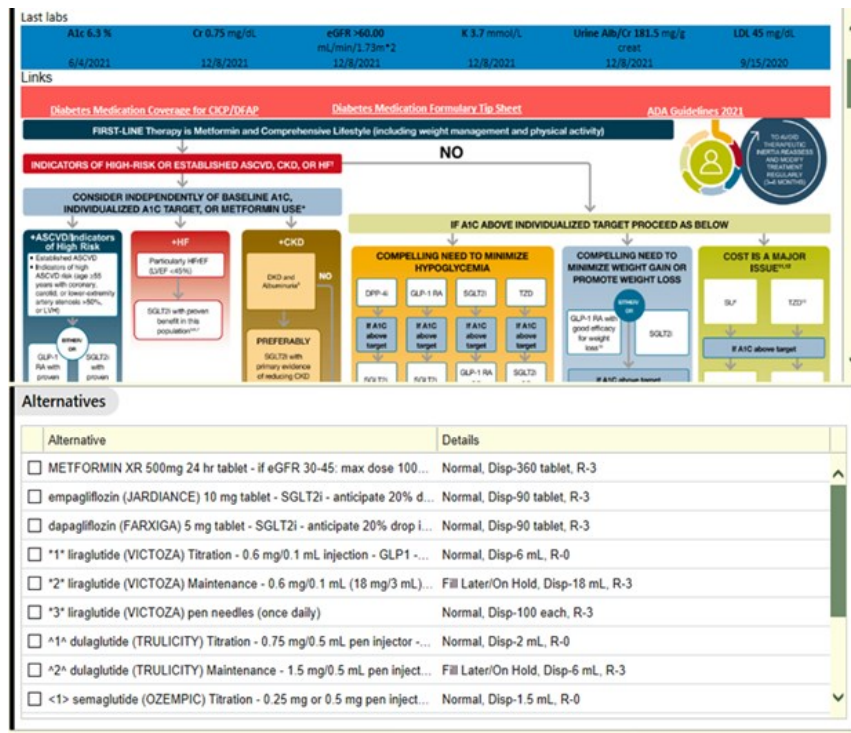
	Goal:	CRC Scr: Colonoscopy	CRC Scr: FIT	CRV Scr: Pap	Diabetes: A1c ordered	Diabetes: Microalbumin ordered
Grand Total		35%	60%	25%	80%	70%
	BPAs fired	102	254	287	72	37
	BPA satisfied	10	88	28	56	23
	Pct satisfied	10%	35%	10%	78%	62%
MA #1	BPAs fired		11	7	2	
	BPA satisfied		3	0	0	
	Pct satisfied		27%	0%	0%	
MA #2	BPAs fired		5	6	1	1
	BPA satisfied		3	1	1	1
	Pct satisfied		60%	17%	100%	100%
MA #3	BPAs fired	9	27	43	4	4
	BPA satisfied	2	9	3	1	1
	Pct satisfied	22%	33%	7%	25%	25%

ACS has also implemented 2 point of care interventions to help providers on decision making during the visit. This includes:

1. SmartRX for diabetes and blood pressure control. These tools were led by efforts of our Diabetes and CVD workgroups and were rolled out in October/November of 2021. These tools help providers with ordering medications based on national guidelines by the American Diabetes Association and the American College of Cardiology and American Heart Association.

- ◇ When a provider orders a medication for diabetes or hypertension, a SmartRx option will be available for them to use (see figure 5.3-3 below for the diabetes example). This includes point of care access to the guidelines and the most commonly used medications at Denver Health. This will hopefully address clinical inertia providers may have in intensifying medications.
- ◇ We are in the process of tracking its utilization and effectiveness.

Figure 5.3-3: Smart RX for Diabetes

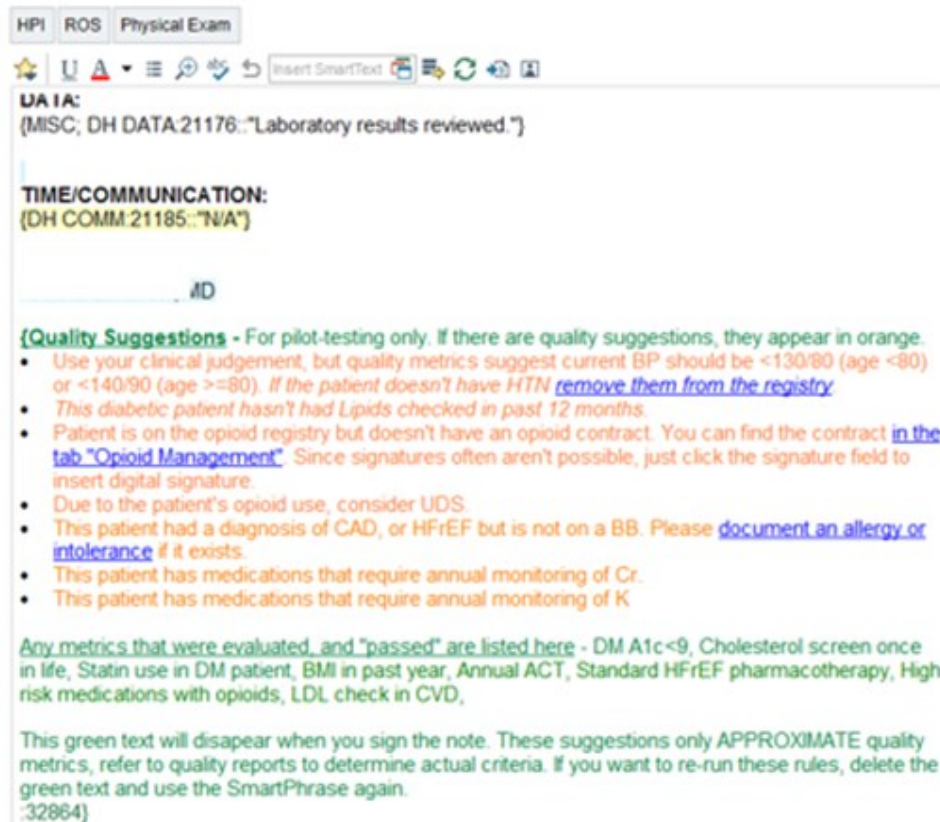


The figure displays a clinical decision support tool for diabetes management. At the top, it shows patient data: A1c 6.3%, Cr 0.75 mg/dL, eGFR >60.00 mL/min/1.73m², K 3.7 mmol/L, Urine Alb/Cr 181.5 mg/g creat, and LDL 45 mg/dL. The tool provides links to medication coverage, formularies, and ADA guidelines. The main flowchart starts with 'INDICATORS OF HIGH-RISK OR ESTABLISHED ASCVD, CKD, OR HF?'. If 'NO', it leads to 'CONSIDER INDEPENDENTLY OF BASELINE A1C, INDIVIDUALIZED A1C TARGET, OR METFORMIN USE*'. If 'YES', it branches into 'COMPELLING NEED TO MINIMIZE HYPOGLYCEMIA' and 'COMPELLING NEED TO MINIMIZE WEIGHT GAIN OR PROMOTE WEIGHT LOSS'. The hypoglycemia path lists options like DPP-4i, GLP-1 RA, SGLT2i, and TZD. The weight loss path lists GLP-1 RA and SGLT2i. A 'COST IS A MAJOR ISSUE?' path lists GLP and TZD. Below the flowchart is a table of 'Alternatives' with columns for 'Alternative' and 'Details'.

Alternative	Details
<input type="checkbox"/> METFORMIN XR 500mg 24 hr tablet - if eGFR 30-45: max dose 100...	Normal, Disp-360 tablet, R-3
<input type="checkbox"/> empagliflozin (JARDIANCE) 10 mg tablet - SGLT2i - anticipate 20% d...	Normal, Disp-90 tablet, R-3
<input type="checkbox"/> dapagliflozin (FARXIGA) 5 mg tablet - SGLT2i - anticipate 20% drop i...	Normal, Disp-90 tablet, R-3
<input type="checkbox"/> *1* liraglutide (VICTOZA) Titration - 0.6 mg/0.1 mL injection - GLP1 -...	Normal, Disp-6 mL, R-0
<input type="checkbox"/> *2* liraglutide (VICTOZA) Maintenance - 0.6 mg/0.1 mL (18 mg/3 mL)...	Fill Later/On Hold, Disp-18 mL, R-3
<input type="checkbox"/> *3* liraglutide (VICTOZA) pen needles (once daily)	Normal, Disp-100 each, R-3
<input type="checkbox"/> *1* dulaglutide (TRULICITY) Titration - 0.75 mg/0.5 mL pen injector -...	Normal, Disp-2 mL, R-0
<input type="checkbox"/> *2* dulaglutide (TRULICITY) Maintenance - 1.5 mg/0.5 mL pen inject...	Fill Later/On Hold, Disp-6 mL, R-3
<input type="checkbox"/> <1> semaglutide (OZEMPIC) Titration - 0.25 mg or 0.5 mg pen inject...	Normal, Disp-1.5 mL, R-0

2. Green Text Project. This is another tool which is directed at the provider to act as a “soft” reminder for a number of quality suggestions. It covers over 60 Topics specific to the patients care. The suggestions disappear once the chart is signed. Figure 5.3-4 is an example of the “green text” for a specific patient. Early analyses reveal an increase in Dexa Scanning (screen for osteoporosis) and Hepatitis C screening.

Figure 5.3-4: Green Text Embedded in Patient Encounter Note



Between-Visit Intervention

A Population Health Team was created in 2019 to lead efforts in between visit interventions. The team is composed of a clinical pharmacist and two medical assistants. We continue to utilize a Health Summary (report card) letter mailed to patients. The letter updates patients on the status of their various indices of care (blood pressure and diabetes control, cancer screening compliance, etc.) and provided recommendations take action in their gaps in care, such as scheduling a primary care clinic appointment or a mammogram (Figure 5.3-5).

Figure 5.3-5: Health Summary Letter



April 15, 2021

Webb Adult Clinic
301 6th Avenue, Pavilion G Wellington E.
Webb Center for Primary Care
Denver, CO 80204

DENVER CO 80220

Dear _____,

Coronavirus is with us for the near future. We are ready to meet all your health care needs safely by telephone or during your clinic visit. Please review the below health screenings and take action to stay healthy. Bring this letter and any information of screenings done outside the clinic to your next telephone or clinic visit.

● Complete ● Due Soon ● Overdue

Screening	Last Done	Due Next
● Diabetes Monitoring (Hemoglobin A1c)	_____-2020	Overdue
● Breast Cancer Screening (Mammography)	Never	Overdue
● Colorectal Cancer Screening (FIT/Stool Sample)	Never	Overdue
● Diabetes (Eye Exam)	Never	Overdue
● Diabetes Kidney Check (Urine Test)	_____-2020	_____-2021

Take Action:

Call 303-436-4949 to complete these screenings (press 2 for Spanish):

____ Press 1 to schedule an appointment and then press 1 to schedule a primary care visit for: Diabetes Monitoring (Hemoglobin A1c).

____ Press 1 to schedule an appointment and then press 2 for a specialty care visit for: Breast Cancer Screening (Mammography), Diabetes (Eye Exam).

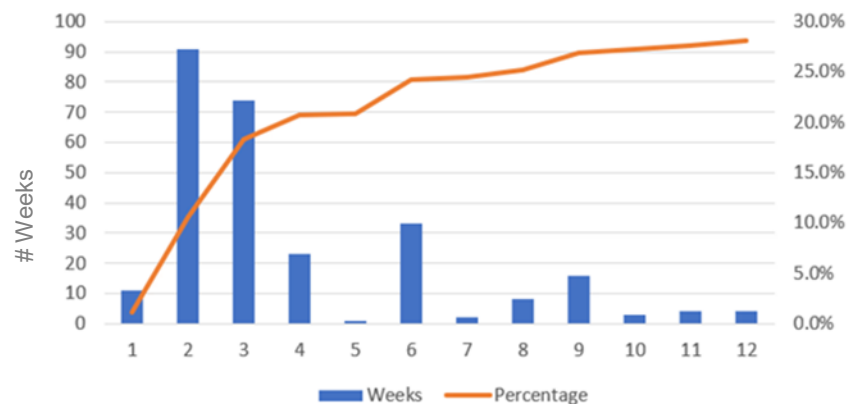
If you received a Colorectal Cancer Screening (FIT/Stool Sample Kit) please return it.

Sincerely,

Nicole L Soiseth
Webb Adult Clinic

Another between-visit project we performed and analyzed was FIT Outreach (Polymedco) Project. We partnered with Polymedco who supplies our FIT material and mailed 2 batches of 2,000 FIT kits in the fall of 2021. This was followed up with a reminder letter to return the kits and then a phone call from a medical assistant. This effort yielded a return of FIT kits of about 25 – 30% after 3 months, Figure 5.3-6. We are currently partnering with Denver Health Medical Plan to coordinate the efforts with their population.

Figure 5.3-6: Results of FIT Outreach Intervention. Return rate over time.



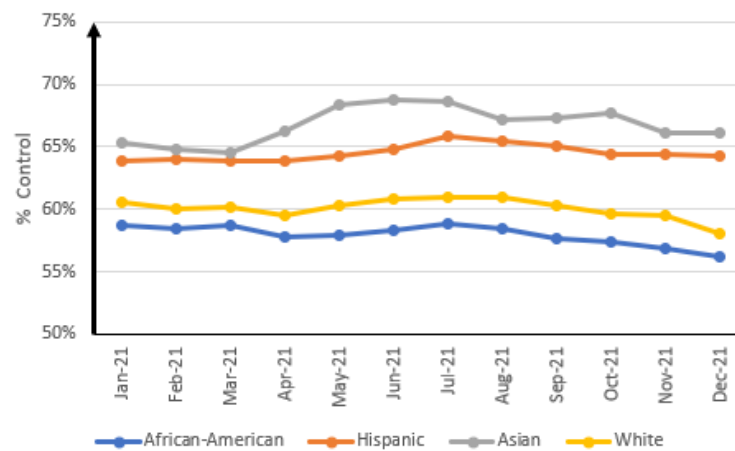
5.4. Addressing Disparities in ACS QI Metrics

Although our efforts in addressing disparities in our QI measures have been hampered by the COVID19 pandemic, we continue to focus on several activities. In the early 2021, we focused on 3 measures that demonstrated disparities in QI Metrics. In all 3 metrics, the African American population demonstrated the lowest performance, specifically in blood pressure control, pediatric combo 7 vaccination rates and entry into 1st trimester care. The following run charts by race/ethnicity for blood pressure control (Figure 5.4-1), Peds Combo7 Vaccination (Figure 5.4-2) and Entry into First Trimester Care (Figure 5.4-3).

Blood pressure control

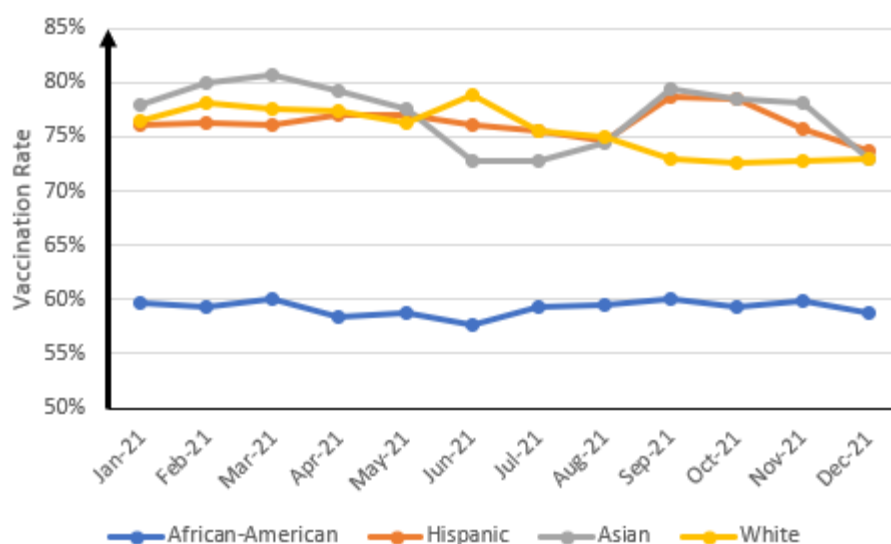
We have a number of activities planned for the 2022. We will be piloting an outreach intervention utilizing home blood pressure monitors in the African American population with hypertension. This will be led by our Central Population Health team with the goal to distribute blood pressure monitors and develop a process to manage their hypertension virtually with our clinical pharmacists or their primary care provider. We will also work with the American Heart Association to review patient education material for culture appropriateness. We are in the process of analyzing care given by race and ethnicity regarding blood pressure medication treatment. Recent studies from outside organizations have suggested that there may be differences in prescribing patterns based on race and ethnicity which may contribute to the disparities in blood pressure control.

Figure 5.4-1: Blood Pressure Control by Race and Ethnicity



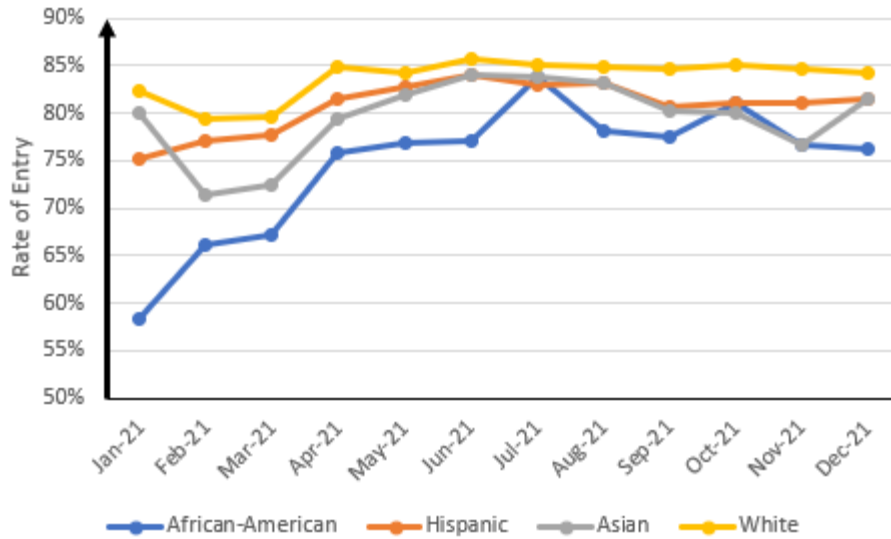
Pediatric Combo7 Vaccinations. Dr. Josh Williams has published research in vaccine hesitancy and disparities in our population. He is currently leading our vaccination efforts in this area. We hope to get input from the community to help us address vaccine hesitancy in our population. Similar to blood pressure control, we would also want to identify practices within Denver Health that may lead to disparities in the vaccination rates in our population.

Figure 5.4-2: Pediatric Combo7 Vaccination Rates by Race and Ethnicity



Entry into First Trimester Care. We did see some closure in the disparity gap in first trimester care in the African American population (Figure 5.4-3). Our major effort has been to implement standard work created by the Perinatal workgroup. As with the other 2 metrics, we intend to analyze our efforts from interventions to patient education to identify potential processes that may contribute to disparities in our outcomes.

Figure 5.4-3: Entry into First Trimester Care by Race and Ethnicity



6. ACCREDITATION

6.1. Hospital Survey - Joint Commission

On March 10, 2020, TJC surveyors arrived to assess the hospital's compliance with Medicare conditions of participation. Denver Health welcomed 9 surveyors over 4 days. The hospital received Joint Commission accreditation and TJC's recommendation for continued Medicare certification. The Accreditation cycle is effective March 14, 2020 and is valid for up to 36 months.

6.2 Accreditation Related Surveys

Colorado Department of Public Health and Environment (CDPHE)

In 2021 Denver Health had four onsite CDPHE complaint surveys and one unannounced follow-up survey.

- On February 2nd CDPHE arrived for an unannounced complaint survey related to contracted services. A finding related to contracted services was imposed and contract management improvements were made and audited for the remainder of the year with no further follow-up necessary.
- On May 3rd CDPHE arrived for an unannounced complaint survey related to a patient who died following discharge. After review of patient records, policies, and practices, DHHA received no citations or deficiencies.
- On May 10th CDPHE arrived for an unannounced complaint survey related to an inpatient death. After review of patient records, policies, and practices, DHHA received no citations or deficiencies.
- On August 10th CDPHE arrived for an unannounced complaint survey related to prevention and treatment of hospital-acquired pressure injuries. DHHA was cited for inconsistent documentation of pressure injury prevention interventions and treatment practices. This was a condition-level finding. Re-survey on October 14th found DHHA to have taken performance improvement actions now in full compliance. Auditing of documentation and practices related to pressure injury prevention and treatment is ongoing.

6.3. 27-65 Behavioral Health Survey

In January 2021, Denver Health's Annual Behavioral Health designation survey was completed. This survey evaluated the organization's adherence to Colorado Revised Statute 27-65-101 et seq., 2 CCR 502-1 Behavioral Health Rule, and the Office of Behavioral Health's "Procedure Manual of Care and Treatment of the Mentally Ill." Denver Health was deemed compliant and its 27-65 designation was renewed. The organization's designation survey is held annually in January.

6.4. Environment of Care

The goal of environment of care (EOC) is to promote a safe, functional, and supportive environment to preserve quality and safety. The EOC is made up of three basic elements:

- The building or space, including how it is arranged and special features that protect patients, visitors, and staff
- Equipment used to support patient care or to safely operated the building or space
- People, including those who work within the hospital, patients, and anyone else who enters the environment, all of whom have a role in minimizing risks

There are five important aspects of the environment addressed in the EOC chapter standards:

- Safety and security — risks in the physical environment, access to security-sensitive areas, product recalls, and smoking.
- Hazardous materials and waste — risks associated with hazardous chemicals, radioactive materials, hazardous energy sources, hazardous medications, and hazardous gases and vapors.
- Fire safety— risks from fire, smoke, and other products of combustion; fire response plans; fire drills; management of fire detection, alarm, and suppression equipment and systems; and measures to implement during construction or when the Life Safety Code cannot be met.
- Medical equipment — selection, testing, and maintenance of medical equipment and contingencies when equipment fails.
- Utilities—inspection and testing of operating components, control of airborne contaminants, and management of disruptions.

The EOC Committee guides EOC compliance efforts for Denver Health Medical Center, Ambulatory Care Services, Behavioral Health Services, School Based Health Centers, and all other leased or owned buildings that DHHA employees occupy. Committee membership includes a multi-disciplinary team including: Safety, Emergency Management, Pharmacy, Administration, Nursing, Support Services (includes Engineering, Planning & Construction), Infection Prevention, Risk Management, Behavioral Health Services, Ambulatory Care Services, Laboratory, Paramedics and the Center for Occupational Safety and Health (COSH).

During 2021, a few key stakeholders left DHHA. The EOC Committee Chairperson from the Department of Patient Safety and Quality retired in mid-2021. The Nursing Director who replaced her as EOC Committee Chairperson resigned at the end of 2021. Both parties have been replaced. Outcomes for the overall EOC program are shown in Figure 6.4-1.

Figure 6.4-1: Outcomes for Yearly EOC Goals

Goals/Performance Measures	Year End
A quorum for meeting attendance will be 75% of the departments represented.	GOAL NOT MET In 2021, the goal was to have 19 members in attendance. We only met that goal 5 out of 12 months.
Number of areas reporting to the committee that are impacted by recalls each quarter. Currently, there are 6 areas reporting.	GOAL MET All 6 areas (Lab, Pharmacy, IT, Technology, Fleet Vehicles & Food & Nutrition) reported on a quarterly basis.
Upload all TJC documentation for TJC surveyors or other regulatory bodies by the end of 2021	GOAL PARTIALLY MET Work continued in 2021; however, it wasn't completed.

EOC Goals and Performance Measures for 2022:

- ◇ A quorum for meeting attendance will be 75% of the departments represented.
- ◇ Upload all TJC documentation for TJC surveyors or other regulatory bodies by the end of 2022.

Safety Management Program

- Objective: Maintain a safe environment for patients, visitors, and employees of DHHA.
- Scope: Denver Health Medical Center, Ambulatory Care Services (ACS), Behavioral Health Services, and all other leased or owned buildings that house Denver Health employees.
- Performance indicators: Workers' Compensation Claims, occurrence reporting through Safety Intelligence (SI), Radiation Safety and Infection Prevention measures
- Effectiveness:
 - ◇ Overall, the goals of the Safety program were mostly accomplished (Figure 6.4-2).
 - ◇ There is on-going system validation to ensure that eHand Hygiene (eHH) sensors are working properly. In late 2020, sensors in the SICU were found to be not functioning optimally, in that they were either not recognizing when staff entered a room (and reflected they were still outside the room), or mistakenly identified staff in a room when they were not (and therefore misidentifying the observation). Infection Prevention is working with eHS to request a budget expansion to install the necessary software that would improve the accuracy in the SICU.

Figure 6.4-2: Outcomes for yearly goals—Safety Management

Goal	Year End
Reduce number of injuries due to lifting patients. The goal for 2021 is to have less than 25 lifting injuries.	GOAL MET There were only 12 lifting injuries for 2021.
Improve overall eHH performance 20% by December 2021 (goal is 68%) on units MICU, 3B, 4B & 8A	GOAL NOT MET Overall, eHH was only performed 58% of the time.
Update 2 disaster/downtime planning sections each quarter within the lab.	GOAL MET The lab updated 23 of their disaster/downtime sections over the entire year.

- Goals & Performance Measures for 2022:
 - ◇ Improve overall eHH performance 18% by December 2022 (goal is 68%) on units MICU, 3B, 4B & 8A
 - ◇ Complete process to have SICU in the eHH program (working to request budget expansion)
 - ◇ Reduce number of injuries due to lifting patients (goal for 2022 is to have less than 15 lifting injuries.)

Security Management Program

- Objective: Support DHHA's commitment of providing a safe and secure environment for patients, visitors, and employees.
- Scope: Denver Health Medical Center, Ambulatory Care Services, Behavioral Health Services, and all other leased or owned buildings that DHHA occupies. Some locations have Security Officers at designated posts while other locations are covered by mobile officers. HSS provides security coverage for DHHA and operates 24/7 to assist with security needs.
- Effectiveness: The Security Management Program did not meet their goal in 2021 (Figure 6.4-3).

Figure 6.4-3: Outcomes for Yearly Goal—Security Management Program

Goal	Year End
Conduct 16 garage patrols in each 24-hour period	GOAL NOT MET Due to staffing issues, the goal was only met during one month of the year.

- Goals & Performance Measures for 2022:
 - ◇ Conduct 16 garage patrols in each 24-hour period.
 - ◇ Follow up with all staff victims of garage crimes. The goal will be determined in the 2nd half of 2022 after setting a baseline in the first half of the year. Contact will be made with staff who report a crime to security to address staff concerns.

Fire Prevention and Life Safety Program

- Objective: Protect building occupants from fire, the products of combustion and to ensure the safe evacuation from a Denver Health facility in the event of a real fire
- Scope: Ensure that appropriate fire protection systems and response procedures are in place at Denver Health Medical Center, Ambulatory Care Services, Behavioral Health Services, and all other leased or owned buildings that Denver Health employees occupy.
- Effectiveness:
 - ◇ Overall, the Fire Prevention and Life Safety program is relatively effective (Figure 6.4-4).
 - ◇ Another review of the fire extinguishers that are entered into the TMS system will be conducted to ensure that all the extinguishers are properly listed.

Figure 6.4-4: Outcomes for Yearly Goal—Fire Prevention and Life Safety

Goal	Year End
Identify zero missed monthly <u>PM's</u> for fire extinguishers. Findings identified during EOC rounds.	GOAL NOT MET Five fire extinguishers were identified in 2021 during EOC rounds as not having a PM completed each month.
Locate no more than 2 stained/broken ceiling tiles each month (less than 24 for the year).	GOAL NOT MET A total of 37 stained/broken ceiling tiles were identified during 2021.
No more than 2 sprinkler heads are dusty, broken or the escutcheon is missing each month.	GOAL MET Only 1 non-compliant sprinkler head was identified during the entire year.
Two or less observations of storage fewer than 18" from the ceiling in storage rooms each month.	GOAL MET Only 16 non-compliant storage issues were identified during the entire year.

- Goals & Performance Measures for 2022:
 - ◇ Identify zero missed monthly **PM's** for fire extinguishers based on findings identified during EOC rounds.
 - ◇ Locate no more than 2 stained/broken ceiling tiles each month.
 - ◇ Two or less observations of storage fewer than 18" from the ceiling in storage rooms each month.

Hazardous Materials and Waste Management Program

- Objective: Identify and manage materials known to have the potential to harm humans or the environment.
- Scope: Processes designed to minimize the risk of exposure to hazardous materials and includes education, procedures for safe use, proper storage and disposal, and management of spills at Denver Health Medical Center, Ambulatory Care Services, Behavioral Health Services, and all other leased or owned buildings that DHHA employees occupy.
- Effectiveness: The Hazardous Materials and Waste Management program has been effective (Figure 6.4-5)

Figure 6.4-5: Outcomes for Yearly Goal—Hazardous Waste Management

Goal	Year End
Set baseline to identify a goal for non-conformities placed in an inappropriate container annually	There were 37 findings in 2021.

- Goals & Performance Measures for 2022:
 - ◇ Identify less than 37 non-conformities placed in an inappropriate container this year.

Medical Equipment Management

- Objective: Ensure and support a safe patient care and treatment environment by managing risks associated with the use of medical equipment.
- Scope: Processes for selection of equipment, maintenance, and training designed to promote safe and effective use of diagnostic, therapeutic, and analytical equipment in the facility.
- Effectiveness: The Medical Equipment Management program has struggled again this year to complete their PM compliance goal because of COVID (Figure 6.4-6).

Figure 6.4-6: Outcomes for Yearly Goal

Goal	Year End
100% PM compliance - Biomed	GOAL NOT MET PM compliance ended the year at 84.5% for 2021.

- Goals and Performance Measures for 2022:
 - ◇ Continue to work on plan so 100% of PM compliance will be achieved.

Utilities Management Program

- Objective: Manage the risks associated with the operation of the utility systems. The plan includes maintenance and training designed to promote safe and effective use of the utility systems while minimizing risks to patients and staff.
- Scope: Critical operating components of Utility Systems located in Denver Health Medical Center, Ambulatory Care Services, Behavioral Health Services, and all other leased or owned buildings that Denver Health employees occupy.
- Effectiveness: The Utilities Management Program continues to have a successful program under new leadership in the Engineering Department (Figure 6.4-7).

Figure 6.4-7: Outcomes for Yearly Goal—Utilities Management

Goal	Year End
Improve the eye wash station PM program and reporting to the EOC Committee.	GOAL MET PM's on eye wash stations were completed 99.68% during 2021.

- Goals & Performance Measures for 2022:
 - ◇ Set baseline to identify a goal for tracking elevator failures across the entire Denver Health organization.

6.5. Emergency Management Program

Mission:

Emergency Management seeks to establish a program of excellence to communicate, facilitate, and coordinate activities necessary to prevent, prepare for, respond to, and recover from all hazards which do or may have an impact to operations of the DHHA enterprise.

2021 Emergency Management Program Initiatives:

■ Required Emergency Response—Real-world Events, Exercises, and Drills:

- ◇ **COVID-19 Pandemic Response:** Throughout 2021, DHHA continued to navigate the various surges and variants of the COVID-19 Global Pandemic as well as implemented a robust, comprehensive vaccination rollout in the Denver-metro region to reduce the severity of illness and risk of infection in the community. DHHA's Incident Command Team was activated from November 2, 2020 to June 30, 2021 then was reactivated November 1, 2021 to address issues of COVID-19, hospital capacity, and staffing shortages. This activation ended January 7, 2022. In conjunction with internal response actions, Emergency Management and Transfer Center leadership participated in the Combined Hospital Transfer Center activation for the state of Colorado with the intent of supporting optimal, equitable treatment of patients with COVID-19.
- ◇ **Blizzard Response:** The National Weather Service (NWS) forecasted a severe winter storm to impact the region Friday, March 12 through Monday, March 15, 2021. The forecast evolved over the weekend and storm movement slowed, delaying and prolonging impacts. On Sunday, March 14 the NWS upgraded conditions to a Blizzard Warning:
 - Accumulations: Total accumulations in the Denver area 16-28"
 - Temperatures: minimum 25°F; maximum 31°F
 - Winds: Highest speed recorded – 37 MPH; Highest gust – 48 MPH; Average speed – 25.5 MPH
 - Emergency Management facilitated the opening DHHA Snow Call on Thursday, March 11 with subsequent calls convened Friday, March 12 and Saturday, March 13. Due to the storm's impacts on DHHA operations, a limited activation of Incident Command was initiated on Sunday, March 14 at 1530hrs to ensure adequate staffing to support patient care at the main hospital; ensure adequate staffing and address safety considerations for the Denver Health Paramedic Division; determine needs for delaying, closing, or cancelling clinic hours and scheduled elective procedures/surgeries/appointments; and provide staff accommodations support including sleep space, food, and transportation (as available).
- ◇ **IT Server Issue Response:** Around 1400 hours on November 9, 2021 an IT server issue began impacting Pic IX when it rebooted without notice. Systems went down, came back up, and went down again at approximately 1420hrs. The issue was broader scope than Pic IX however it was unclear what applications and systems were impacted and to what degree (outage vs. slowness). Attempts were made to reboot servers without success. Denver Health IT began response in the afternoon including initiating a technical bridge. Because of the duration of the issue, communication needed to frontline employees and staff, and concerns for patient safety and care, the Hospital Incident Command Team was activated around 1800hrs to manage hospital operations. Those assigned to roles within Incident Command managed clinical and supportive patient care, and business and administrative impacts from the outage until approximately 2130hrs when the issue was resolved, and Incident Command was decommissioned.
- ◇ **IT Network Outage Response:** At approximately 1000hrs on December 14, 2021 a major internet and IT outage was identified impacting multiple applications, services, and systems within the DHHA organization. While the full extent of the impact was identified around 1000hrs., IT subject matter experts reported that system pulse alerts related to Citrix patching had been occurring since 0830hrs that day. Incident Command was activated and a HICS structure established at 1200hrs to manage clinical and supportive patient care, and business and administrative impacts from the outage. The event had effects on operations throughout the enterprise from the identification of the issue until around 1830hrs. when Incident Command was decommissioned.
- ◇ **“Operation Intro Mountain Shield” Full-Scale Exercise:** This was a full-scale exercise, held on October 6, 2021 in the Denver Health Adult Emergency Department. Exercise play was focused in the Blue Zone of the Adult ED and ancillary department player locations including Central Supply, Pharmacy, and the Blood Bank in order to practice response to a no-notice mass casualty incident.
- ◇ **“Operation Twisted Tail” Functional Exercise:** This was a functional exercise, planned for August 10-12, 2021 at Denver Health and Hospital Authority in partnership with the National Quarantine Unit at Nebraska Medicine, National Emerging Special Pathogens Training and Education Center, and state and federal partners. Exercise play was focused on public health and medical services and operational coordination required for the identification, isolation, and treatment of patients with a suspected/confirmed highly infectious disease.
- ◇ **“Tarmac Turmoil” Burn Surge Functional Exercise:** Emergency Management participated in this functional exercise August 24-26, 2021 conducted at locations throughout Colorado both virtually and in-person. During exercise play, normal equipment such as telephone, radio, and EMResource were used to interact with response partners and with exercise controllers and players. Exercise play began with an influx of simulated burn and trauma patients spread across hospitals in the state.

■ **Joint Commission Survey Readiness:**

- ◇ Annual review and restructure of Emergency Operations Plans (EOP) including the Enterprise EOP and license specific plans for Ambulatory Care Service & Community Health Centers and the Winter Park Medical Center including corresponding Hazard Vulnerability Analyses
- ◇ Quarterly meetings with Emergency Management Committee
- ◇ Real responses and exercising of plans, policies, and procedures (see above)
- ◇ Training & education on emergency preparedness and response for all DHHA employees

■ **Emergency Management Goals for 2022:**

The Emergency Management Department goals for 2022 will aim to build upon the existing EM framework to cultivate relationships across the DHHA Enterprise; foster a culture of emergency preparedness within the institution for awareness and influence; meet regulatory requirements; share and learn best practices throughout the region with emergency management colleagues; and ultimately improve organizational operations during emergency preparedness and response.

This will be achieved through projects and tasks such as:

- Planning and preparedness initiatives on high probability events identified on hazard vulnerability analyses including cybersecurity and ransomware attacks.
- Continue and bolster No Notice Event planning with clinical and ancillary department partners
- Conduct all-hazards preparedness and response training for Denver Health employees with focus on the inpatient environment and main campus departments.
- Continue Hospital Incident Command System training and conduct exercises which provide an opportunity to drill response from the Incident Command Team.
- Lead and support regional planning and preparedness initiatives through the North Central Region Healthcare Coalition and Governance Board.

7. CLINICAL DOCUMENTATION INTEGRITY (CDI) QUALITY INITIATIVES

7.1. Patient Safety Indicators (PSIs) & Hospital Acquired Conditions (HACs)

The Clinical Documentation Integrity (CDI) team reviews the Agency for Healthcare Research and Quality (AHRQ) Patient Safety Indicators (PSIs) and select Centers for Medicare and Medicaid Services (CMS) Hospital Acquired Conditions (HACs) for coding and documentation accuracy. PSI performance rates are included in many national and Colorado quality scorecards and pay-for-performance programs. The CDI team reviews all PSIs tied to external programs and/or publicly reported. HACs impact payment as part of the Deficit Reduction Act Hospital Acquired Conditions Payment Provision. Therefore, it is important to ensure that PSIs and HACs are accurately reported.

Methodology:

After a patient is discharged, the medical record is coded, and a claim is sent to the payor. Once these steps have occurred, the encounter is processed through the AHRQ and CMS algorithms to determine if a PSI and/or HAC occurred during the hospitalization. All potential cases are adjudicated weekly in a SharePoint audit tool. A CDI member reviews each record to determine if the ICD-10 code(s) that triggered the PSI or HAC are accurately assigned given the existing documentation and clinical criteria in the medical record. The medical record is also reviewed for any potential exclusions and CDI staff verify that the appropriate ICD-10 code was assigned for the exclusion condition. If there is ambiguous or conflicting documentation, the CDI staff recommends for HIM coders to query the provider for clarification. If the CDI member identifies potential coding issues, an electronic communication is sent to the Coding Educator requesting a coding review. When a coding error or query opportunity is identified and documentation is updated, PSIs and HACs can be averted. On a monthly basis, the CDI team compares PSI and HAC cases in their audit tool with the Vizient Clinical Database to ensure that case reporting is accurate and averted cases have not been incorrectly reported. The CDI team collaborates with a surgical provider who does a secondary review of all PSIs to determine if the documentation by the providers supported the coding of the PSI. This surgeon also educates providers regarding the importance of accurate, detailed documentation.

In 2021, after piloting one PSI in 2020, we systematically added the other PSI's as individual work queues identified prior to the claim being sent to the payor. This joint effort between CDI, DPSQ, and Epic staff will reduce the need to rebill since the correct claim will go to the payor the first time.

Results:

During 2021, the CDI team reviewed 83 PSI and 14 HAC cases. The PSI aversion rate dropped slightly to 33%; whereas the HACs saw a significant increase to its aversion rate of 64% (Figures 7.1-1 and 7.1-2). The aversion rates have continually improved over the past five years due to these reviews. CDI staff identified coding opportunities for some cases whereas others required a query to the physician when the documentation conflicted with the clinical findings or when a condition could be clarified as possibly or definitely being present on admission (POA).

Figure 7.1-1: AHRQ Patient Safety Indicator Cases Averted by the CDI Team

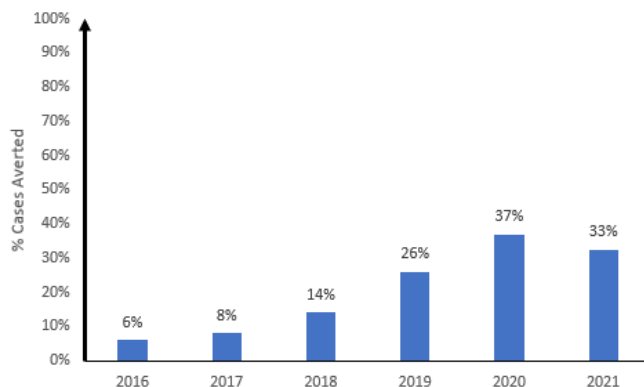
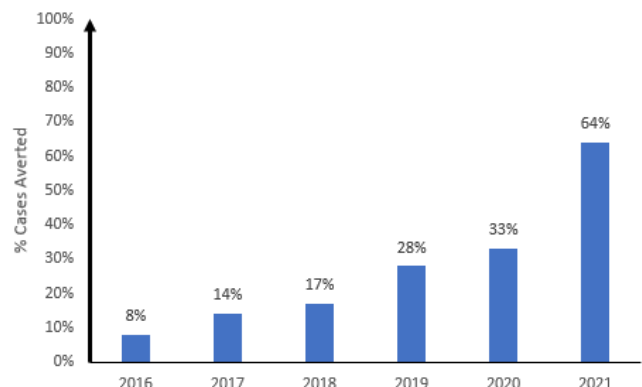


Figure 7.1-2: CMS Hospital Acquired Condition Cases Averted by the CDI Team



7.2. Mortality Reviews

The Mortality Index compares patients' actual mortality rates to their expected mortality rates from risk adjusted models. Expected mortality scores are impacted mainly by acute and chronic conditions that are present on admission (POA) and have been shown to have a statistically significant impact on mortality. The APR-DRG grouper developed by 3M Health Information Systems assigns severity of illness (SOI) and risk of mortality (ROM) scores to each inpatient discharge. The admission SOI and ROM are determined by the complexity of acute and chronic illnesses present at the time of admission. These scores along with individual ICD-10 codes are used in risk adjustment models. The goal of mortality reviews is to determine if there are documentation and coding opportunities that would more accurately reflect the patient's comorbidities at admission and therefore impact the Vizient mortality risk adjustment calculation.

Methodology:

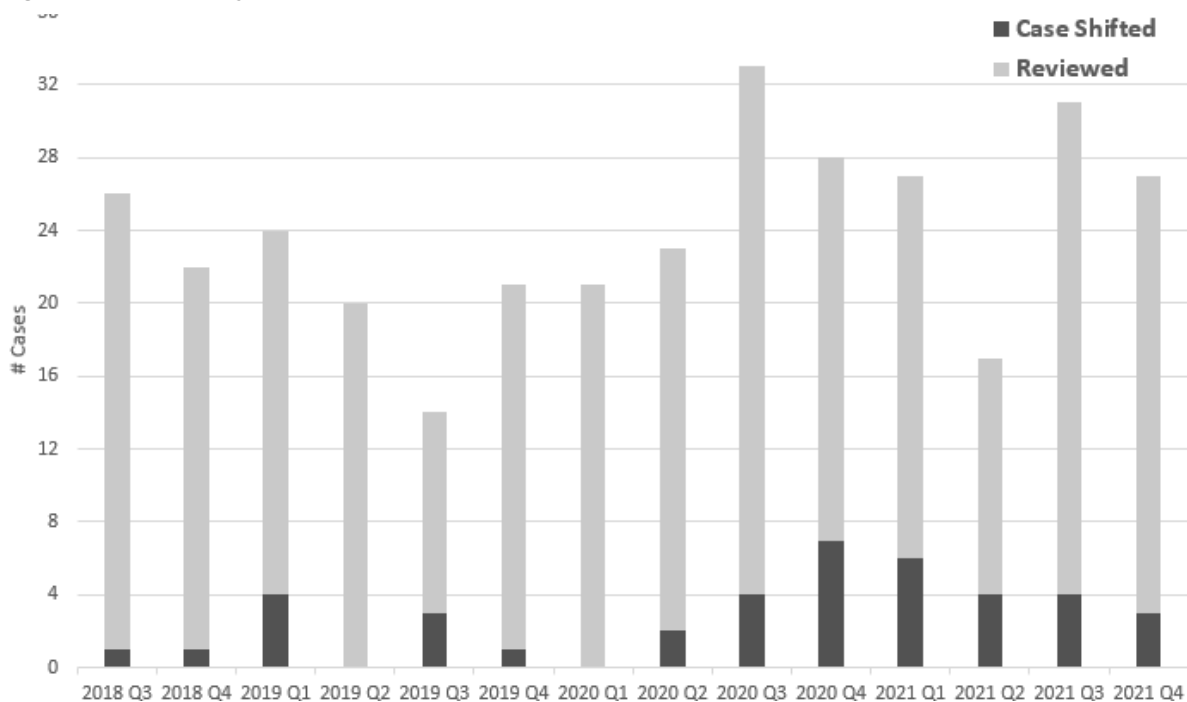
The CDI team uses an Epic Workqueue to review inpatient deaths with an admission SOI or ROM score of less than the highest level, i.e. "extreme". These cases have already been coded and CDI nurses review the accounts prior to claim submission. Prioritizing reviews based on the SOI/ROM allows for timely selection of cases because Vizient's expected mortality scores are not available until weeks after the patient is discharged. The mortality review focuses on coding and documentation opportunities to improve the SOI/ROM and/or increase model-specific risk adjustment scores. Mortality reviews are tracked in Epic and summarized in a secure SharePoint audit tool. When documentation or coding issues are identified, the case is sent to the Coding Reviewer to independently review the record. If a query is required due to inconsistent or incomplete documentation, the Coding Reviewer or CDIs send a query to the provider. If a coding error is identified during the coding review, the Coding Reviewer recodes the account. After the coding review is complete, the account is rerouted back to CDIs to reconcile.

The CDIs also review the Office of Decedent Affairs death log on a monthly basis to ensure that all admissions meeting criteria have been reviewed. If any cases meeting the SOI/ROM criteria were not reviewed pre-bill, they are reviewed post-bill and the claim is resubmitted if any coding changes are made.

Results:

102 accounts were reviewed in 2021 for mortality (Figure 7.2-1). Of those 102 reviews, 46 of the accounts (45%) were sent to coding for review. Of those 46 accounts sent to coding, 17 cases (17% of all mortality reviews) were impacted with an increase to the SOI or ROM. The CDIs provided individual education to specific providers regarding documentation opportunities that will impact accurate reporting of patients' severity of illness, risk of mortality, and risk profiles. The CDI team had a goal of meeting with each clinical service during the year to share this information. Unfortunately, the COVID pandemic disrupted that plan as providers focused on treating patients. Group education will start as soon as the pandemic has subsided.

Figure 7.2-1: Mortality Reviews



7.3. Outpatient CDI Program

CDI's outpatient program was created five years ago to improve documentation in primary care clinics for Denver Health Medical Plan (DHMP) Medicare Advantage patients. Managed care plans pay DHMP a capitated rate per patient to provide health care for the patient. The payment is risk adjusted so DHMP receives higher payments for patients with more comorbidities. Each January 1, Medicare resets a member's health status, meaning a Medicare member is considered completely healthy until diagnosis codes are reported on claims. Therefore, it is essential that providers capture all current and active diagnoses for each member, as well as re-capture any diagnoses related to the member's chronic conditions annually.

Methodology:

Due to the success of this program, an additional CDI nurse was added in 2020 thereby allowing the program to expand from eight to 14 clinics. Using data from past years claims, the CDI nurses review each patient's medical record for chronic diagnoses that map to a Hierarchical Condition Category (HCCs). If a chronic diagnosis was captured in the prior year (2020) and the diagnosis has not been captured in the current calendar year (2021), the CDI nurse queries the primary care provider one day prior to the patient's scheduled appointment. Each case is followed to determine if the provider agreed and documented the chronic condition. After the diagnosis is coded, the CDI team calculates the associated risk adjustment factor (RAF) that is added to the patient's overall risk adjustment score. Results are shared with individual clinics and providers can request drilldowns into their data. The three CDI nurses plan to expand this program to DHMP Exchange members in 2021.

Results:

The Outpatient CDI team examined 3,292 patient records during 2021 and issued 3,012 physician queries. The percentage of Medicare Advantage members reviewed has increased yearly (Figure 7.3-1). Providers agreed with the query and updated their documentation 82% of the time. Figure 7.3-2 shows the improvement in provider engagement over time. The average increase in RAF per agreed and documented query has remained steady each year allowing program growth (Figure 7.3-3). This program resulted in a revenue increase in 2021 of \$6.9 million.

Figure 7.3-1: Percentage of DHMP Medicare Advantage Patients with a CDI Review

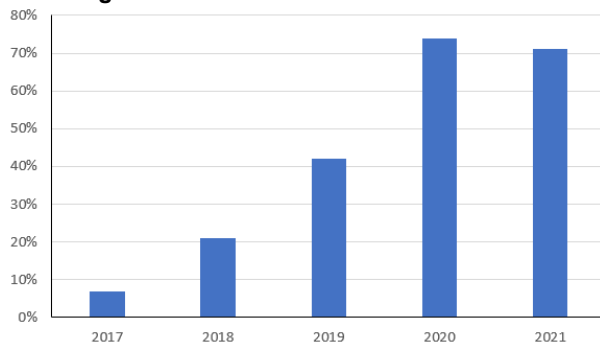


Figure 7.3-2: Queries where Provider Agreed with CDI Query and Updated Documentation

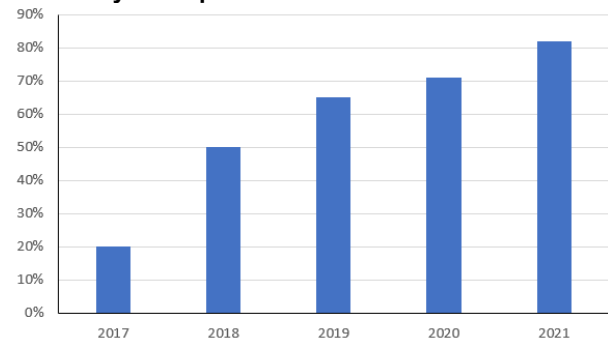
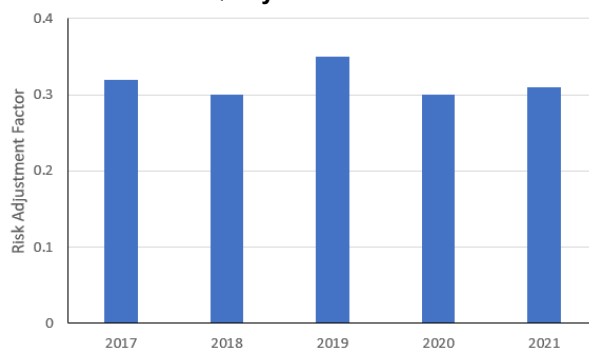


Figure 7.3-3: Average Increase in Risk Adjustment Factor due to CDI Query



7.4. Inpatient CDI Concurrent Reviews

Institutions across the nation have shifted to concurrent reviews of admitted patients in an effort to improve physician documentation and improve HIM coding efficiency. DHHA’s Inpatient CDI team helps physicians’ to optimize their documentation so that coders receive accurate, clear, and concise information at the time of discharge. This reduces the need to query physicians for additional details thereby allowing bills to be sent earlier and preventing rebills.

Methodology:

CDI nurses utilize an Epic Workqueue (WQ 008) to identify all inpatients currently in the hospital and track the concurrent reviews and queries. Various risk models help to determine diagnoses that impact the overall severity of illness (SOI) and risk of mortality (ROM). While a patient is still hospitalized, CDI nurses enter a principal diagnosis, appropriate secondary diagnoses, and procedures into the 3M Encoder software to determine a “working DRG”. The software provides an associated SOI, ROM, and expected length of stay. CDI nurses query providers for clarification of non-specific terminology and when the status of present of admission has not been documented for relevant conditions. CDI’s reviews, queries, and “working DRG” are visible to the coders.

Throughout 2021, the CDI team continued the workflow between CDI and the coding department for DRG mismatches. Once a patient is discharged and coded, the patient will go into CDI’s discharge WQ (WQ 050). CDI will reconcile or compare CDI’s “working DRG” with the coder’s final DRG. If there are coding discrepancies and CDI disagrees with the final coding, the CDI nurse routes the account to the coding auditor for a secondary review via the “CDI/Coding Review” Workqueue (WQ 1614). The auditor decides whether to approve the suggested codes, makes any applicable changes to the account, and sends the account back to CDI to close the loop.

Results:

In 2021, 6,504 records were concurrently reviewed. The CDI nurses generated 1,241 queries to providers with a response rate of 96%. The response rate has been better than the 90% goal for the past three years (Figure 7.4-1). The expectation is for providers to respond to the query and clarify the documentation, but not necessarily agree with the CDI suggestions. Providers agreed with the query and updated their documentation appropriately 84% of the time (Figure 7.4-2). The remaining queries were a mix of no response, disagree, and agreed but not documented in the record. The CDI team worked with HIM to make the CDI queries part of the legal medical record. A small percentage of queries will now ‘count’ toward agreed and documented, as the provider would agree and answer the query on the query itself. This allows the coder to generate ICD-10 codes from the CDI query along with other provider documentation. The expected length of stay increased by an average of 3.4 days based on this CDI process (Figure 7.4-3).

Figure 7.4-1: Provider Query Response Rate to CDI Concurrent Reviews

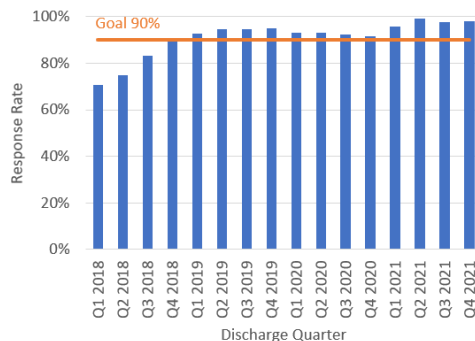


Figure 7.4-2: Provider Query Outcomes

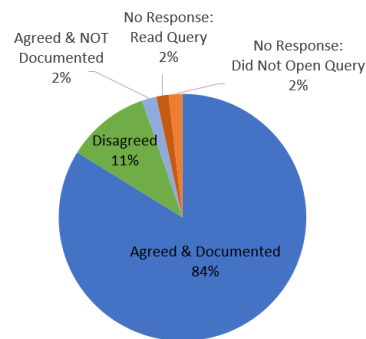
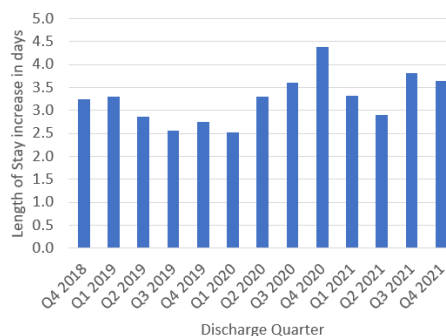


Figure 7.4-3: Average Increase in Expected Length of Stay from CDI Queries

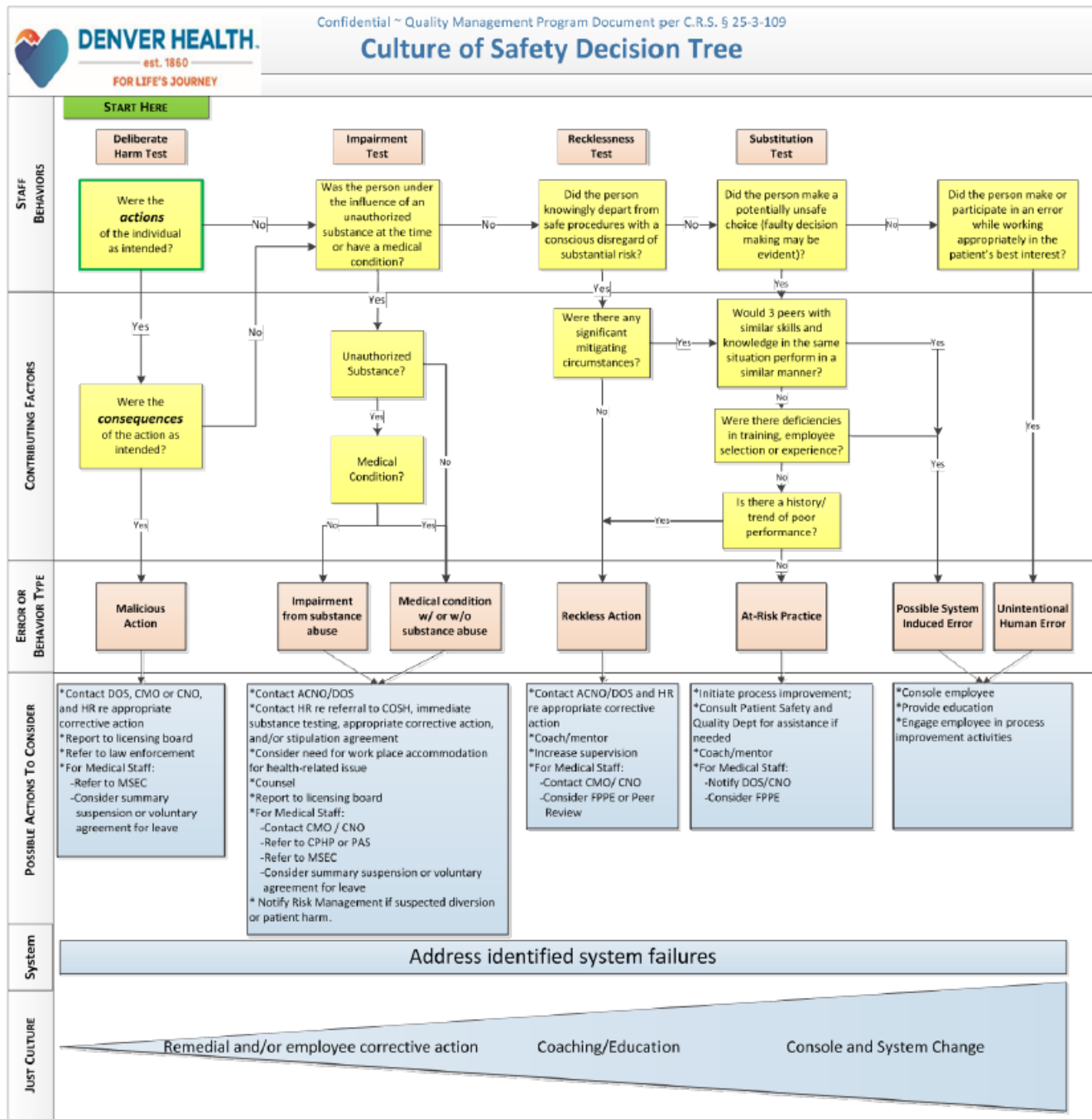


8. CULTURE OF PATIENT SAFETY

8.1. Culture of Safety Decision Tree and Algorithm

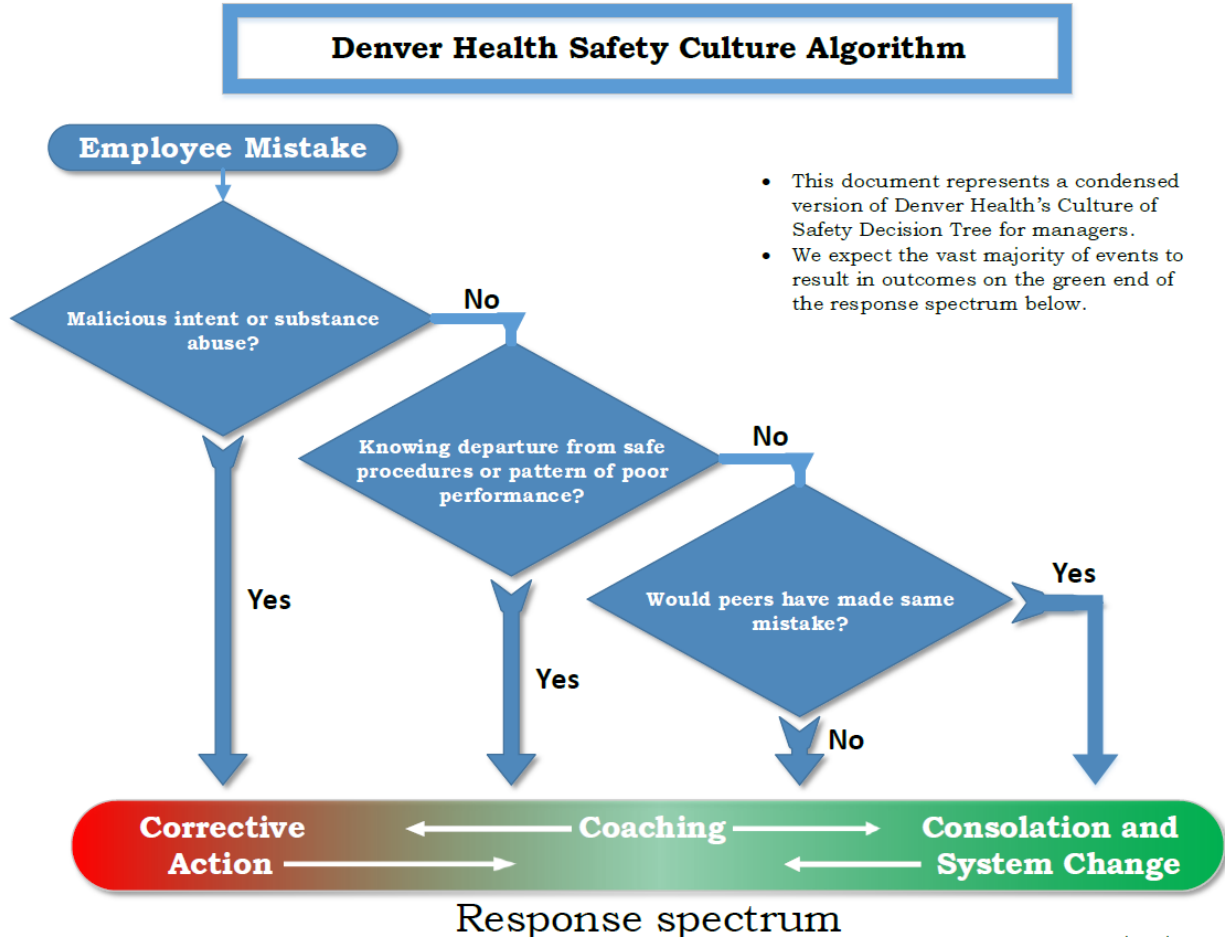
A Culture of Safety balances the need for an open and honest reporting environment with appropriate individual and organizational accountability to our patients and to each other. Furthermore, patient safety improves when employees are empowered to actively monitor and participate in safety efforts. Denver Health's Culture of Safety Decision Tree tool (Figures 8.1-1) was first developed and presented to managers at DHHA in 2014. The tool helps leaders to evaluate employee conduct and determine appropriate follow-up action after an adverse event or near miss. It encourages leaders to decrease the focus on individual blame and instead view an adverse event or near miss as an opportunity to console and re-educate staff, improve systems, and reduce risk. The Culture of Safety Decision Tree tool has been distributed as part of the 2017-2020 annual reports and has been included with the monthly culture of safety results distributed to leaders in 2017, 2018, and 2019. The tool is also referenced periodically during the Daily Patient Safety Briefing.

8.1-1: Culture of Safety Decision Tree for Leaders



In early 2020, there was a request for a simplified version of the Culture of Safety algorithm that would convey to front line workers the spirit of a just culture that drives leaders to system change far more often than employee corrective action. The result of that request is shown in Figure 8.1-2.

8.1-2: Culture of Safety Algorithm



- This document represents a condensed version of Denver Health’s Culture of Safety Decision Tree for managers.
- We expect the vast majority of events to result in outcomes on the green end of the response spectrum below.

Source: DHHA DPSQ

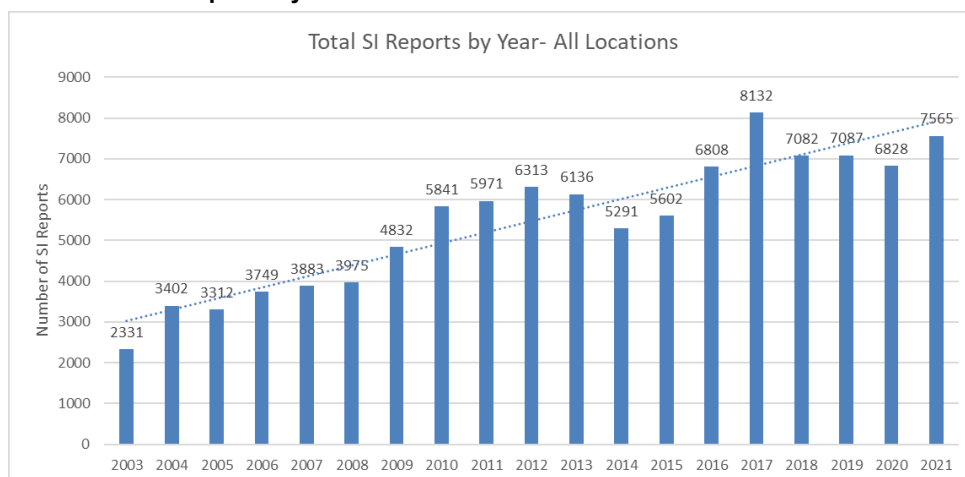
8.2. Safety Intelligence (SI) Reporting

Upon the discovery of an occurrence, Denver Health employees, physicians, independent contractors, students, and others as appropriate are expected to complete an occurrence report. The Safety Intelligence (SI) system is the recognized occurrence reporting system for DHHA. Occurrence reports are confidential, privileged quality management documents, per C.R.S. § 25-3-109, and are not part of the medical record.

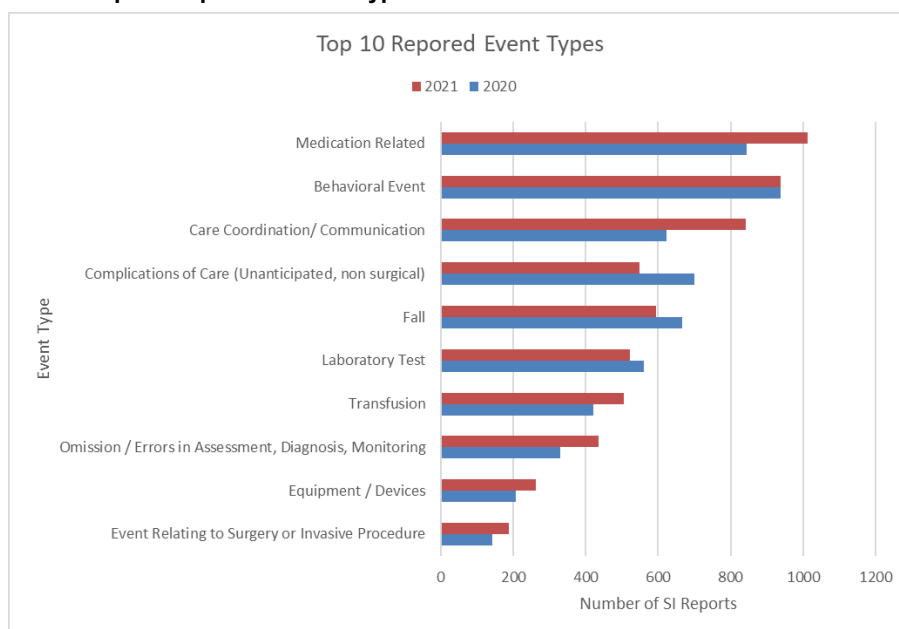
- DHHA advocates a proactive patient safety culture with emphasis on the quality improvement of care delivery systems.
- DHHA encourages staff participation in the detection and reporting of occurrences, the identification of potential system-based causes of occurrences, and the implementation of system and individual improvements to reduce the likelihood of untoward events.
- Occurrence reporting provides a tool for the analyses of individual and aggregate data to identify opportunities to improve and design systems, enhance patient care, and assess liability exposure.
- DHHA shall not take disciplinary action against an employee in retaliation for making a report or disclosure in good faith, regarding patient safety information or quality of patient care.

Figure 8.2-1 shows an increase in total SI reports from 2003 to 2021 with a significant improvement in event reporting between 2020 to 2021. This is largely attributed to the Resident Reporting Program that was rolled out mid-2020. Resident providers are encouraged to be a partner in the patient’s healthcare experience by reporting areas for performance improvement. This program will continue as an a way of promoting resident learning and to facilitate ongoing performance improvement for our patients. Figure 8.2-2 shows event types by year for 2020 and 2021.

8.2-1: Total SI Reports by Year—All Locations



8.2-2: Top 10 Reported Event Types



8.3. Culture of Safety Survey

In 2021, the Senior Management team elected to include a series of questions from the domains of Employee Engagement, Culture of Safety, and Diversity, Equity, and Inclusion (DEI) in a survey of a random sample of the workforce monthly from March to September. This was intended to gauge progress on these domains between the enterprise-wide all-employee engagement surveys. During the 6 months of these “pulse” surveys, we saw little month-to-month variation. Overall results of the survey are shown in Figure 8.3-1. There was approximately a 40% response rate. In none of the areas did we see performance above target. This represents a challenge to all leaders at DH for 2022.

Figure 8.3-1: Employer and Employee Engagement Monthly Survey—Overall Results

Category	Question	Target	% Agree/ Strongly Agree
Employee	I am proud to tell people I work at this organization.	86.5%	84.0%
Employee	I would recommend this organization to family and friends who need care.	77.7%	69.7%
Employee	I would recommend this organization as a good place to work.	78.3%	69.9%
Culture of Safety	When a mistake is reported, it feels like the focus is on solving the problem, not writing up the person.	75.9%	60.9%
Culture of Safety	Senior Management provides a climate that promotes patient safety.	72.9%	67.5%
Culture of Safety	Communication between departments is effective in this organization.	54.3%	38.0%
DEI	This organization demonstrates a commitment to workforce diversity.	79.4%	70.6%
DEI	All employees have an equal opportunity for promotion regardless of their background.	69.7%	54.4%

Interventions to improve the Culture of Safety

- Great Catch! Certificates—Managers, educators, and consultants on SI reports have the option to nominate a staff member or reporter for a Great Catch! Certificate. The awarded employee will receive a thank you letter and a signed certificate from Patient Safety and Quality.
- Feedback to the University of Colorado Residency Program—A summary of SI reports submitted by residents is sent over to the Residency Program Coordinators on a monthly basis.
- Denver Health Graduate Medical Education Committee (DHGMEC)—Reports that focus on resident reporting are compiled and presented on a quarterly basis at the DHGMEC meeting. These reports include top event types, event categories, and highest reported harm scores.
- Workplace Violence—SI Reports that focus on staff assaults and patient behavioral events are compiled and discussed at the Workplace Violence Committee on a monthly basis.
- Regulatory Visits—Regulatory surveyors requested a list of SI reports within a specified time frame to ensure that DHHA was adhering to mandatory and federal requirements.
- Daily patient safety briefings
- Education about the culture of safety decision tree and algorithm
- In 2021, DHHA formally adopted adverse event reporting at Denver Health as a GME resident/fellow incentive metric. Each clinical department is assessed monthly for the number of SI reports placed by residents rotating on services at Denver Health. For the first 5 months of the program (August-December, 2021), residents submitted 746 SI reports.

8.4. Team STEPPS

Communication issues are significant contributors to sentinel events, near misses, and/or cases of severe maternal morbidity. In 2021 the Department of OB/GYN with the support of the Department of Patient Safety and Quality (DPSQ) undertook an initiative to improve communication between team members on Labor and Delivery. Prior studies evaluating team communication training on Labor and Delivery units have shown significant decrease in adverse obstetric events and a significant increase in positive perceptions and attitudes toward culture of safety and quality improvement (Phips AJOG 2012, Tolcher AJOG 2016).

In September 2021, a multidisciplinary team of approximately 50 staff members underwent a 2-day training on “Team Strategies to Enhance Performance and Patient Safety” (Team STEPPS), which is taught by the American Hospital Association (AHA) education team. Team STEPPS is a collection of communication tools, initially developed by the Department of Defense in the mid-1990’s and later adopted by the Healthcare industry, that has been shown to improve attitudes, increase knowledge, and improve behavioral skills among team members. The initial trainee group included nurses, physicians, midwives, nurse anesthetists, scrub technicians, and clerks from all departments that participate in the care of peripartum women including OB/GYN, Family Medicine, Anesthesia, NICU, Emergency Medicine, Perioperative services, and DPSQ. Trainees included those in leadership positions such as unit managers and educators, as well as front-line champions who were interested in the topic of improving team communication.

After this initial training, a focused multidisciplinary committee was formed and charged with disseminating and training the rest of the staff caring for peripartum patients with emphasis on promoting meaningful culture change. The committee met weekly for about 3 months to plan and execute the initiative. First, communication tools were selected that offered the highest yield of improvement based on pre-training staff surveys. These included use of the Situation, Background, Assessment, and Recommendation technique (SBAR), closed loop communication, briefs, debriefs, huddles, and “CUS” for escalation of care. Next, a multifaceted education plan was devised which involved a series of staff educational meetings, development of visual boards and media to illustrate the tools, and mandatory Cornerstone modules. Lastly, to improve engagement, the committee developed Team STEPPS award certificates and prizes.

Labor and Delivery use of the above tools is evaluated once to twice monthly as a standing agenda item during recurring departmental meetings. Suggestions on improving communication are incorporated into DPSQ departmental monthly discussion of QI cases. The communication training is incorporated into the annual nursing skills day training as well as the new-employee orientation. Furthermore, EMR reports are being developed to longitudinally track adverse obstetric events. Lastly, attitudes about culture of safety and effective communication will be assessed through the AHA administered post-training questionnaire as well as institutional employee survey related to PSQI.

Future directions for the implementation of effective team communication through Team STEPPS will involve dissemination to Gynecology and Peri-operative services focusing on effective peri-operative communication and to the Women’s Care Clinic to enhance communication in the outpatient setting.

9. PATIENT EXPERIENCE

9.1. Voice of the Customer (VOC)

The Patient Experience department uses a variety of methods to listen to and integrate the Voice of the Customer (VOC) to retrieve immediate and actionable feedback in an ongoing effort to drive our patient experience improvement efforts based on patient and customer input. This information is used to make process and service improvements and to identify opportunities for innovative change. The various listening approaches used for our patient and community customers are indicated in Figure 9.1-1.

Figure 9.1-1: DHHA's Methods for Obtaining Patient Feedback

Patient Listening Method	IP	OP	ED	Comm
HCAHPS/CAHPS/Press Ganey surveys	X	X	X	
Rounding	X	X	X	
AIDET	X	X	X	X
Focus groups	X	X	X	X
Social media	X	X	X	X
Music/pet therapy visits	X		X	
Service Recovery	X	X	X	X
Patient Advocates	X	X	X	X
Pre-admission phone calls		X		
Post-discharge phone calls	X	X		
Community health educational events	X	X		X
Patient Family Advisory Council (PFAC)	X	X	X	X
Foundation programs	X	X	X	X
Advisory/governance bodies	X	X	X	X
DHHA and Patient Experience websites	X	X	X	X
Support groups	X	X	X	
24/7 nurse hotline		X		X
Complaint submissions	X	X	X	X
Affiliate hospital boards	X	X	X	
Lean event participation	X	X	X	X
MyChart patient health portal	X	X	X	

*IP = Inpatient; OP = Outpatient; ED = Emergency Department; Comm = Community

DHHA uses a variety of integrated learning processes to respond to the VOC throughout the various stages of a patient's relationship with DHHA. Through highly successful patient-centered engagement methods, such as the Patient Family Advisory Council (PFAC), DHHA has expanded its approach to include new councils that segment patient populations representative of specific units and clinics. This allows DHHA to gain valuable VOC insight and actionable information from council members, enabling DHHA to make improvements based on ongoing feedback provided by patients representing a specific area. In addition to the various councils, DHHA patients are rounded on during their stay and asked specific questions related to their care and experience. Rounds are documented through a program called MyRounding, which allows DHHA to track data and address issues with the appropriate supervisors and/or departments and directly communicate with patients to resolve the problems. DHHA reaches out to patients after their visit as well, through emails, phone calls, surveys, and MyChart.

The various listening mechanisms used to seek actionable feedback from the VOC allow DHHA to identify patient and community needs, as well as opportunities for process improvement, strategic planning, and innovation. Feedback and insights from the VOC are communicated to DHHA leadership teams and incorporated into strategic goals and action plans for immediate change.

Strategic planning incorporates VOC using a framework that includes a dimension dedicated to the patient experience. Liaised through the Chief Experience Officer, patient experience data is analyzed with plans created that focus on gaps within the patient experience. Goals specific to patient experience are established annually with action plans created to ensure movement toward these goals. All patient experience goals established inside of strategic planning are monitored by senior leaders.

9.2. Patient Family Advisory Council (PFAC)

DHHA regularly hosts a PFAC to bring together patient and family advisers to foster a culture of patient- and family-centered care. The council is composed of patients, family members, community members and health care system staff who volunteer to be advisors and is facilitated by an elected volunteer chair and the Patient Experience department leadership. The purpose of the council is to strengthen collaboration between patients, family members and the health care team to enhance our ability to provide patient and family-centered care. The objectives of the council are:

- To be a collaborative partner in strengthening the standard of excellence in quality and the delivery of safe, comprehensive, and compassionate health care
- Identify and articulate the patient and family perspective with regard to improving the patient experience
- Bring together patient and family advisors to foster a culture of patient and family centered care
- Share ideas in the implementation of new and existing programs across the health care system

The reporting of specific issues is presented and discussed during regular council meetings to generate feedback for improving the patient experience. Topics and opportunity areas are determined by the current needs and requests of the hospital and clinics, as well as from HCAHPS and other patient experience surveys. Results and outcomes of PFAC discussions will be shared with members at future meetings and/or through written communication.

The PFAC provides DHHA with a VOC that allows DHHA to make immediate improvements or innovative changes to meet the needs of DHHA customers and improve the patient experience in all aspects of care delivery. DHHA has made improvements and introduced new programs through the work and input of the PFAC. As a result of its success, DHHA has expanded the program to create new councils that segment the patient population to include those who represent a specific unit or clinic such as the Neonatal Intensive Care Unit (NICU) PFAC.

9.3. Patient Advocates

The patient advocates serve as dependable partners within Denver Health by connecting with the people we serve through compassion, respect, and empathy. The team strives for resolutions that address the concerns and meet the needs of our diverse community by providing a voice for our patients through collaboration and support.

Patient advocates identify opportunities for improvement and innovations to improve the patient experience, assist caregivers in meeting patient needs and expectations, educate staff on how to provide the best customer service possible, and serve as a resource for both patients and health care providers. Through the VOC, patient advocates have been able to implement change and improve communication with staff, patients, and family members.

9.4. Complaint / Grievance Management

DHHA has implemented a complaint and grievance management system and process that is used across all DHHA inpatient and outpatient areas and clinics. Patient advocates respond to all grievances within three days and review, investigate, and resolve each patient grievance within seven business days, ensuring that the patient and/or family members are satisfied with the progress and end result. All grievances submitted through the DHHA web portal are immediately acknowledged. Through our grievance process and patient interactions and feedback, we have been able to make process improvements to enhance the patient experience and our ability to serve our patients. Data from the system is reviewed regularly, reported out on the weekly safety call, and shared with various departments/clinics/units.

9.5. Patient Rounding

To ensure that DHHA is listening to the VOC, DHHA utilizes several rounding methods with patients and customers, which consist of leader rounding and hourly rounding on patients, and leader rounding on employees and customers. Rounding has given DHHA an opportunity to learn from patients and customers, improving processes and services through the VOC. Through MyRounding, units and clinics document patient rounds in a systematic way that allows DHHA to track issues and rounding percentages by unit, with a minimum documented goal of 75 percent of inpatient patients being rounded on by a leader. DHHA then comparatively tracks responses in the Press Ganey survey that asks patients whether a leader rounded on them during their visit. Through consistent patient hourly and leader rounding, there is no delay in providing service recovery to our patients and families, as dissatisfaction is immediately brought to the front line where staff can address and resolve customer complaints. This approach is highly engaging for our patients and prevents the accumulation of complaints and grievances that can be costly and negatively impact our relationships with our patients in the long term. With this system in place, we are able to build relationships with our patients and family members, which improves their experiences while in our care. Staff also continue to use the communication tool of AIDET (Acknowledge, Introduce, Duration, Explanation, Thank You) – a standard introduction that employees are expected to use at each encounter with patients, visitors, and coworkers. Through our AIDET communications and daily interactions with patients, we are able to solicit feedback from patients and family members that enables us to improve our service and the patient experience. As we connect with our patients, we build and manage relationships that provide us with a forum for change.

9.6. Communication with Care Partners

Steps are continually taken to build meaningful relationships with patients and customers at each interaction by improving overall communication with patients, family members, visitors, and each other. In November 2021, DHHA adopted a “Tier-Based” guideline system (see Figure 9.6-1 below). The use of this system has helped us to affirm our commitment to maintaining the presence of visitors in all health care settings in support of the delivery of high-quality, patient-centric care, while ensuring the safest environment for staff, patients, and the community.

Figure: 9.6 – 1: Denver Health’s Tier-Based Visitor Guidelines

Tier 0: LOW prevalence of COVID-19				
Divisions/Units	Adult Critical/Acute	ED	Pav C – Peds / NICU	Pav C – L&D / Mom Baby
Patients <u>without</u> COVID-19	<ul style="list-style-type: none"> # of Visitors Allowed at Bed: 2 Same-Day Switches Allowed: YES Visiting Hours: 0900-2100 	<ul style="list-style-type: none"> # of Visitors Allowed at Bed: 1 Same-Day Switches Allowed: NO Visiting Hours: N/A 	<ul style="list-style-type: none"> # of Visitors Allowed at Bed: 2 Same-Day Switches Allowed: YES Visiting Hours: 24/7 	<ul style="list-style-type: none"> # of Visitors Allowed at Bed: 2 Same-Day Switches Allowed: YES Visiting Hours: 24/7
Patients <u>with</u> COVID-19 or Rule Out (PUI)	<ul style="list-style-type: none"> # of Visitors Allowed at Bed: 2 Same-Day Switches Allowed: NO Visiting Hours: 0900-2100 	<ul style="list-style-type: none"> # of Visitors Allowed at Bed: 1 Same-Day Switches Allowed: N/A Visiting Hours: N/A 	<ul style="list-style-type: none"> # of Visitors Allowed at Bed: 2 Same-Day Switches Allowed: YES Visiting Hours: 24/7 	<ul style="list-style-type: none"> # of Visitors Allowed at Bed: 2 Same-Day Switches Allowed: YES Visiting Hours: 24/7

Tier 1: MILD prevalence of COVID-19				
Divisions/Units	Adult Critical/Acute	ED	Pav C – Peds / NICU	Pav C – L&D / Mom Baby
Patients <u>without</u> COVID-19	<ul style="list-style-type: none"> # of Visitors Allowed at Bed: 2 Same-Day Switches Allowed: YES Visiting Hours: 0900-2100 	<ul style="list-style-type: none"> # of Visitors Allowed at Bed: 1 Same-Day Switches Allowed: NO Visiting Hours: N/A 	<ul style="list-style-type: none"> # of Visitors Allowed at Bed: 2 Same-Day Switches Allowed: YES Visiting Hours: 24/7 	<ul style="list-style-type: none"> # of Visitors Allowed at Bed: 2 Same-Day Switches Allowed: YES Visiting Hours: 24/7
Patients <u>with</u> COVID-19 or Rule Out (PUI)	<ul style="list-style-type: none"> # of Visitors Allowed at Bed: 2 Same-Day Switches Allowed: NO Visiting Hours: 0900-1100 and 1930-2100 	<ul style="list-style-type: none"> # of Visitors Allowed at Bed: 1 Same-Day Switches Allowed: N/A Visiting Hours: N/A 	<ul style="list-style-type: none"> # of Visitors Allowed at Bed: 2 Same-Day Switches Allowed: YES Visiting Hours: 24/7 	<ul style="list-style-type: none"> # of Visitors Allowed at Bed: 2 Same-Day Switches Allowed: YES Visiting Hours: 24/7

Tier 2: MODERATE Prevalence of COVID-19				
Divisions/Units	Adult Critical/Acute	ED	Pav C – Peds / NICU	Pav C – L&D / Mom Baby
Patients <u>without</u> COVID-19	<ul style="list-style-type: none"> # of Visitors Allowed at Bed: 2 Same-Day Switches Allowed: NO Visiting Hours: 0900-2100 	<ul style="list-style-type: none"> # of Visitors Allowed at Bed: 1 Same-Day Switches Allowed: NO Visiting Hours: N/A 	<ul style="list-style-type: none"> # of Visitors Allowed at Bed: 2 Same-Day Switches Allowed: NO Visiting Hours: 24/7 	<ul style="list-style-type: none"> # of Visitors Allowed at Bed: 2 Same-Day Switches Allowed: NO Visiting Hours: 24/7
Patients <u>with</u> COVID-19 or Rule Out (PUI)	<ul style="list-style-type: none"> # of Visitors Allowed at Bed: 0 Same-Day Switches Allowed: N/A Visiting Hours: N/A 	<ul style="list-style-type: none"> # of Visitors Allowed at Bed: 1 Same-Day Switches Allowed: NO Visiting Hours: N/A 	<ul style="list-style-type: none"> # of Visitors Allowed at Bed: 2 Same-Day Switches Allowed: NO Visiting Hours: 24/7 	<ul style="list-style-type: none"> # of Visitors Allowed at Bed: 1 Same-Day Switches Allowed: NO Visiting Hours: 24/7

Emergent Tier: HIGH Prevalence of COVID-19				
Divisions/Units	Adult Critical/Acute	ED	Pav C – Peds / NICU	Pav C – L&D / Mom Baby
Patients <u>without</u> COVID-19	<ul style="list-style-type: none"> # of Visitors Allowed at Bed: 1 Same-Day Switches Allowed: NO Visiting Hours: 0900-2100 	<ul style="list-style-type: none"> # of Visitors Allowed at Bed: 1 Same-Day Switches Allowed: NO Visiting Hours: N/A 	<ul style="list-style-type: none"> # of Visitors Allowed at Bed: 2 Same-Day Switches Allowed: NO Visiting Hours: 24/7 	<ul style="list-style-type: none"> # of Visitors Allowed at Bed: 2 Same-Day Switches Allowed: NO Visiting Hours: 24/7
Patients <u>with</u> COVID-19 or Rule Out (PUI)	<ul style="list-style-type: none"> # of Visitors Allowed at Bed: 0 Same-Day Switches Allowed: N/A Visiting Hours: N/A 	<ul style="list-style-type: none"> # of Visitors Allowed at Bed: 1 Same-Day Switches Allowed: NO Visiting Hours: N/A 	<ul style="list-style-type: none"> # of Visitors Allowed at Bed: 2 Same-Day Switches Allowed: NO Visiting Hours: 24/7 	<ul style="list-style-type: none"> # of Visitors Allowed at Bed: 1 Same-Day Switches Allowed: NO Visiting Hours: 24/7

9.7. Service Recovery

DHHA continues to implement its unique Service Recovery (SR) program which provides employees with a channel for identifying and acting upon opportunities for improvement in the customer experience. The SR program offers staff members resources, education, and strategies that allow employees to be owners of service recovery and provide timely and effective methods to correct any breakdowns in service and restore the relationship with the customer who experienced the service failure. Service issues are logged and tracked so that DH can correct the issues as they arise and prevent similar breakdowns from occurring in the future. Issues are categorized and tracked by unit and/or clinic. Trends are identified and addressed at the appropriate level where a simple and flexible tier-based system is used to provide the right intervention for each customer.

9.8. Chaplain Support of Patients, Families and Staff

Our chaplaincy department provides essential spiritual care support for both patients, families, and staff in the inpatient as well as the outpatient environments. In the inpatient departments, the chaplains provide services on a 24/7 basis. They provided 10,100 patient and family encounters in 2021 during the second surge of COVID. In addition, they provided support to staff with 1,100 recorded encounters. Denver Health continued to utilize the spiritual care service to their full potential in supporting staff on the units, including COVID Units, and were present with families and allowed for exceptions to the visitation policy for end of life and deaths so that patients did not die alone and families were either able to be at the bedside or have chaplains assist for video conferencing so that loved ones could say their good-byes. They were called upon for their resources with 520 deaths (an average of 10 a week). Chaplains are supportive of patients that need assistance during their stay and aid the clinical team in their care coordination for patients. In 2021, chaplains were again highly utilized by the palliative care team as part of their interdisciplinary rounds and in the care of patients on their service.

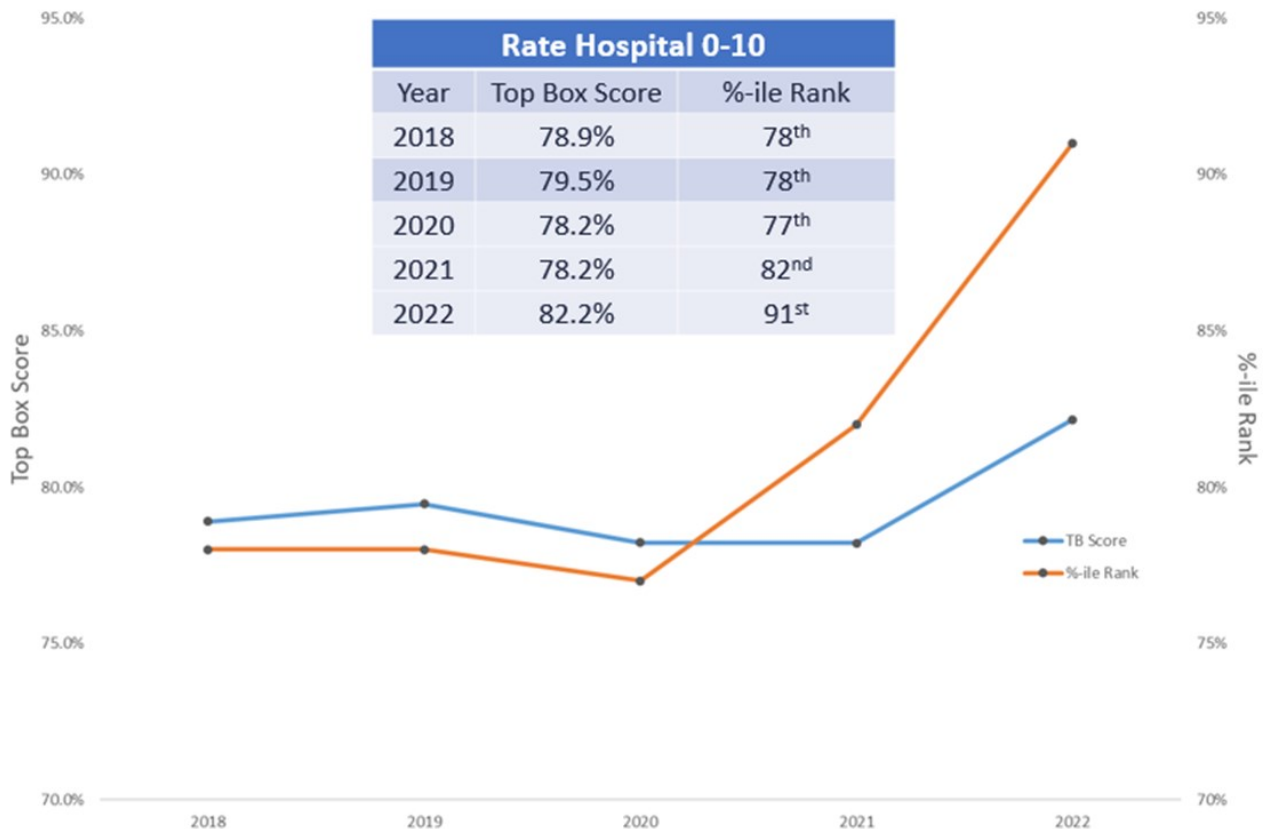
9.9. Measuring Patient Experience

DH primarily uses nationally administered surveys to determine patient satisfaction and engagement. We work with a third-party company (Press Ganey) who administers the surveys by telephone, mail, email, and text messaging. Press Ganey is an approved CMS vendor and provides detailed reports which allow DH to continuously drive quality improvement. The inpatient survey is the nationally required HCAHPS questions with additional focus questions so as to provide the most comprehensive view of the overall patient experience. All departments are responsible for monitoring and posting scores on their communication boards, as well as addressing departmental concerns or issues during staff meetings and daily huddle meetings. DH units prioritize, track trends, and implement change through HCAHPS data and patient feedback. Over the past five years DH has tracked the Overall Rating, Nurse Courtesy and Respect and Doctor Courtesy and Respect metrics at an institutional level. Year over year our percentile rank has increased showing how we have fared when compared to other hospital systems across the nation. (Figures 9.9-1 - 9.9-3).

DHHA utilizes monthly priority reports generated from Press Ganey survey responses, which are specific to each unit, clinic, or area to determine the highest levels of dissatisfaction. The reports allow DH to directly address the issues that have the highest correlation to the overall provider or hospital rating in an effort to improve service and resolve dissatisfaction at all levels. DHHA also closely monitors patient experience through social media channels. These comments/postings are categorized and tracked for improvement efforts. When possible, outreach to patients occurs to ensure healthcare needs are being met.

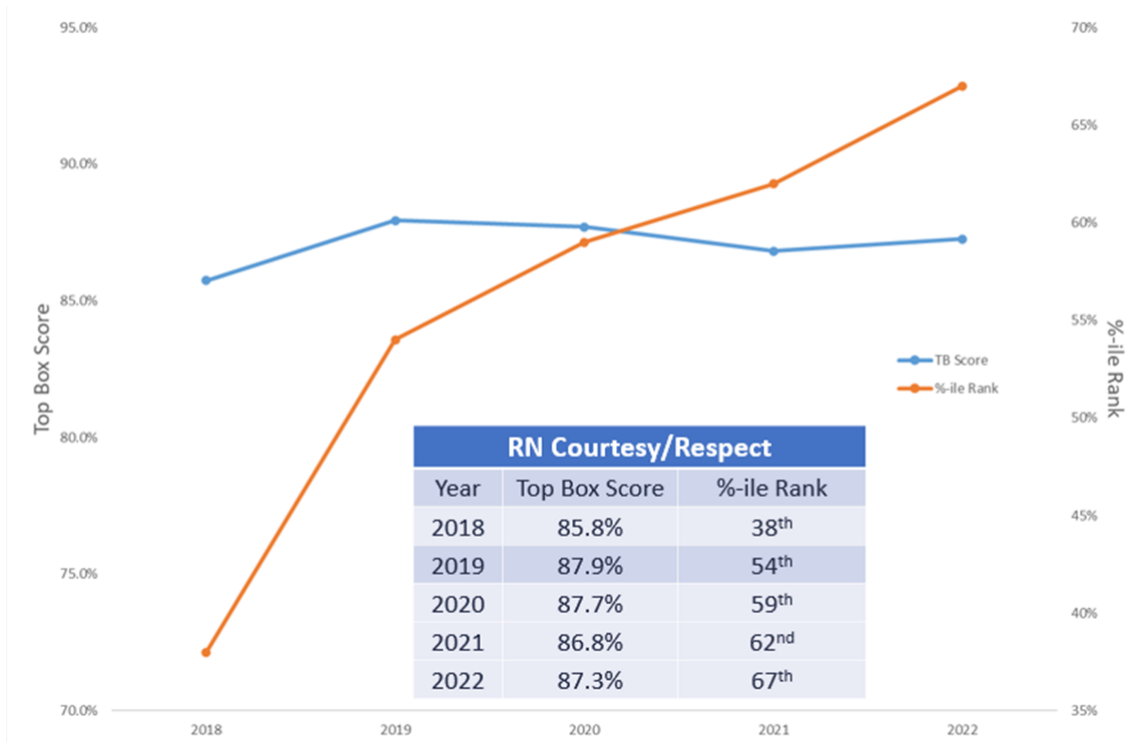
Additionally, DHHA hosts focus groups, Patient Family Advisory Council (PFAC) meetings, as well as employee and physician engagement surveys to determine satisfaction and engagement by customer type and segment, and to ensure that initiatives meet the needs of stakeholders.

Figure 9.9-1: Rate the Hospital 1-10



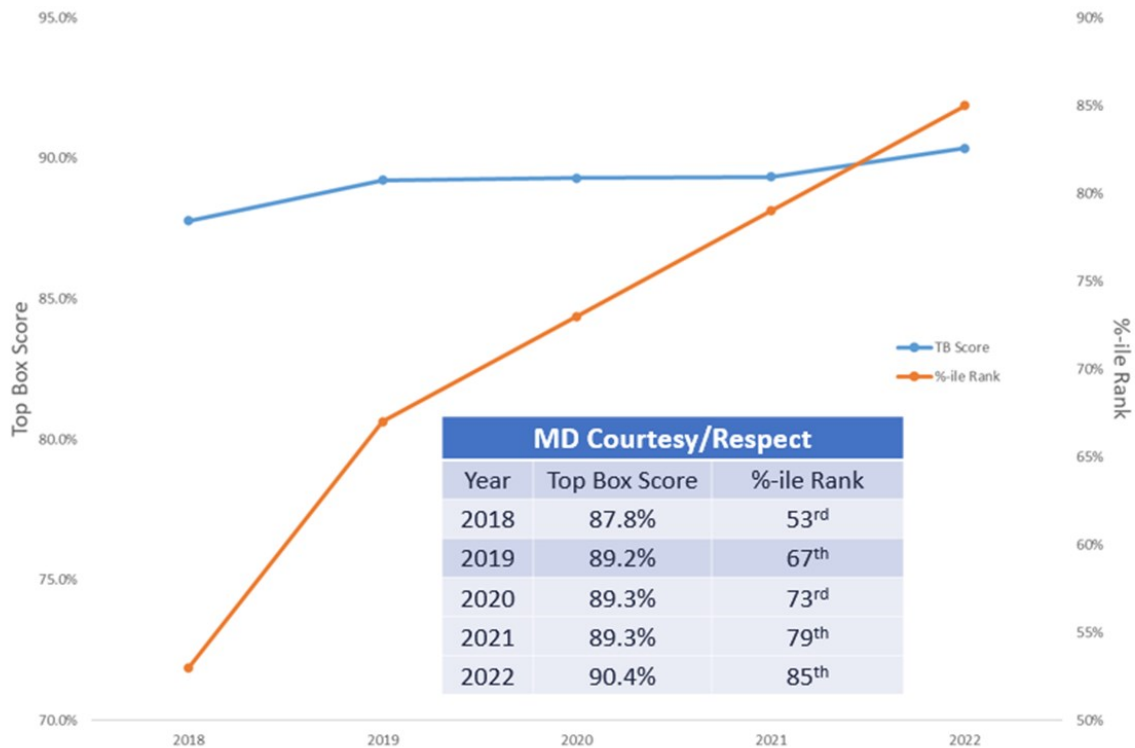
Source: Press Ganey

Figure 9.9-2: RN Courtesy/Respect



Source: Press Ganey

Figure 9.9-3: MD Courtesy/Respect

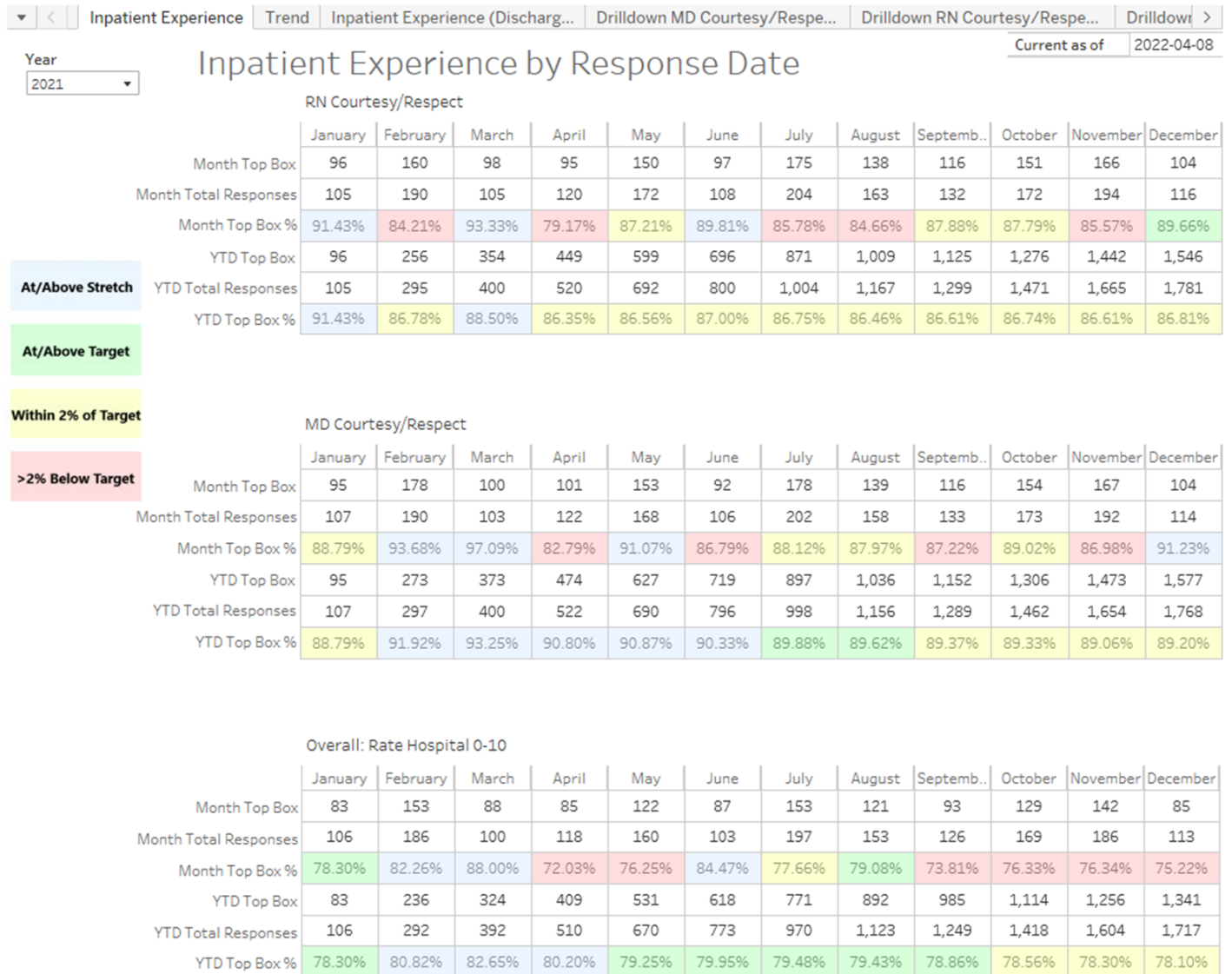


Source: Press Ganey

9.10. Patient Experience Dashboard

In order to improve patient experience, DH recognized the need for data to be visible to clinical staff in the system they used most frequently. Therefore, dashboards were created within Epic to display real-time results. The dashboards show inpatient, ambulatory primary care, and ambulatory specialty care. The results are available by month and by inpatient unit or ambulatory clinic. Figure 9.10 displays the Inpatient dashboard for 2021.

Figure 9.10: Inpatient Experience Dashboard



10. Infection Prevention (IP)

10.1. Infection Prevention Goals 2021

This chapter summarizes the status of goals and achievements that were initiated as part of the 2021 program at DHHA.

- Improve hand hygiene adherence.
- Decrease the rate of device-related infections.
- Decrease surgical site infection (SSI) rates.
- Decrease healthcare transmission of multi-drug resistant organisms (MDRO) and ensure containment of organisms of significance.
- Collaborate with Center of Occupational Safety & Health (COSH) to decrease occupational infection related hazards.
- Collaborate closely with Environmental Services (EVS).
- High-Risk Pathogen Preparedness.
- Optimization of High-Level Disinfection (HLD).
- Shared Medical Equipment Cleaning.

10.2. Improve Hand Hygiene Adherence

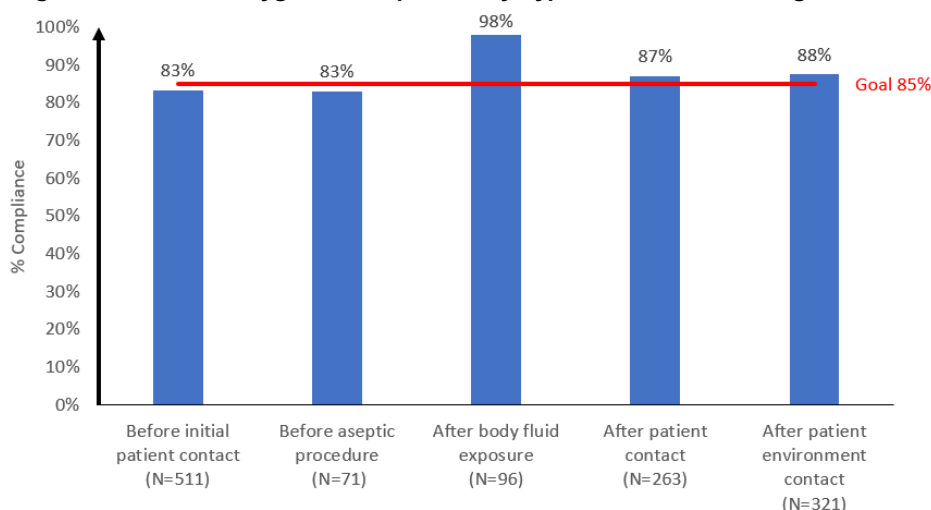
DHHA utilizes the World Health Organization’s 5 Moments of Hand Hygiene methodology to determine the facility’s hand hygiene (HH) adherence rate. DHHA monitors HH through both manual (inpatient and outpatient settings) and electronic (SICU, MICU, 3B Flex [formerly 3B and 3PCU], 4B, and 8A) observations. Manual observations are collected by IP, designated hand hygiene champions, inpatient managers, and hospital leadership. During the first three quarters of 2021, HH observations were collected by various methods, such as phone applications and handwritten tallies, and submitted to IP. Each unit needed to submit 15 observations per month that monitored HH before and after patient interactions. DHHA exceeded the organizational goal of 85% for two quarters using this methodology (Figure 10-2.1).

In July 2021, Denver Health acquired the auditing application “SpeedyAudit” to streamline its approach to HH surveillance. SpeedyAudit allowed DHHA to collect more observations per month and at additional points in patient care. Official inpatient use of the SpeedyAudit app started in November with a more robust list of hand hygiene champions and an increased observation count of 30 per month/unit. Figure 10.2-2 shows Q4 2021 data using this new methodology.

Figure 10.2-1: 2021 DHHA Manual Hand Hygiene Adherence Rates—Inpatient

DHHA Hand Hygiene Adherence Rates	1Q21	2Q21	3Q21
Inpatient Locations (Goal 85%)	90% (N=801)	80% (N=547)	87% (N=819)

Figure 10.2-2: Hand Hygiene Compliance by Type of Indication during Q4 2021



2021 Progression to meet Leapfrog Hand Hygiene Standards

As an organization Denver Health is rated twice per year by Leapfrog. IP has been making efforts to meet the hand hygiene program standards of the safety organization. In 2021 we officially met the standards for the Culture and Infrastructure Domains.

10.3. Decrease the Rate of Device-Related Infections

Target Zero

Target Zero has been a major institutional focus since 2016. Briefly, Target Zero is a bundled metric of seven quality indicators, four of which are HAI (CLABSI, CAUTI, SSI for select procedures, and hospital-onset *C. difficile* colitis). As an institution, DHHA's goal is to decrease the Target Zero event count by at least 10% annually. Between 2016 and 2019, Target Zero events decreased by 35%. Reductions in the rate of hospital-onset *C. difficile* colitis were the largest driver of this success, having decreased by over 47% during this time period. Unfortunately, DHHA did not achieve a further decrease in Target Zero in 2020, largely driven by HAI in patients with COVID-19 but got back on track with a 10% reduction in cases (n=181) in 2021.

Surveillance

DHHA tracks device-related infections through the CDC's National Healthcare Surveillance Network (NHSN). The Standardized Infection Ratio (SIR), a metric generated within NHSN, is used to compare DHHA to other like 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. Risk factors that are used to calculate the expected number of infections for CLABSI and CAUTI include location within the hospital, facility type, affiliation with an accredited medical school, and number of beds.

External Collaboratives

DHHA's Department of Patient Safety and Quality joined a Vizient collaborative for the reduction of Ventilator Associated Pneumonia (VAP) in 2021. This initiative has been primarily led by members of the SICU. IP looks forward to sharing the best practices identified in this collaborative with other critical care units in the hospital.

■ Central Line Associated Bloodstream Infections (CLABSI):

Hospital-wide surveillance for CLABSI began in 2010. Denver Health CLABSI rates over the last 5 years and the 2021 SIR are shown in Figure 10.3-1.

Figure 10.3-1: CLABSI Rate per 1000 Central Line Days; CLABSI Standardized Infection Ratio (SIR)

	2017	2018	2019	2020	2021	2021 SIR
MICU	1.1	1.8	0.0	1.7	0.9	0.76
SICU	2.7	2.2	2.3	0.0	1.4	0.93
3BFlex ^{††}	0.0	0.0	0.0	0.7	1.0	0.95
PICU	0.0	0.0	0.0	0.0	0.0	0.0
NICU	0.0	1.2	1.3	1.2	0.0	0.0
Med/Surg	0.6	0.5	0.2	0.8	0.5	0.49

^{††} PCU expanded from 12 beds to 30 beds 10/1/2020 and is now labeled as 3BFlex

■ Peripheral Intravenous Catheter Infections

In 2018, Infection Prevention expanded surveillance of bloodstream infections beyond central line-associated infections. All cases of hospital onset *S. aureus* bacteremia were evaluated to determine if they were secondary to a peripheral intravenous (IV) catheter, midline, or other condition. Almost one-third of the hospital onset *S. aureus* bacteremia cases were due to peripheral IV catheters. The IP team worked with Nursing Informatics to modify the nurses' view of Lines, Drains, and Airways to mark these peripheral IVs as being "overdue" for removal. The peripheral IV catheters placed outside the hospital are also mentioned each weekday on the daily safety briefing to encourage nurse managers to support their staff in removing these peripheral IV catheters. Additionally, in January 2020 paramedics implemented a new peripheral IV catheter kit (including a saline lock) intended to decrease the risk of infection.

While these interventions decreased the number of infections due to peripheral IVs placed outside of the hospital, it did not decrease the absolute number of peripheral IV-related infections. IP will undertake an audit of peripheral IV maintenance in 2022 to determine where the highest yield interventions lie. DHHA's work on this topic has been accepted as a peer-reviewed manuscript and is pending publication.

■ **Ventilator Associated Pneumonia (VAP):**

In 2021 a new method for monitoring VAP rates in the MICU, SICU and 3BFlex units was implemented. The NHSN methodology, which was previously used, did not align well with clinical VAP. DHHA’s new surveillance method utilizes administrative billing codes because it more accurately assesses clinical VAP. Using the data warehouse, IP collected all patients that had an ICD-10 diagnosis code for a clinical VAP from 2019-2021. Clinical VAP rates have steadily increased in the MICU since 2019 (Figure 10.3-2). In the SICU, clinical VAP rates have remained relatively stable, although there was a large decrease in rates during the initial wave of the COVID-19 pandemic. 3BFlex clinical VAP rates decreased slightly in 2021.

Figure 10.3-2: Clinical VAP Rate per 1000 Ventilator Days*

	2019	2020	2021
MICU	12.5	20.1	24.0
SICU	23.5	10.9	21.6
3BFlex^{††}	5.5	13.2	11.1

* Clinical VAP is identified by ICD-10 diagnosis codes

†† PCU expanded from 12 beds to 30 beds 10/1/2020 and is now labeled as 3BFlex

Interventions are championed by IP, Patient Safety and Quality, unit managers and educators, directors, respiratory therapists, and other frontline staff. The VAP Bundle includes the following key elements:

- ◇ Minimize duration of ventilation
- ◇ Daily assessment of readiness to wean
- ◇ Daily interruption of sedation
- ◇ Elevate head of bed
- ◇ Regular oral care
- ◇ Continuous aspiration of subglottic secretions

■ **Catheter-Related Urinary Tract Infections (CAUTI):**

Hospital-wide surveillance for CAUTI began in 2013. Denver Health CAUTI rates over the last 5 years and the 2021 SIR is shown in Figure 10.3-3. DHHA’s medical/surgical units performed better than expected (SIR 0.57) whereas 3BFlex and MICU performed worse than expected (SIR 2.31 and 1.29, respectively). Improvements were made to foley orders during 2021 to allow nurses to remove foley catheters when warranted.

Figure 10.3-3: CAUTI rate per 1000 catheter days*; CAUTI Standardized Infection Ratio (SIR)

	2017	2018	2019	2020	2021	2021 SIR
MICU	0.9	0.0	2.5	3.5	1.7	1.29
SICU	2.5	1.6	3.6	1.7	2.8	1.03
3BFlex^{††}	3.5	2.1	1.0	2.7	3.4	2.31
PICU	10.3	0.0	0.0	0.0	0.0	0.0
Med/Surg	1.2	0.5	1.3	2.0	0.7	0.57

†† PCU expanded from 12 beds to 30 beds 10/1/2020 and is now labeled as 3BFlex

CAUTI is the publicly reported measure where DHHA has had the highest risk adjusted rates. CAUTI reduction was a major goal in 2021 and will continue to be a top priority in 2022.

10.4. Decrease Surgical Site Infection (SSI) Rates

DH performs SSI surveillance for 17 procedures including 5 state-reported procedures (2 of which are nationally reported), and 12 additional procedures that were deemed to be high impact to our patient population.

SSI rates over the last 5 years and benchmarking based on the Standardized Infection for individual procedures are shown in Figure 10.4-1. DHHA performed better than expected in 8 of the 10 procedures. Figure 10.4-2 shows DHHA's SIR over the past three years for all procedures.

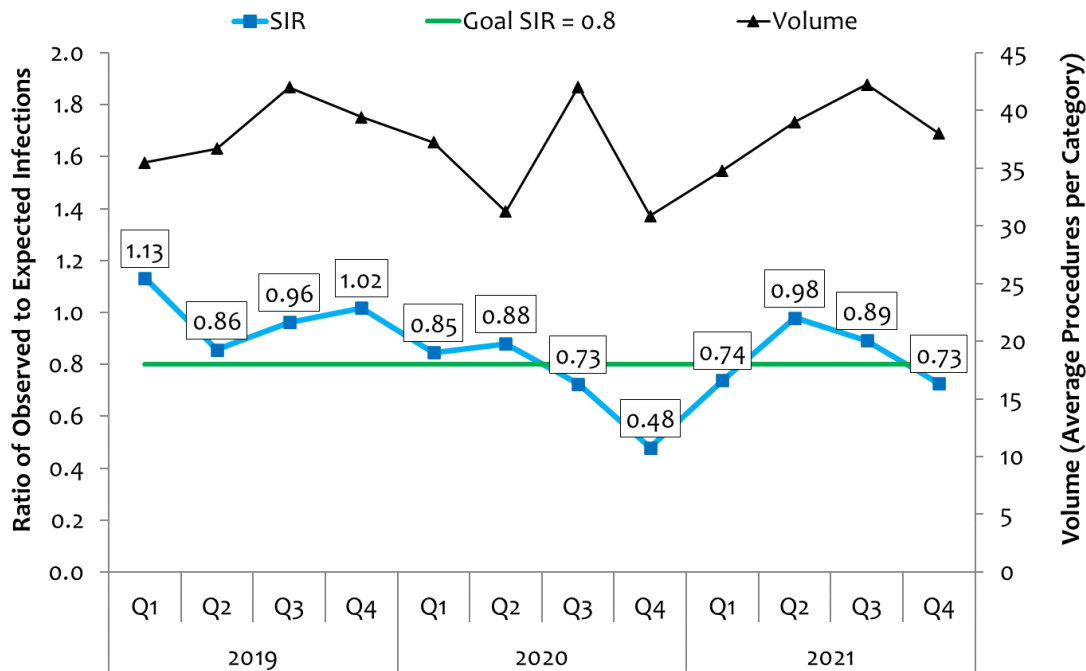
Figure 10.4-1: SSI rate per 100 procedures and SSI Standardized Infection Ratio (SIR)

	2017	2018	2019	2020	2021*	2021* SIR
Knee Arthroplasty	1.0	1.4	1.7	1.8	0.0	0
Hip Arthroplasty	3.3	0.8	3.6	1.6	0.0	0
Abdominal Hysterectomies	4.8	1.2	0.8	1.0	0.7	0.4
Vaginal Hysterectomies	1.2	0.0	1.3	2.8	3.4	—
Craniotomies	4.1	2.3	1.4	1.9	1.7	1.3
Spinal Fusions	0.6	3.5	1.8	2.2	0.5	0.4
C-sections	2.0	0.7	0.4	0.4	0.6	0.6
Herniorrhaphy	1.9	0.2	1.1	0.3	0.3	0.6
Colon Surgeries	6.2	3.4	3.5	1.7	6.8	0.9
Breast Surgeries	1.0	1.4	0.7	0.0	1.0	0.7
Prostate and Nephrectomy Surgeries	0.0	4.1	0.0	0.0	0.0	—
Open reduction of fracture	1.4	1.8	1.3	2.7	1.6	1.7
Vascular surgery‡	0.8	1.8	0.0	0.0	0.6	—

‡Vascular surgery SSI surveillance includes abdominal aortic aneurysm, AV shunt for dialysis, carotid endarterectomy, and peripheral vascular bypass.

*Cumulative data include 2020Q4—2021Q3

Figure 10.4-2: Standardized Infection Ratio (SIR) - All Procedures



■ **Interventions:**

- ◇ **Colon SSI Prevention Bundle:** In 2015, a multidisciplinary group was formed to focus on Colon SSI reduction. It has undergone multiple revisions, most recently in 2021, based on emerging literature. IP continues to work with the outpatient surgery clinic, colorectal surgeons, perioperative teams, and anesthesia to optimize adherence to the bundle. It was noted that certain components of the colon bundle have higher adherence than others. To address this and improve the colon SSI rates even further, the team will be focusing on the lower adherence regions for 2022.
- ◇ **Perioperative antibiotics:** In 2017, IP audited the perioperative antibiotic selection and found that there was opportunity to improve our consistency with prescribing. The Antibiotic Stewardship (AS) team updated the surgical prophylaxis policy in 2018. Recommendations for colon surgery were updated to cefazolin plus metronidazole in 2019. IP and AS continue to review and update the perioperative antibiotic prophylaxis guideline to provide best practices. These guidelines are revised with input from surgical specialties. Perioperative antibiotic selections are audited periodically and discussed with providers when prescribing practices are inconsistent with guideline recommendations.

10.5. Decrease Healthcare Transmission of Multi-Drug Resistant Organisms (MDRO) and Ensure Containment of Organisms of Significance

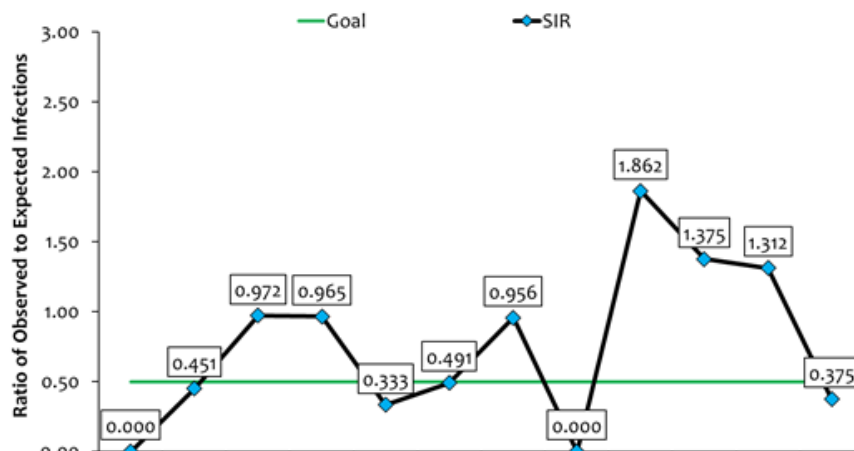
Weekly surveillance of the following MDROs/organisms/infections of significance in 2021 included:

- ◇ Multi-drug resistant and susceptible *Acinetobacter baumannii*
- ◇ *Aspergillus spp.*
- ◇ *Clostridioides difficile*
- ◇ Extended spectrum beta lactamases (ESBL)
- ◇ Methicillin-resistant *Staphylococcus aureus* (MRSA)
- ◇ Imipenem-resistant *Pseudomonas aeruginosa*
- ◇ Vancomycin-resistant *Staphylococcus aureus* (VRSA/VISA)
- ◇ Vancomycin-resistant enterococci (VRE)
- ◇ Carbapenemase-producing and carbapenem non-susceptible *Enterobacteriaceae* (CRE)
- ◇ Influenza
- ◇ SARS-CoV-2
- ◇ Hospital-onset legionellosis

■ **Methicillin-resistant *Staphylococcus aureus* (MRSA)**

Active surveillance screening was discontinued in both the MICU and SICU during 2014 as universal decolonization and CHG bed bathing was implemented and continues to be the standard of care. In June 2020, a suspension of Contact Precautions for patients with a history of or active MRSA infection was implemented in an effort to conserve personal protective equipment during the COVID-19 pandemic. A review of current literature indicated that discontinuing Contact precautions for these patients does not lead to increased hospital-acquired infections or other adverse infectious sequelae and may even decrease certain noninfectious adverse events (i.e., patient experience). Therefore, the IP team decided to continue with the practice of not isolating MRSA patients. Surveillance for hospital-acquired MRSA infections is conducted weekly by IP, and any possible reinstatement of Contact precautions for these infections will be re-evaluated based on these data. Quarterly results are shown in Figure 10.5-1.

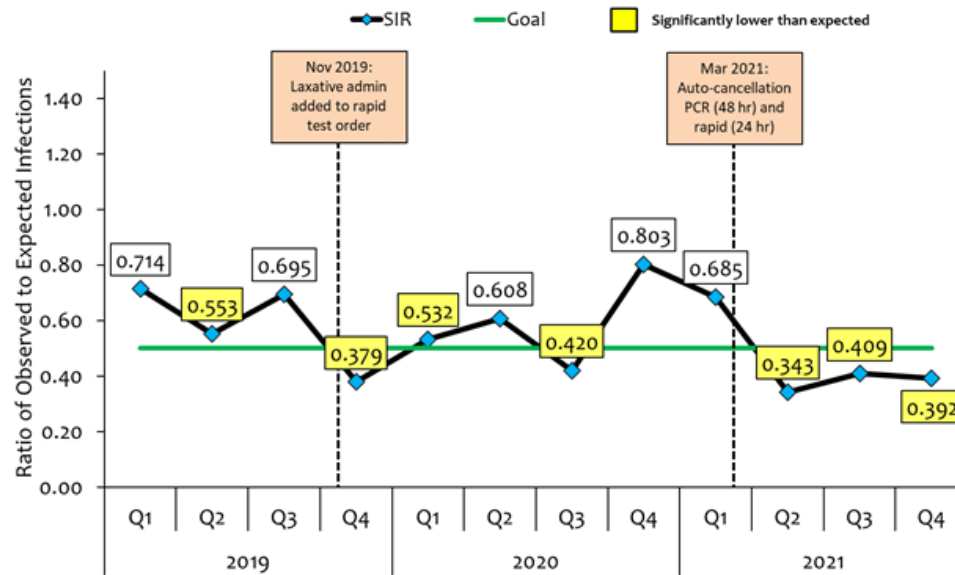
Figure 10.5-1: Standardized Infection Ratio for Hospital-Acquired MRSA Bloodstream Infections



■ ***Clostridioides difficile***

Rates of community-onset *C. difficile* infections remained steady from 2019-2021, with a couple of quarters seeing elevated case counts. Rates of community onset/healthcare facility associated has been declining since Q3 of 2020. Hospital-acquired *C. difficile* rates have continually decreased over the last three years, with the Standardized Infection Ratio being significantly lower than expected in 7 of the last 12 quarters (Figure 10.5-2).

Figure 10.5-2: *Clostridioides difficile* Standardized Infection Ratio



Carbapenemase-producing *Enterobacteriaceae* (CRE)

Increased surveillance for CRE has been in place at DHHA since 2013, when an outbreak occurred at another large teaching hospital. Infection Prevention is notified by the microbiology lab of any confirmed or preliminary carbapenem non-susceptible positive cultures, and data are reviewed weekly to identify cases that may indicate a cluster or outbreak. Surveillance data are reported quarterly to the Infection Prevention Committee.

Infection Control Risk Assessments

The Infection Prevention personnel continue to regularly attend meetings starting with pre-design and pre-construction, including a weekly meeting where all ongoing projects are discussed. Routine walk-throughs are done in all construction areas requiring containment as well as others on an as-needed basis. Infection Control Risk Assessments (ICRAs) are done prior to the start of any construction and the contractors are in-serviced about the infection prevention concerns related to hospital construction.

Environment of Care rounds are made by the Infection Prevention staff routinely. Frequency is based on the risk as determined by the Infection Control Risk Analysis (ICRA). Both planned and surprise visits are conducted.

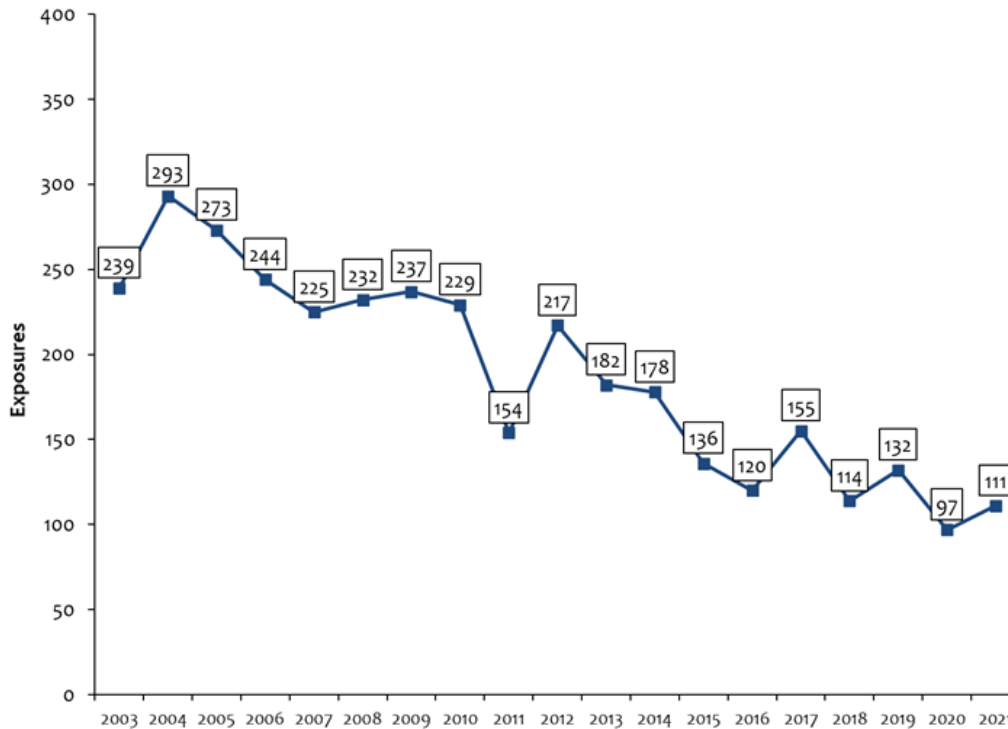
10.6. Collaboration with Center for Occupational Safety & Health (COSH) to decrease occupational infection related hazards

Infection Prevention worked closely with COSH in 2021 to decrease occupational infection related hazards through the following processes:

- Review employee exposure data at Infection Prevention meetings semi-annually
- Education at new employee orientation and annual competency training about reporting of exposures
- Collaboration and implementation of the universal influenza vaccination program
- COVID-19 prevention in employees

The number of bloodborne pathogen exposures during 2003-2021 has steadily declined (Figure 10.6-1).

Figure 10.6-1: Number of Bloodborne Pathogen Exposures Reported by Year, 2003-2021



Influenza Vaccination

DHHA has mandated employee influenza vaccination since the 2011-2012 influenza season. Ultimately, DHHA has vaccinated at least 98% of all employees/contractors against seasonal influenza since the implementation of this policy. The exemption rate for those with medical contraindications or religious waivers averages 2% each year.

COVID-19 Testing and Vaccination

Early in the pandemic, a staff health questionnaire was created to assess whether a DH employee needed a SARS-CoV-2 test (based on a high-risk exposure or symptomatic illness). The survey underwent continual refinement and has prioritized expedient lab testing for employees working an upcoming shift. Return to work criteria was developed in conjunction with CDC guidelines.

COVID-19 Vaccination

In July 2021, Denver Health announced that all employees were required to have COVID-19 vaccination as a condition of employment. The deadline was set for November 1, 2021. Infection prevention and COSH collaborated on vaccine administration, tracking, and adjudication of medical and religious declinations. Approximately 96% of staff are fully vaccinated for COVID-19, 4% received medical or religious exemptions, and less than 20 employees were terminated for failure to comply with this mandate.

10.7. Collaborate Closely with Environmental Services (EVS)

Infection Prevention continues to work closely with the EVS program to focus on environmental cleaning protocols. In 2021, accomplishments included expanded use of ultraviolet machines, improved communication between EVS and clinical leadership, and improvements to cleanliness and safety at OBHS.

10.8. High-Risk Pathogen Preparedness

In 2015, DH was recognized by the CDC to be the Department of Health & Human Services (HHS) Region 8 Ebola & Special Pathogens Regional Treatment Center. DH was awarded \$3 million dollars to continue to enhance our Ebola and other high-risk pathogen program over the next 5 years (2015 – 2020). In 2020, the funding was renewed. Achievements included completion of grant deliverable, PPE simulation training, education opportunities for HITeam members, facilitation of PPE training to outpatient clinics, optimization of travel history questions at check-in locations, and initiation of Denver Health as a Special Pathogen Research Network site.

10.9. Optimization of High-Level Disinfection (HLD)

Continued standardization and monitoring of high-level disinfection and cleaning of shared patient equipment remained a major goal in 2021.

High-level disinfection was historically performed in up to 13 departments and clinics. Multiple quality improvement and quality assurance programs were implemented starting in 2016 but in 2019, ongoing audits revealed that HLD practices were still not standardized and consistent. Several changes were implemented to centralize and streamline the HLD processes.

The HLD Council was developed to address specific organization needs related to HLD including staff onboarding and ongoing training, competency assessment, equipment/process training, HLD instrument/patient tracking, review of new equipment requiring HLD, review of areas performing HLD and other HLD related topics and activities as needed. The council did not meet through 2020 and 2021 due to the COVID-19 pandemic response, success of centralization, and overall improvement in HLD compliance. These needs are addressed by Sterile Processing standard work because of the centralization.

Routine HLD audits, performed by unit leaders, IP staff and PSQ staff, are ongoing in each HLD area; immediate feedback and education is provided to staff and shared with unit leadership as needed. HLD audit data is reviewed at regular intervals at the Infection Control Committee.

10.10. Shared Medical Equipment Cleaning

While most products can be cleaned using a hospital-approved disinfectant (purple top or bleach wipe), Denver Health also invested in OneSource, an online resource that provides specific manufacturer-recommended instructions for use (IFU) for most medical devices. In 2019, the policy for patient equipment cleaning was finalized and it was rolled-out to staff in early 2020. During the March 2020 Joint Commission hospital survey, this risk assessment was reviewed without finding by the surveyors.

11. Antibiotic Stewardship

11.1. ANALYSIS OF 2021 ACTIVITIES AND GOALS

In 2021, the Denver Health Antibiotic Stewardship Program maintained the following surveillance activities and quality improvement interventions with the goal of optimizing antibiotic use for patients to maximize the chance for good clinical outcomes and prevent antibiotic resistance, *Clostridium difficile* infection, and other antibiotic-related adverse events.

- Quarterly hospital-wide and unit-specific antibiotic utilization surveillance
- Development of annual antibiograms and assessment of antibiotic resistance trends
- Formulary restriction and requirement of prior authorization for broad-spectrum, toxic, or high-cost antibiotics
- Post-prescription review with real-time prescribing recommendations to providers
- Development, implementation, and maintenance of Clinical Care Guidelines for common infections
- Review of new FDA-approved antibiotics to evaluate their potential role at Denver Health
- Maintenance and expansion of the Denver Health Antibiotic App and the Antimicrobial Stewardship subsite on the Pulse
- Monthly meetings of the Antimicrobial Subcommittee of P&T
- Submission of antibiotic utilization data to the CDC/NHSN Antibiotic Use module
- Feedback of individualized antibiotic prescribing data with peer comparison to target clinician groups
- Formal and informal antibiotic stewardship education for clinicians, pharmacists, and nurses
- Stewardship of infectious diseases diagnostic tests
- Assessment of documented penicillin allergies and performance of penicillin skin tests or graded oral challenges for select patients
- Dissemination of a quarterly newsletter to update staff on changes to Denver Health guidelines, highlight key initiatives, and provide education
- Maintenance of a PGY-2 Infectious Diseases Pharmacy Residency training program
- Ensure Joint Commission standards for inpatient and ambulatory antibiotic stewardship are met

Figures 11.1-1 and 11.1-2 show the NHSN standardized antibiotic administration ratio (SAAR) – the ratio of observed to expected antibiotic use at DHHA – over time for adult and pediatric ICUs and wards. The SAAR has been consistently less than 1.0, representing lower observed antibiotic use than would be expected for a hospital with DHHA’s characteristics. For example, in Q4 2021, the adult SAAR value of 0.74 can be interpreted that 26% fewer antibiotics were used in DHHA’s ICUs and wards than expected based on this national benchmarking data.

Figure 11.1-1: DHHA Adult Standardized Antibiotic Administration Ratio (SAAR)

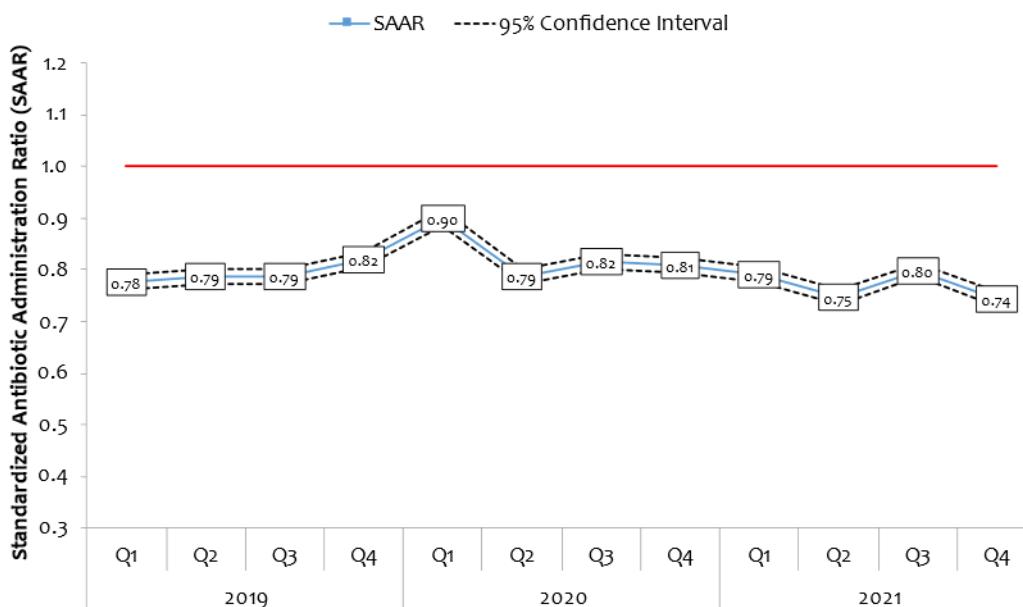
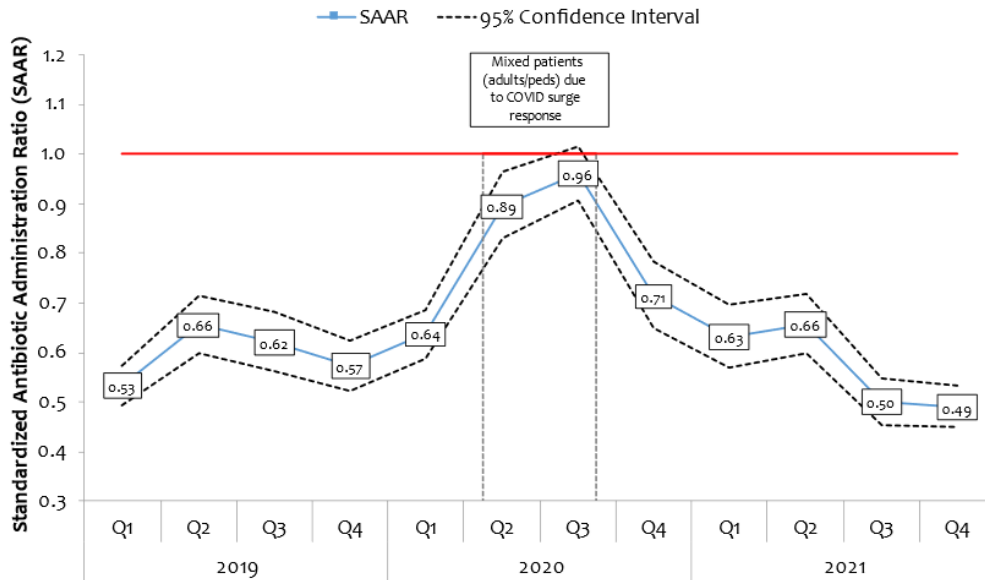


Figure 11.1-2: DHHA Pediatric Standardized Antibiotic Administration Ratio (SAAR)



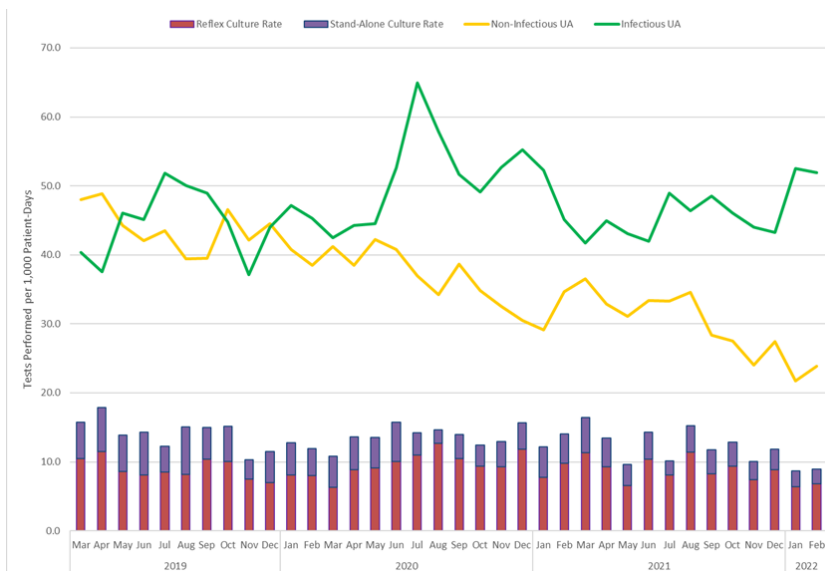
11.2. Reduce Unnecessary Urine Cultures and Prevent Antibiotic Treatment of Asymptomatic Bacteriuria

Antibiotic treatment of asymptomatic bacteriuria (ASB) does not improve clinical outcomes and puts patients at risk for antibiotic resistance and antibiotic-related adverse events. The Antibiotic Stewardship Program worked with key stakeholder groups and implemented the following components of a multi-faceted intervention:

- Development of clinical care guidelines for the decision to send a urine culture and for the management of ASB
- Epic clinical decision support to improve the appropriateness of urine cultures
- Education sessions at staff meetings and provider conferences (Medical Residents, Emergency Medicine, Hospital Medicine, Surgery, Pharmacists, Nurses) and via the newsletter on appropriate utilization of urine cultures and recognition of ASB
- Prospective evaluation by clinical pharmacists of antibiotics prescribed for UTI with feedback to prescribers

As seen in Figure 11.2-1, the volume of stand-alone urine cultures has declined over time, but the total volume of urine cultures in 2021 did not change substantially, reflecting the need for further work with staff to reduce unnecessary urine cultures. Multiple interventions are planned for 2022.

Figure 11.2-1: UA, Reflex Culture, and Stand-Alone Culture Tests Performed on 1,000 Patient Days



11.3. Evaluate the Management of Bloodstream Infections Caused by Gram-Negative Bacteria and Develop an Intervention to Optimize Therapy

Bloodstream infections caused by Gram-negative pathogens (i.e., Gram-negative bacteremia) are commonly diagnosed among hospitalized patients. Recent randomized trials support a 7-day duration of therapy for these infections, but in clinical practice prescribed durations are often much longer.

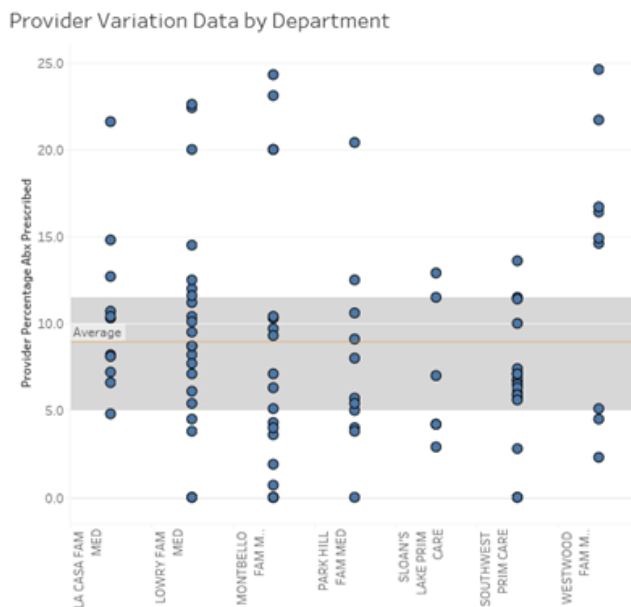
A detailed manual chart abstraction of approximately 220 DHHA patients hospitalized during 2019 with Gram-negative bacteremia was completed. Repeat blood cultures in Gram-negative bacteremia were of low yield and an Epic BPA was implemented in 2019 to help curb excess cultures. We also found that most Gram-negative bacteremia cases were treated with 10 days of antibiotics, showing opportunity to decrease the treatment by 3 days.

11.4. Develop an Ambulatory Care Antibiotic Utilization Surveillance Tool

As of January 1, 2020, the Joint Commission requires that all institutions perform active antibiotic stewardship in the ambulatory care setting, including setting annual goals, implementing evidence-based guidelines, providing staff with educational resources, and tracking and reporting data. The Antibiotic Stewardship Program aimed to develop a robust ambulatory antibiotic tracking tool to help satisfy these regulatory requirements, provide outpatient antibiotic utilization data over time for the program, and for use as an education and feedback tool for clinicians.

An evidence-based metric called the “respiratory prescribing rate” was developed using Epic data. This metric is the proportion of all in-person or telehealth visits with any primary or secondary ICD-10 respiratory diagnosis (regardless of whether antibiotics are indicated for that diagnosis) where an antibiotic was prescribed. The figure below demonstrates substantial variability in the respiratory prescribing rate over a 12-month period among Family Medicine providers (each dot represents a single provider). A Tableau dashboard (Figure 11.5-1) has been developed to display this metric for ambulatory departments including Family Medicine, Internal Medicine, Pediatrics, and School-Based Health Clinics. The data can be visualized longitudinally or for customizable aggregate time periods. The data can also be filtered for a minimum number of visits and for adult or pediatric patients.

Figure 11.5-1: Tableau Dashboard and Antibiotic Surveillance Tool



11.5. Provide Infectious Diseases and antibiotic stewardship expertise and leadership to assist the DHHA COVID-19 response

The evolution of the COVID-19 pandemic, including the development of vaccines and therapeutics and the emergence of variant strains, has demanded a high level of Infectious Diseases expertise. The Antibiotic Stewardship Program provided support to the Denver Health pandemic response in 2021 through navigation of the rapidly evolving therapeutic and vaccination recommendations. This guidance was updated regularly and also added to the DHHA Antibiotic application.

11.6. Antibiotic Stewardship Program Academic Achievements

- DHHA continued to be designated as an Antimicrobial Stewardship Center of Excellence by the Infectious Diseases Society of America.
- Through a DHHA pilot grant, a multifaceted intervention was developed that led to a substantial reduction in excessive durations of antibiotic therapy for children with acute otitis media (principal investigator: Holly Frost, mentor: Tim Jenkins)
- A review was published on the use of dalbavancin as primary therapy for complicated infections caused by Gram-positive bacteria
- For antibiotic shortages, with careful inventory management and appropriate utilization, the Antibiotic Stewardship Program avoided the need to implement alternative agent strategies or pharmacy automatic substitutions.
- The standardized infection ratio (SIR) for hospital-onset *C. difficile* infection remained well below 1.0
- Continued marked reduction in overall antibiotic prescribing and use of broad-spectrum antibiotics for respiratory conditions in Internal Medicine clinics through individualized prescribing feedback to providers with peer comparison
- A comprehensive review of the management of patients with bloodstream infections caused by Gram-negative bacteria was completed and opportunities for intervention to improve care were identified
- Multiple peer-reviewed publications from Antibiotic Stewardship Program members were published in 2021.

In 2022, the AS staff will evaluate the impact of the ASB stewardship interventions. Key metrics and target thresholds to determine if the program was successful include:

- Total number of cultures decreased by 20%
- Antibiotics ordered with UTI as an indication reduced by 10%
- Antibiotic days with UTI as an indication curtailed by 10%
- Overall rate of catheter-associated UTIs diminished by 20%

12.1. Appendix A: Glossary of Terms and Abbreviations

A-B

A1c.....Glycated Hemoglobin
ACLS..... Advanced Cardiovascular Life Support
ACS.....Ambulatory Care Services
AIDET.....Acknowledge, Introduce, Duration, Explanation, Thank you
AHA.....American Hospital Association
AHRQ.....Agency for Healthcare Research and Quality
ALTO.....Alternatives to Opioids
AMI.....Acute Myocardial Infarction
API.....Application Programming Interface
APMs.....Advanced Alternative Payment Models
APR-DRG.....All Patients Refined Diagnosis Related Groups
ARRA.....The American Recovery and Reinvestment Act
AQA.....Ambulatory Quality and Accountability
ASB.....Asymptomatic Bacteriuria
BBPE.....Blood borne Pathogen Exposure
BMI.....Body Mass Index
BNP.....Brain Natriuretic Peptide
BPA.....Best Practice Advisory

C

CABG.....Coronary Artery Bypass Graft
CAUTI.....Catheter-Associated Urinary Tract Infection
CDPHE.....Colorado Department of Health and Environment
CDC.....Centers for Disease Control and Prevention
CDCES.....Certified Diabetes Care and Education Specialists
CDI.....*Clostridioides difficile* infection
CDI.....Clinical Documentation Integrity
C. difficile.....*Clostridioides difficile* infection
CDS.....Clinical Decision Support
CDIs.....Clinical Documentation Integrity Specialist
CDU.....Clinical Decision Unit
CE.....Continuing Education
CGM.....Continuous Glucose Monitoring
CIIS.....Colorado Immunization Information System
CLABSI.....Central Line-Associated Blood Stream Infection
CMS.....Centers for Medicare and Medicaid Services
COMM.....Community
COPD.....Chronic Obstructive Pulmonary Disease
COSH.....Center for Occupational Safety and Health
COT.....Chronic Opioid Therapy
CPOE.....Computerized Provider Order Entry
CQO.....Chief Quality Officer
CQM.....Clinical Quality Measure
CRE.....Carbapenemase-producing enterobacteriaceae
CT.....Computed Tomography
CVD.....Cardiovascular Disease
CY.....Calendar Year

D

DEI.....Diversity, Equity, and Inclusion
DHGMEC.....Denver Health Graduate Medical Education Committee
DHHA....Denver Health and Hospital Authority
DI.....Deterioration Index

DKA.....Diabetic Ketoacidosis
DPSQ.....Department of Patient Safety and Quality
DRG.....Diagnosis Related Group

E-F

EC.....Eligible Clinician
eCQM.....Electronic Clinical Quality Measure
ED.....Emergency Department
EH.....Eligible Hospitals
eHH.....Electronic Hand Hygiene
EHR..... Electronic Health Record
EMS.....Emergency Medical Services
EOC.....Environment of Care
EP.....Eligible Provider
ERAS.....Enhanced Recovery After Surgery
ESBL.....Extended Spectrum Beta Lactamases
EVS.....Environmental Services
FDA.....Food and Drug Administration
FFS.....Fee for Service
FFY.....Federal Fiscal Year
FQHC.....Federally Qualified Healthcare Center

G-H

GI.....Gastrointestinal
HAC.....Hospital-Acquired Conditions
HAI.....Healthcare-Associated Infection
HANDI.....Tracking tool for Mass Vaccination Clinics
HAPI.....Healthcare-Acquired Pressure Injury
HBIPS.....Hospital-Based Inpatient Psychiatric Services
HCAHPS.....Hospital Consumer Assessment of Healthcare Providers and Systems
HCC.....Hierarchical Condition Category
HCPF.....Health Care Policy and Financing
HCW.....Healthcare Workers
HEDIS.....Hospital Effectiveness Data and Information Set
HF.....Heart Failure
HH.....Hand Hygiene
HIM.....Health Information Management
HIT.....Health Information Technology
HITeam.....High Risk Infection Team
HLD.....High Level Disinfection
HQIP.....Hospital Quality Incentive Payment Program
HR.....Human Resources
HTC.....Hospital Transition Clinic
HTN.....Hypertension

<p>I-L</p> <p>IC.....Infection Control ICU.....Intensive Care Unit ID.....Infectious Disease I&D.....Irrigation and Debridement IFU.....Instructions for Use IM.....Internal Medicine Inpt.....Inpatient INR.....International Normalized Ratio IP.....Inpatient IP.....Infection Prevention IPs.....Infection Preventionist IPC.....Intermittent Pneumatic Compression IPFQR.....Inpatient Psychiatric Facility Quality Reporting IPF.....Inpatient Psychiatric Facility IQR.....Hospital Inpatient Quality Reporting IQR.....Interquartile Range IR.....Interventional Radiology IV.....Intravenous IVH.....Intraventricular hemorrhage Kg.....Kilogram LLT.....Local Leadership Team LOS.....Length of Stay LOSI.....Length of Stay Index</p> <p>M</p> <p>MDR.....Multi-Drug Resistant MDRO.....Multi-Drug Resistant Organisms MICU.....Medical Intensive Care Unit MIPS.....Merit-Based Incentive Payment Systems MRI.....Magnetic Resonance Imaging MRSA.....Methicillin-Resistant <i>Staphylococcus aureus</i> MSPB.....Medicare Spending Per Beneficiary MU.....Meaningful Use</p> <p>N</p> <p>N/A.....Not Applicable NCQA.....National Committee for Quality Insurance NDNQI.....National Database of Nursing Quality Indicators NEC.....Necrotizing enterocolitis NETEC.....National Ebola Training and Education Center NHSN.....National Healthcare Safety Network NICU.....Neonatal Intensive Care Unit NPO.....nil per os NSTEMI.....Non-ST-Elevation Myocardial Infarction</p> <p>O</p> <p>OB/GYN.....Obstetrics and Gynecology OBH.....Office of Behavioral Health OBHS.....Outpatient Behavioral Health Services O/E.....Observed to Expected Ratio OMFS.....Oral and Maxiofacial Surgery OP.....Outpatient OPPE.....Ongoing Professional Performance Evaluation OPPS.....Outpatient Prospective Payment System OQR.....Hospital Outpatient Quality Reporting OR.....Operating Room</p>	<p>P</p> <p>PC.....Perinatal Care Conditions PCMH.....Patient Centered Medical Home PCR.....Polymerase Chain Reaction PCSP.....Patient Centered Specialty Practice PCU.....Progressive Care Unit PDMP.....Prescription Drug Monitoring Program PEDUC.....Pediatric Emergency Department and Urgent Care PES.....Psychiatric Emergency Services PFAC.....Patient Family Advisory Council PFS.....Physician Fee Schedule PHE.....Public Health Emergency PI.....Promoting Interoperability PI.....Performance Improvement PICU.....Pediatric Intensive Care Unit PFAC.....Patient Family Advisory Council PN.....Pneumonia POA.....Present on Admission PRBC.....Packed Red Blood Cells PPE.....Personal Protective Equipment PSCA.....Patient Safety Care Attendant PSI.....Patient Safety Indicators PSI 03.....Pressure Ulcer rate PSI 06.....Iatrogenic Pneumothorax rate PSI 08.....In-Hospital Fall with Hip Fracture rate PSI 09.....Perioperative Hemorrhage or Hematoma rate PSI 10.....Postoperative Acute Kidney Injury Requiring Dialysis rate PSI 11.....Postoperative Respiratory Rate PSI 12.....Perioperative Pulmonary Embolism or Deep Vein Thrombosis rate PSI 13.....Post Operative Sepsis rate PSI 14.....Postoperative Wound Dehiscence rate PSI 15.....Unrecognized Abdominopelvic Accidental Puncture/Laceration rate P&T.....Pharmacy and Therapeutics Committee</p> <p>Q</p> <p>Q&A.....Quality and Accountability QI.....Quality Improvement QIC.....Quality Improvement Committee QPP.....Quality Payment Program</p> <p>R</p> <p>RAF.....Risk Adjustment Factor RBC.....Red Blood Cells ROM.....Risk of Mortality ROSC.....Return of Spontaneous Circulation RN.....Registered Nurse RRT.....Rapid Response Team</p> <p>S</p> <p>SAAR.....Standardized Antibiotic Administration Ratio SBAR.....Situation, Background, Assessment, and Recommendation SEP.....Severe Sepsis/Septic Shock SES.....Socio Economic Status SI.....Safety Intelligence SICU.....Surgical Intensive Care Unit</p>
---	--

SOI.....Severity of Illness
SPM.....Sterile Processing Management
SR.....Service Recovery
SSI.....Surgical Site Infection
STEPPS.....Strategies to Enhance Performance and Patient Safety

T-U

TBD.....To Be Determined
TBI.....Traumatic Brain Injury
THA/TKA.....Elective Primary Total Hip or Knee Arthroplasty
TIN.....Tax Identification Number
TJC.....The Joint Commission
TOC.....Transitions of Care
TQIP.....Trauma Quality Improvement Program
US.....United States
UV.....Ultraviolet Light
UTI.....Urinary Tract Infection

V-Z

VAP.....Ventilator Associated Pneumonia
VBP.....Value-Based Purchasing
VLBW.....Very Low Birth Weight
VOC.....Voice of the Customer
VON.....Vermont Oxford Network
VRE.....Vancomycin-resistant enterococci
VRSA.....Vancomycin-resistant *Staphylococcus aureus*
VSA.....Lean Value Stream Analysis
VTE.....Venous Thromboembolism
WCC.....Well-Child Check
WHO.....World Health Organization
WPMC.....Winter Park Medical Center
WQ.....Work Queue

12.2 Appendix B: CONTACT INFORMATION AND ACKNOWLEDGEMENTS

Thomas MacKenzie MD, MSPH, FACP
Chief Quality Officer
Thomas.MacKenzie@DHHA.org
303-602-2773

Allison L. Sabel MD, PhD, MPH
Medical Director,
Clinical Data Quality & Analytics
Allison.Sabel@DHHA.org
303-602-2771

Michelle Reitz BSN
Director of Patient Safety and Quality
Michelle.Reitz@DHHA.org
303-602-2769

Heather Young MD
Infectious Diseases Physician
Heather.Young2@DHHA.org
303-602-5024

Pence Livingston BSN, RN
Manager, Clinical Documentation Integrity
Pence.Livingston@DHHA.org
303-602-3820

Kathy Thompson MS
Senior Business Analyst
Kathy.Thompson@DHHA.org
303-602-2818

ACKNOWLEDGEMENTS

We are indebted to many Denver Health employees who work tirelessly to improve the quality and safety of our care on the front lines. Behind the scenes are many outstanding minds extracting, assimilating, analyzing, and presenting results that are included in this report. We would also like to thank our patients, from whom we continuously learn how to improve our care and how to drive to our goals of zero harm and high reliability.



Denver Health and Hospital Authority
777 Bannock Street
Denver, CO 80204
Tel. 303-436-6000
www.denverhealth.org