Results: Pilot results showed decreased process variation by 10% and reduced median boarding times by five minutes (statistically significant; p=0.0003), increasing capacity by over 1100 hours. Based on proof of concept, hospital boarding time became an organizational priority. Results showed median boarding time decreased from 140 min to 71 min (49%) and standard deviation decreased from 107 min to 70 min (35%) over a 7 month period.

Conclusions: Achieving efficient patient throughput is a complex process that impacts organizational operations. Establishing a measurement system allows for building upon a foundation for continuous improvement.

Global Aim
Improve patients’ long-term developmental outcomes

Smart Aim
For infants with a BW<1500 g and admitted within the first 7 days of life, increase the mean delta z score for weight from -1.8 to -1 within 6 months and sustain for 1 year.

Key Drivers
- Standardization of feeding practices
- Maximize intended delivery of feeds
- Adequate kCal/Protein Intake
- Adequate Micronutrient Status
- Shared Mental Model Regarding Growth
- Maximize use of Mom’s Own Milk
- Maximize nutrition delivery capacity

Interventions
- Place feeding protocol on unit/reeducate
- Fortify feeds early
- Provide feeding intolerance decision aid
- Supplement feeds with zinc
- Update growth chart in Cerner
- Use growth-risk tool to streamline growth status information sharing during rounds
- Develop infographic for moms to encourage breastmilk over formula
- Place breast pumps in every room
- Purchase rental breast pumps
- Standardize ordering process & documentation for lactation consults
- Place central lines early

Abstract IHI ID 06 Figure 1 Key driver diagram

Abstract IHI ID 06 Figure 2 Growth assessment for individualized nutrition (GAIN) status tool
improvement may improve growth trajectory and developmental outcomes.

Objectives Increase the mean delta Z score for weight (difference in z-score between birth weight and discharge weight) from \(-1.8\) to \(-1\) within 6 months and sustain for 1 year, for neonates with birth weight (BW) \(<1500\) grams, admitted within the 1st week of life.

Methods A multidisciplinary team evaluated nutrition practices for VLBW infants and key drivers were determined (figure 1). Re-education around our current feeding protocol and intolerance decision aid, sharing growth information during rounds using an in-house assessment tool (figure 2), increased accessibility to breast pump rentals, standardization of lactation consultation ordering, and development of an infographic to assist mothers in choosing breast milk over formula (figure 3) were interventions tested using the IHI Model for Improvement. Mean delta Z score for weight (primary outcome measure) and number of lactation consultation orders per week (process measure) were recorded and analyzed.
Abstracts

Results Mean delta weight Z-score increased from −1.8 to −1.08 (figure 4) following the implementation of all of the noted interventions with centerline shift that has lasted for 8 months (40% improvement). Mean number of lactation consults ordered per week increased from 1 to 4.

Conclusions Reducing nutrition practice variation shows marked improvements in infant nutrition status. We continue to test other interventions with the hope of further decreasing growth failure.

IHI ID 07 DECREASING EMERGENCY DEPARTMENT LENGTH OF STAY FOR ADMITTED PEDIATRIC PATIENTS

Background Prolonged emergency department (ED) length of stay (LOS) can lead to safety risks including handovers, medication and meal delays, high patient to nursing ratios, and lack of accommodations for families, potentially negatively affecting patient care and satisfaction. In 2016, 75% of admitted pediatric patients at Mass General Hospital for Children spent >2 hours waiting for a bed.

Objectives To decrease ED median LOS of admitted pediatric patients by 8% in 12 months.

Methods Four working groups targeted the process and developed interventions. Primary outcome measure was ED LOS. Process measures included provider and nursing handoffs within 30 min of an available inpatient bed and percentage of inpatient pre-noon discharges. Balance measures included safety report filings regarding ED transfers and readmissions within 48 hours of discharge. Baseline median and variability was determined through statistical process control charts using healthcare rules of interpretation for improvement analysis.

Results There were 12 months of baseline and 16 months of intervention involving 4846 patients. Median LOS decreased by 10.1%, from 5.73 hours to 5.15 hours. MD and RN handoffs within 30 min of bed availability improved by 11.4% and 17.9%, respectively. There was no statistically significant change in percentage of pre-noon discharges. There was no increase in safety reports or readmissions.

Conclusions Through a multimodal intervention process involving education, process measures, and engaged leadership, there was a significant improvement in ED LOS for admitted pediatric patients without increases in readmissions or safety issues. Initiatives are ongoing to address barriers to timely inpatient discharges and sustaining the intervention over time.

IHI ID 08 EMERGENCY MEDICAL SERVICES TREATMENT DISPARITIES BY PATIENT RACE

Background In the US racial minorities are at a greater risk of receiving a lower quality of medical care. While hundreds of documented studies have identified racial treatment disparities in many areas of medicine, the field of Emergency Medical Services (EMS) remains relatively unexamined.

Objectives This study explores racial treatment disparities in EMS pain management practices for adult patients who engage with pre-hospital emergency medical services for traumatic or painful emergencies.

Methods This study is a quantitative analysis of 104 210 medical charts from 63 EMS agencies in Oregon from 2015 through 2017. Primary measures include the receipt of pain medication (outcome), patient race (predictor), and numerous control variables including EMS provider impression, pain severity, and socioeconomic status (SES) covariates.

Results African American patients were 40% less likely (adjusted OR 0.60, 95% CI 0.53 to 0.68), and Asian patients were 36% less likely (adjusted OR 0.64, 95% CI 0.50 to 0.83), to receive any pain medication compared to White patients while controlling for common clinical and SES confounders. Secondary analysis indicated African Americans with private insurance experienced an even larger disparity (adjusted OR 0.45, 95% CI 0.31 to 0.64) compared to White patients with private insurance.

Conclusions African American and Asian patients in Oregon receiving pre-hospital emergency medical assistance for painful injuries or conditions are significantly less likely to receive the same treatment as White patients. While this finding is consistent with many studies in the Emergency Department, these results demonstrate that racial disparities exist in EMS treatment.

IHI ID 09 A QUALITY IMPROVEMENT (QI) INITIATIVE TO DECREASE DIAGNOSTIC ERRORS

Background Diagnostic errors (DE) in healthcare are a widespread, but underappreciated, problem. Investigators report that everyone will experience at least one DE in their lifetime.

Objectives After the occurrence of six serious adverse events related to DE in the first six months of 2015, we charted a QI team in 2016 to decrease DE.

Methods The team used QI methodology, established a specific aim and key driver diagram (figure 1), and developed the diagnostic error index (DEI 1.0) to measure the impact of interventions to decrease DE. The DEI 1.0 consists of 5 sources of DE:

1. class I autopsy findings,
2. RCA with DE as a failure mode,
3. medical record triggers,
4. Morbidity & Mortality reports, and
5. other adverse event reports of DE.

We aimed to reduce the DEI from 7/month to 3/month by December 31, 2018. We evaluated several interventions to decrease DE including the diagnostic time out, open notes, differential diagnosis (DDx) software, EMR advisory board, pan-ophthalmoscopy, admission DDx audits, and participation in a pilot SIDM-IHI DE collaborative.