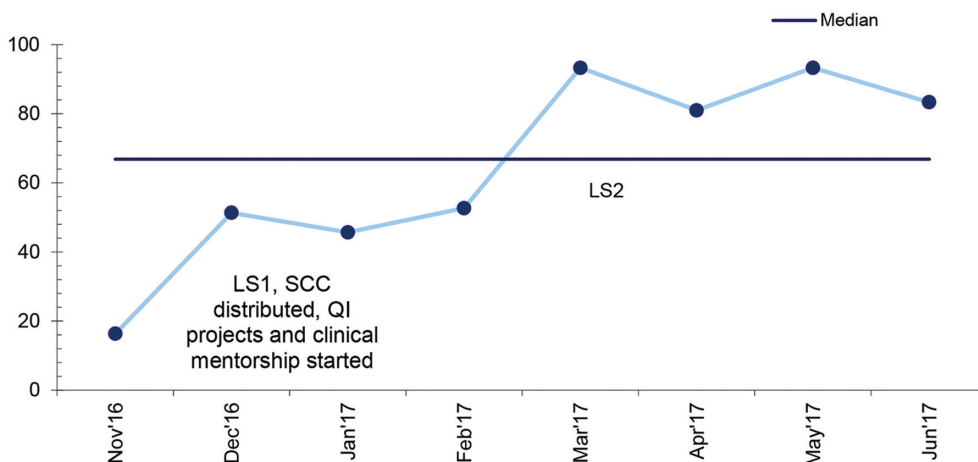


Abstract 865 Figure 6 100% completion of 'before pushing' bundle



Abstract 865 Figure 7 100% completion of 'soon after birth' bundle

Conclusions Initial results are promising regarding program delivery and indicate high levels of facility-level QI activities, as well as initial signals of improved data and service quality in key maternal newborn health services.

process defects, identify risk factors within the population, optimise patients preoperatively, institute a risk scoring system to focus more energy and time with riskier patients, and decrease clinical variation that could lead to complications.

Methods Patient encounter data was used to conduct statistical analysis of medical diagnoses and demographic information to create a preoperative risk tool used to screen patients in pre-admission testing. Risky patients were optimised, and received

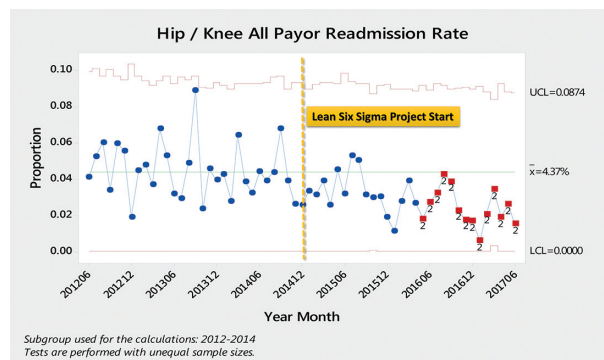
869 USING SIX SIGMA TO REDUCE READMISSIONS IN ELECTIVE TOTAL HIP & KNEE ARTHROPLASTY

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10.1136/bmjopen-2017-IHL1.5

Background New Hanover Regional Medical Centre is a public, not for profit, teaching hospital that performs over 2000 total joint arthroplasties per year. Following a near 1 million dollar penalty for excess 30 day Hip and Knee readmissions on the FY'15 CMS readmission report, a team was assembled to improve outcomes.

Objectives The team's objective was to identify trends among readmitted patients, conduct root cause analysis to determine



Abstract 869 Figure 1 Hip/knee all payor readmission rate

NHRMC TOTAL KNEE / HIP RISK ASSESSMENT TOOL

1. Risk Factor Y/N Score

A. Intraoperative **High Risk!**

B. Intraoperative **High Risk!**

C. Prehab **High Risk!**

D. Age **High Risk!**

E. Age >74 **High Risk!**

F. History of Anemia **High Risk!**

G. Current / Former Smoker **High Risk!**

H. BMI > 35 **High Risk!**

I. History of CHF **High Risk!**

Total Score

2. Risk Factor Y/N Score

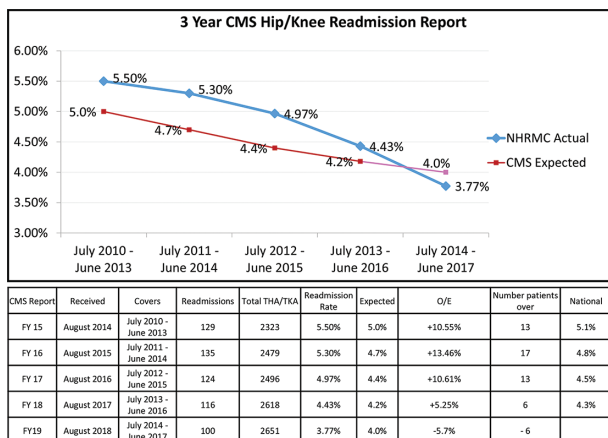
J. Blood Transfusion this admission **High Risk!**

K. LOS > 3 days this admission **High Risk!**

Total Score

Risk Cause Factor	P Value	Significant or not 95% Confidence Interval
Gender	.004	Yes, Male 1.5X more likely
Surgeon	.462	No
Age > 74 Years	.000	Yes 1.8X more likely
Race	.387	No
Discharge Dispo: SNF	.000	Yes, SNF 1.8X more likely
Blood Transfusion	.000	Yes, 3.7X more likely
LOS > 3 days	.000	Yes, LOS>3d 2.5X more likely
CHF	.000	Yes, 3.8X more likely
Obesity (BMI > 35)	.308	No
Anemia	.000	Yes, Anemic 2X more likely
Diabetic	.011	Yes 1.5X more likely
Stroke	.014	Yes, 2X more likely
Renal Failure	.000	Yes 2X more likely
Tobacco Use	.127	No. Consider data reliability

Abstract 869 Figure 2 NHRMC total knee/hip risk assessment tool



Abstract 869 Figure 3 3 year CMS hip/knee readmission report

more contact post discharge via phone calls focused on identified risk factors and common readmission reasons. **Results** Initial CMS 3 year aggregate readmission rate was 5.5% versus 4.43% p=0.04 FY18 CMS report and 3.77% p=0.002 FY19 projected. Risk factor analysis and mirrored intervention strategies by other readmission populations and increased desire and utilisation of orthopaedic preadmission testing optimisation and anaemia clinic by other surgical populations.

Conclusions New Hanover Regional Medical Centre has statistically reduced readmissions and should receive no further Hip/Knee Arthroplasty Readmission penalties. Six sigma process of patient level analysis, statistically validated risk scoring, patient optimisation, reduced clinical variation, and risk based interventions can be utilised anywhere, with any population, to prevent unwanted outcomes.

873 CONTINUOUS INFUSION MEDICATION SAFETY IN A PAEDIATRIC INTENSIVE CARE UNIT

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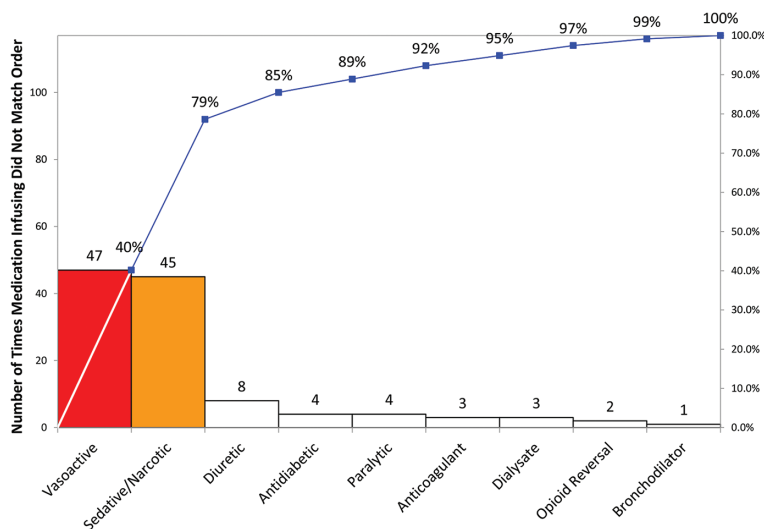
10.1136/bmjopen-2017-017151

Background Failure to reliably use Computerised Physician Order Entry systems for continuous medications increases a patient's risk of experiencing adverse drug events, is outside the scope of practice for nurses and contradicts regulatory standards.

Objectives Increase the percentage of continuous medications infusing in the Paediatric Intensive Care Unit matching the current order from 74% to 90% by May 31, 2017 to eliminate adverse drug events.

Methods An interdisciplinary team conducted a Failure Modes Effects Analysis to identify failure modes and interventions. A Key Driver Diagram was then created to frame the improvement work. The first Plan-Do-Study-Act cycle ensured ordering providers read back orders on rounds to provide real-time loop closure. A Pareto chart of failures identified vasoactive medications as the largest non-compliant category, leading to another PDSA implementing vasoactive titration order-sets. Rapid cycle testing and feedback allowed the team to address concerns before full implementation.

Results Statistical process control was used for the percentage of continuous medications and vasopressors matching the provider order displayed in separate p-charts. Established rules were used for differentiating special versus common cause variation. 431 baseline observational audits revealed a mean compliance of 74% that increased to 93% after 12 months. Subset analysis of vasoactive medications showed an improvement from 38% to 89% compliance.



Abstract 873 Figure 1 Pareto: PICU continuous IV medication infusions by class that do not match order 6/5/16–9/27/16