Decision Making Process for Implementing System-Level Improvements

Ron Keren, MD, MPH
Vice President of Quality
Children’s Hospital of Philadelphia
Professor of Pediatrics and Epidemiology
Perelman School of Medicine at the University of Pennsylvania
Office of Clinical Quality Improvement

• Teams: Improvement, Analytics, Informatics
• CHOP Improvement Framework
• 60-80 QI projects
• Programs
  – Clinical Pathways
  – High Value Prescribing
  – Keeping Kids Out of the Hospital
  – Patient Reported Outcomes
Clinical Pathways

• 119 Pathways
• ED, Inpatient, Primary Care, Specialty Care
• Clinical Decision Support
• Measurement Tools
• Coverage (FY17: 51% ED, 43% IP encounters)
• Publicly Available (30,000 sessions/mo; 68% external)
• Example: Bronchiolitis (ED care)
Related Pathways
Goals & Metrics
Assessment
Risk Stratification
Treatments
Discharge/Admit
Criteria

Learn More
RN Learning Assessment
High Flow Nasal Cannula (HFNC) Job Aid
RN Learning Module
MD/CRNP Learning Module

Key References

Learn More
Bronchodilators for bronchiolitis for infants with first-time wheezing
Clinical Practice Guideline: The Diagnosis, Management, and Prevention of Bronchiolitis

Related Links
Bronchodilators for bronchiolitis for infants with first-time wheezing
Clinical Practice Guideline: The Diagnosis, Management, and Prevention of Bronchiolitis

Related Pathways
Inpatient Bronchiolitis Pathway

Goals and Metrics

Supportive Care
Suction
Hydration, nutrition
Supplemental oxygen
Pulse oximetry
Fever Management

ED Pathway for Evaluation/Treatment of Children with Bronchiolitis

Additional Treatment Considerations
Albuterol trial
Racemic epinephrine
Antibiotics
Hypertonic Saline
Further Diagnostic Testing

Consider ED Asthma Pathway if:
Recurrent wheezing / prior steroid use
Age > 12 months
Strong response to albuterol

Assessment

Risk Stratification

Treatments

Discharge/Admit Criteria

Oxygen saturation > 90%
Adequate oral intake
Mild/moderate work of breathing
Reliable caretaker
Able to obtain follow-up care
MDI/spacer teaching if response to albuterol

Date: September 2005
Revised: September 2011, November 2013, November 2015, February 2016, October 2017,
November 2017
Authors: R. Abaya, MD; K. Crescenzo, RN; E. Delgado, MD; M. Dunn, MD; M. Kerrigan RRT; N. Muthu MD; C. Nelson, MD; A. Reardon CRNP; B. Rodio, RN; N. Strobel CRNP; D. Simpkins RRT; L. Tyler, RRT; J. Zorc, MD

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**Suggested Order Sets**

- 70 triage complaints
- RN choice drives order set suggestion to MD/NP
ED Bronchiolitis Pathway

Supportive Care

- Suction Nares per Nursing Standard. Review bulb syringe with family and escalate to wall suction only if unable to clear with bulb.

Medications

- Bronchodilators
  
  Not recommended for routine use. Suction and reassess before ordering. If used, document indication and response in ED provider note.
  
  - Albuterol Bronchiolitis Trial
  - racemic EPINEPHrine 2.25 % neb
    ONCE

- Steroids: Not recommended for routine use

Laboratory

- Laboratory tests: Viral testing not recommended for routine use
  - Respiratory Viral Testing

Radiology

- Radiology: Chest Xrays are not recommended for routine use
 Bronchiolitis

% of All Patients seen in the ED with Albuterol Administered in the ED

Definition: Patients (admitted & discharged) with albuterol administered while in the ED / All patients seen in the ED

Baseline mean shift after Q4-2013 and Q4-2015 due to Nov 2013 and Nov 2015 pathway updates

Includes patients with ICU events

See special cause variation rules
Learn more about control charts
Decision Making Process for Implementing System-Level Improvements in Care Delivery

• Is there unwarranted variation in practice that is negatively impacting quality?
• Can a multidisciplinary group of experts and key stakeholders come to a consensus on a best practice protocol (locally accepted standard)?
• Is there sufficient evidence to support recommendations for a protocol (pathway)?
• Is the risk/benefit of implementing the protocol better than allowing the current variation to continue?
What types of evidence are needed to support these decisions?

• Prefer RCTs, not always available
• Accept well done observational studies
• Strength of recommendations reflect strength of evidence and degree of consensus
• Use our own data and redesign systems of care
• Sickle Cell Disease with Fever
Sickle Cell Disease with Fever

- Standard of care at CHOP in 2014: Admit for antibiotics until blood culture negative
- 7-valent pneumococcal vaccine reduced SBI rates in children with SCD
- Review of 920 febrile episodes among patients with SCD evaluated in our ED between July 2012 and November 2013: only 2 blood cultures (0.2%) positive for a pathogen.
- Both children extremely ill upon presentation.

Sickle Cell Disease with Fever

• Developed criteria for discharge home after ceftriaxone: low risk for bacteremia, reliable telephone follow-up
• Developed safe and effective follow-up process
• Pre-implementation simulation and refinement
• Post-implementation monitoring and refinement
Sickle Cell Disease with Fever

Approximately 500 visits per year

No increase in revisits within 72 hours.

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Angela Ellison, MD
Data Source: CDW
Evaluating Effectiveness

• Prospective before/after design
• Statistical Process Control
• Most improvement efforts conducted over short period of time, under fairly static conditions, with large anticipated effect sizes, so less concerned about secular trends, confounding, and bias
• Have not randomized at patient or unit level
• What is the best approach for learning in a complex adaptive system?