

Five Developments That will Rock Your World James Chamberlain, MD

Overview

Status epilepticus

Imaging

Patient satisfaction vs. patient-centered care

Quality

Genomics/Biomics



Pediatric Status Epilepticus

FEBSTAT (Lewis DV et al. Ann Neurology 2014)

Time = neurons

10% of children with febrile SE had hippocampal changes on MRI versus 0% not status

Half of those had permanent changes with either hippocampal sclerosis or volume loss a year later

RAMPART (Silbergleit R et al. NEJM 2012)

Autoinjector in the ambulance

Two doses (high and low)

IM Midazolam > Lorazepam IV

Faster, more effective

Pediatric Seizure Study (Chamberlain JM et al. JAMA 2014) Lorazepam not superior to diazepam in efficacy or safety



Pediatric Imaging

Ultrasound for appendicitis (Sivit CJ, Newman KD, Boenning DA, ...Bulas DI. Appendicitis: usefulness of US in diagnosis in pediatric population. Radiology. **1992**;185:549–552)

Ultrasound plus MRI for appendicitis (Aspelund et al. Pediatrics 2014; Herliczek TW et al. Am J Roentgenol 2013)

MRI for shunt malfunction (Ashley WW et al. J Neurosurg 2005)

Flow measurement for shunt malfunction (in progress)



Patient-Centered Care vs. Patient Satisfaction

Kupfer JM, Bond EU. Patient Satisfaction and Patient-Centered Care: Necessary but Not Equal. JAMA July 2012.

Patient-centered care:

providing medical care that respects the values of the patient/family. structuring the healthcare system and processes around the needs of the patient rather than the needs of physicians and nurses.

Patient satisfaction:

a tool used by industry to measure how well we meet customers' expectations.

Sometimes, the two will be in direct conflict.

If we're going to use customer satisfaction as a quality measure, then it should be validated as a quality metric.



Patient-Centered Care ≠ Patient Satisfaction

Natale J. Cranial computed tomography use among children with minor blunt head trauma: Association with race/ethnicity. Arch Dis Pediatr Adol Med 2012.

Severely ill: CT rates are the same.

Mildly ill: CT rates are higher in whites.

Consistent with

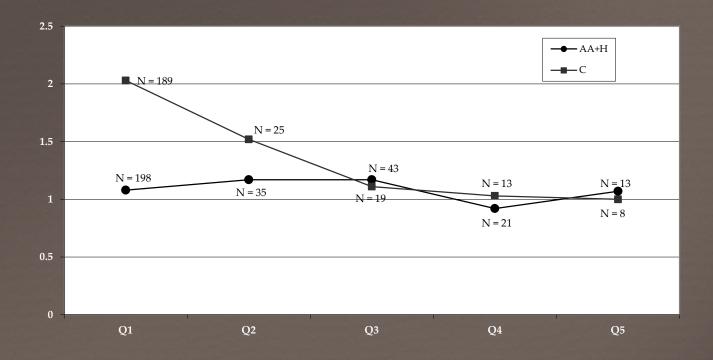
Inappropriate antibiotics for asthma (higher in whites),

Severity-adjusted admission rates (higher in whites).

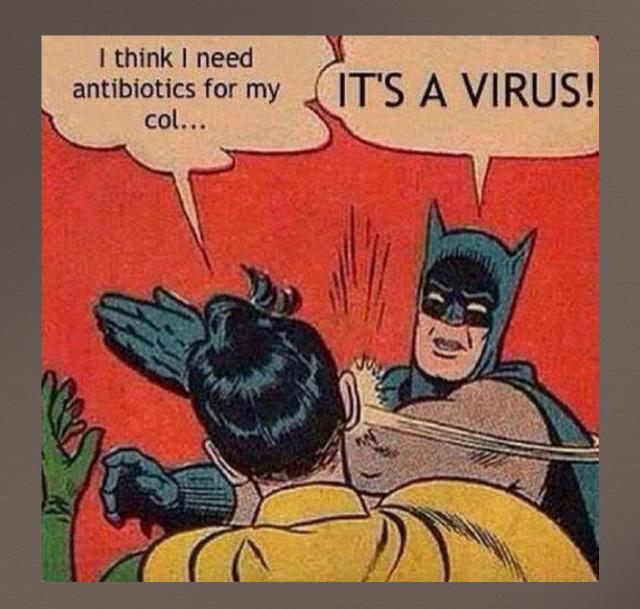
Vanderweil SG et al. Acad Emerg Med 2008 Chamberlain JM et al. Pediatrics 2007



Severity-adjusted Admission Rates









Dartmouth Atlas Project http://www.dartmouthatlas.org/downloads/atlases/NNE_Pediatric_Atlas_121113.pdf

- Inappropriate use of antibiotics for URI lowest in cities with a major pediatric hospital
- Radiation exposure lowest in cities with a major pediatric hospital
- Four-fold differences in tonsillectomy rates
- Two-fold difference in emergency department use
- Two-fold difference in hospitalization rate
- The variation in use of antibiotics among cities is 1.8 fold



Changing Provider Practice with Audit and Feedback

Ivers N. Audit and feedback: effects on professional practice and healthcare outcomes. Cochrane Database Syst Rev. 2012

70 studies included audit and feedback

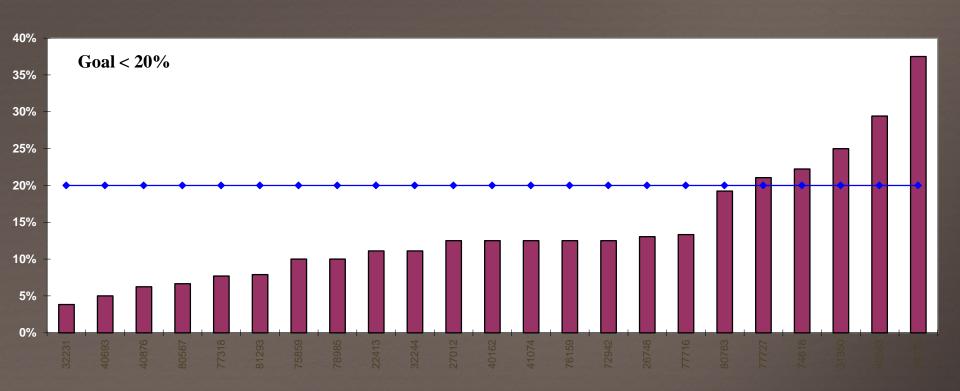
- Median increase of 4.3% for proportion measures (IQR 0.5-16%)
- Median increase of 1.3% for continuous measures (1.3-29%)

Effectiveness depended on

- Low baseline performance
- Feedback written and oral
- Feedback more than once
- Feedback from supervisor or colleague
- Clear goal(s) articulated

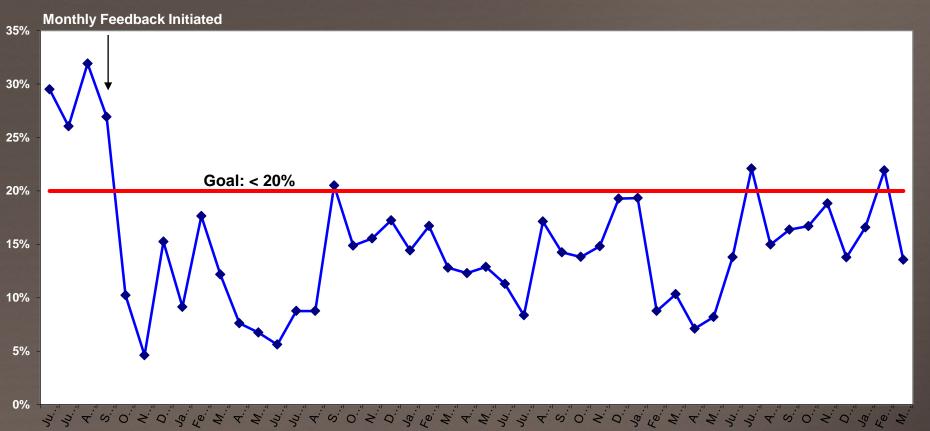


Percentage of Asthma Patients with X-rays FY14 - Q3



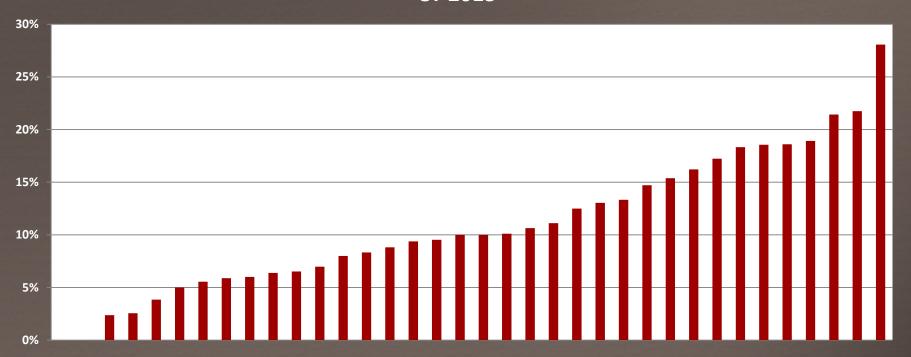


Monthly Proportion of Asthma Patients with Chest X-rays



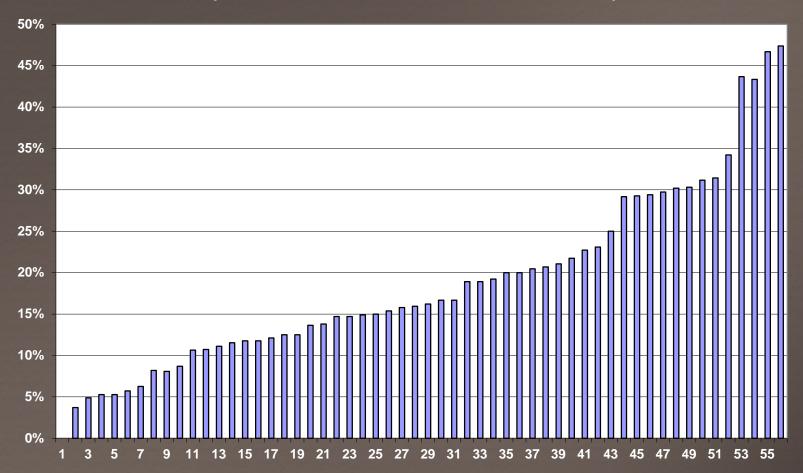


Propensity to Test CY 2013



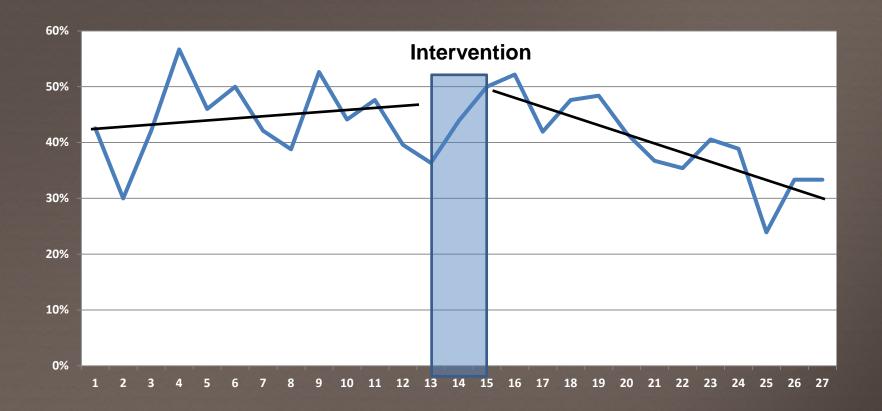


Proportion of TBI Patients with Head CT (Non-Trauma Stats, Jan 2010 - Mar 2012)





Reducing CT Scans for Head Injury





Where Medicine is Headed

Report to the Virginia Legislature, 2014 http://web1.millercenter.org/commissions/healthcare/HealthcareCommission-Report.pdf

- The traditional fee-for-service payment model promotes fragmentation and higher spending
- Physician, facility, and drug costs are high
- Americans use a higher proportion of expensive medicine
- Care is fragmented and uncoordinated



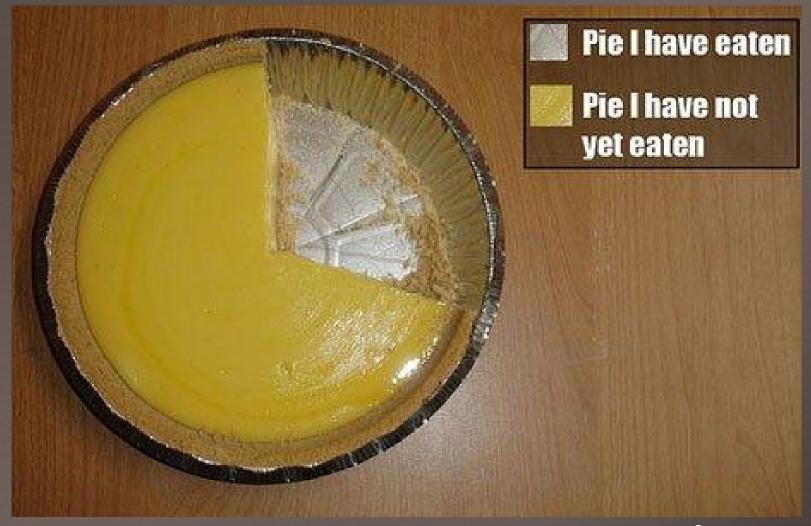
Where Medicine is Headed

Recommendations:

- Collect detailed data on health spending throughout the state
- Define and collect data on the quality of health care delivery
- Adopt annual spending benchmarks for the next 5 years
- Adopt annual benchmark goals on quality for the next 5 years

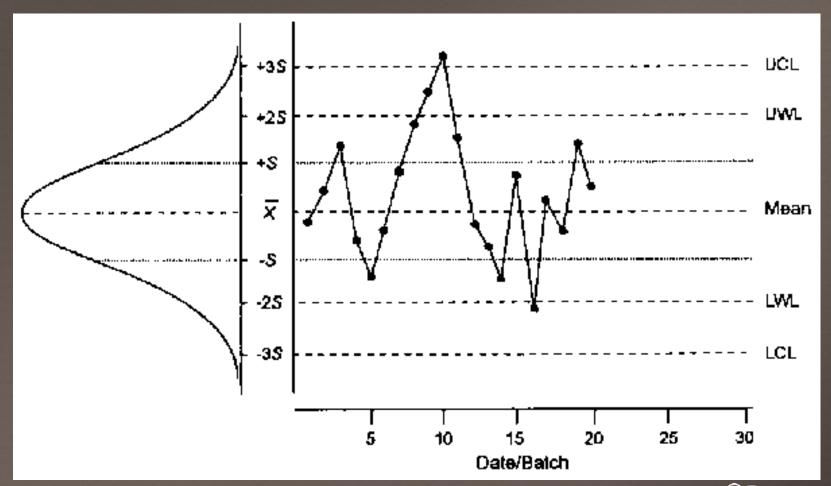


Data-driven Care





Data-driven Care





Genomics/Biomics

Goldin BR and GSL. Probiotics overview. Clin Inf Dis 2008.

Acute diarrhea

C. Difficile

Cow milk allergy

UTI

? Respiratory infections, dental caries, IBS, IBD

Colvin JM et al. Pediatrics 2012.

Viral passengers

35% of elective pediatric surgery patients carry viruses

But no inflammatory response

Scott J. A wash on the wild side. NY Times May 25, 2014.

Nitrosoma eutropha BID "misting"

Reduces Staph aureus

Reduces propioniacterium

Improves wound healing in diabetic mice

