NICU Quality Improvement

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(no financial conflicts to disclose)

Overview

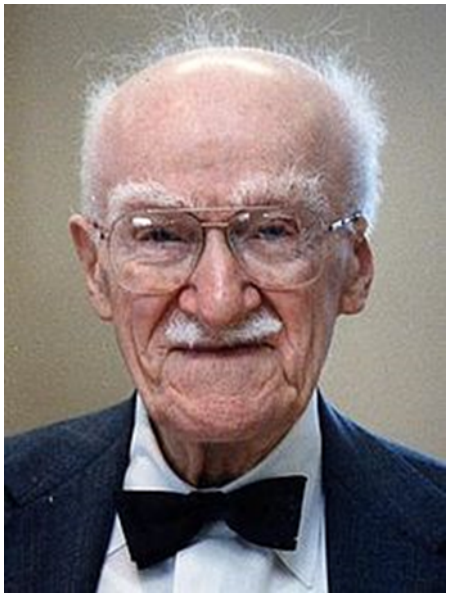
- Brief History of QI in Healthcare
- Institute for Healthcare Improvement
  - IHI QI
- Vermont-Oxford Network
  - IHI QI applied to NICU care
- IHI QI Steps
- Improvement Stories
- Future
  - Perinatal Population Health
  - State QI Collaboratives

Vilfredo Pareto

- 1848-1923
- Italian engineer, sociologist, economist, political scientist, and philosopher
- Applied mathematic principles to wealth distribution among classes in pre-WWII Europe
- In Britain, he demonstrated that 20% of population had 80% of the wealth
- 20/80 rule: 20% of variables drive 80% of outcome
- (Staunchly opposed Marxism)

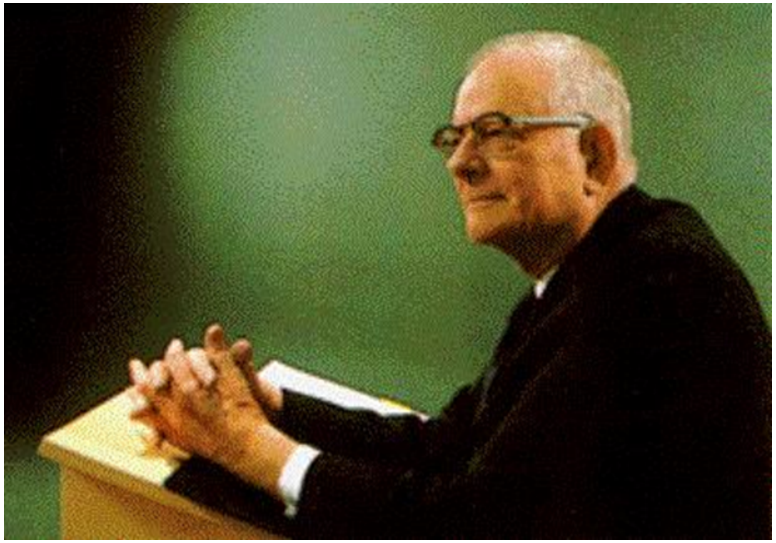
Joseph Juran

- 1904-2008
- Romanian-born American engineer and management consultant.
- Expertise in quality and quality management
- Lectured in Japan in the 50's on quality
- Japan was leader in manufacturing quality by the 70's



W. Edwards Deming

- 1900-1993
- American engineer, statistician, professor, author, lecturer, and management consultant.
- Identified drivers of quality
  - Considered work environment as a system
  - measure variation to measure quality
  - Applied psychology to workplace quality
- Invented the PDSA Cycle
- Driver of the automotive manufacturing success in Japan



To Err is Human: Building a Safer Health System

- 44,000 – 98,000 deaths/yr
- 8th leading cause of death in US
- National Costs: $17 to $29 billion
- $2 billion Adverse Rx event costs alone
  - 2% hospital admissions (preventable)
  - Add $4,700 in costs to each hospitalization

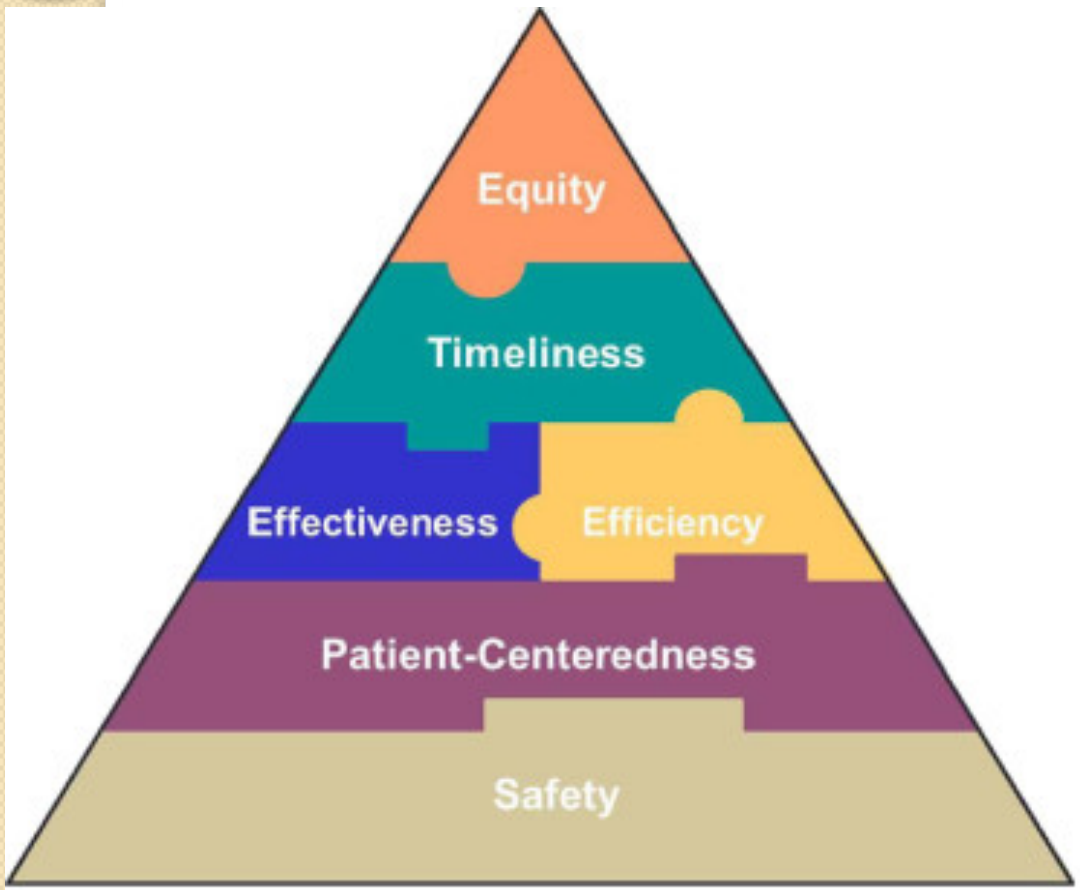
Institute of Medicine, 1999

2001 IOM Report, *Crossing the Quality Chasm*

- Scientific review documents the scale and gravity of quality problems
- More than 70 publications cite quality problems

…between the health care we have and the care we could have lies not just a gap, but a chasm.

IOM Model for Quality Goals



The following definitions of each component adapted for the OPTIC study

Equity - no bias associated with access to continuum of care.

Timeliness – actions resulting in no unnecessary or unwanted delay.

Effectiveness - actions that align best available evidence with optimal outcome

Efficiency - actions which cause no overuse or underuse of resources, e.g. investigations, treatments, etc.

Resident Centered - actions informed by knowledge of and respect for diversity, values, choices, and needs of residents. Emphasizes care coordination, continuity, communication, education, and shared decision-making (Coleman)

Safety - actions that cause no unnecessary harm

What is Health Care Quality

- The Institute of Medicine **defines health care quality** as "the degree to which **health care services** for **individuals** and **populations** increase the **likelihood** of desired health **outcomes** and are consistent with **current professional knowledge**."

5 Deming Principles Applied to Medicine

1. Quality improvement is the science of process management
2. If you cannot measure it…

   You cannot improve it

1. Managed care means managing the processes of care, not managing physicians and nurses
2. The right data in the right format at the right time in the right hands
3. Engaging the "smart cogs" of healthcare

HealthCatalyst
ignite outcomes improvement

Sources of Deviation from Quality
IOM Defined Processes of Concern

- Underuse
  - Prenatal care at first trimester
  - Antenatal steroids
  - Hand washing
- Overuse
  - Cesarean sections
  - Postnatal steroids
- Misuse
  - Medication errors
  - Parent communication

"Optimal Use" as Quality Goal

- Analysis of ***Outcomes and Processes***
- Minimize variations in outcomes across similar populations by minimizing variations in processes
- Evidence Based Medicine
  - Randomized controlled trials
  - Meta-analyses

Measuring Quality

- Structure
- Process
- Outcome
- Culture?

Measuring Quality: Structure

- Level of perinatal care
- Nursing care
  - Nurse: patient ratios
  - Training/certification/continuing education
  - Night/weekend staffing
- Ancillary care
  - Respiratory therapy
  - Nutrition
- Patient Volume

Measuring Quality: Process

- Antenatal Steroids
- Documentation of Delivery Indications
  - Cesarean sections
  - Late preterm inductions
- Breast milk use in the preterm infant
- Average ventilator days

Measuring Quality: Outcome

- Birth weight specific mortality, LOS, Chronic lung disease (BPD), nosocomial infection
- Case mix
  - Risk
  - Co-morbidities
- Limitations
  - Low volume/chance
  - Not adjusted for case mix

Risk Adjustment

- Goal: compare "apples to apples"
- Standardized Mortality Rate (SMR)
  - Divide into categories
  - Regression analysis
- Validity
  - All known risk factors included
- Neonatal vs. Perinatal Care
  - Antenatal steroid utilization can impact NICU quality metrics

Respiratory Care

- Outcomes
  - Chronic lung disease
  - death
- Processes
  - Antenatal steroids
  - Early surfactant
  - Early NCPAP
  - Delivery room management
- Structure
  - In-house NNP/neonatologist
  - Adequately staffed/trained RT's in unit

Infectious Disease

- Outcomes
  - Nosocomial infection
  - Mortality
- Processes
  - Line care
  - Systematic limitation of central line use
  - Culture/education of staff
  - Early and aggressive nutrition
- Structure
  - Unit design
    - Sq. ft./baby
    - Single room
  - Nurse: baby ratio

Nutrition

- Outcomes
  - Weight at discharge
  - LOS
  - Nosocomial Infection
  - Mortality
- Processes
  - TPN with protein on admission
  - Use of breast milk
  - Protocols for initiating and advancing feeds
- Structure
  - Pediatric trained dietitian part of NICU team
  - Lactation consultant dedicated to NICU

QI Primer

Institute *for* Healthcare Improvement

NAHQ

National Association for Healthcare Quality

INSTITUTE OF MEDICINE

OF THE NATIONAL ACADEMIES

VON Vermont Oxford NETWORK

Institute of Lean Healthcare

INSTITUTE FOR PERINATAL QUALITY IMPROVEMENT

AMERICAN BOARD OF MEDICAL QUALITY

Agency for Healthcare Research and Quality

Advancing Excellence in Health Care

Vermont-Oxford Neonatal Network

- Database
  - Benchmarked with 1000+ NICU's
  - Multiple outcome and process measures
- Multicenter Quality Collaboratives
  - iNICQ
    - Internet based quality collaborative
    - 100-150 centers working on single QI project
    - Annual meeting and webinars
  - NICQ
    - More in-person meetings
    - 50-60 centers participating in 2 yr cycles
    - 5-6 centers working together on selected projects
- Education and utilization of IHI QI

IHI DOMAINS OF QUALITY

Individual Care
-quality
-experience
Cost
Population

How to Improve

- IHI QI methodology
  - http://www.ihi.org/resources/Pages/HowtoImprove/default.aspx

Step 1: Forming the Team

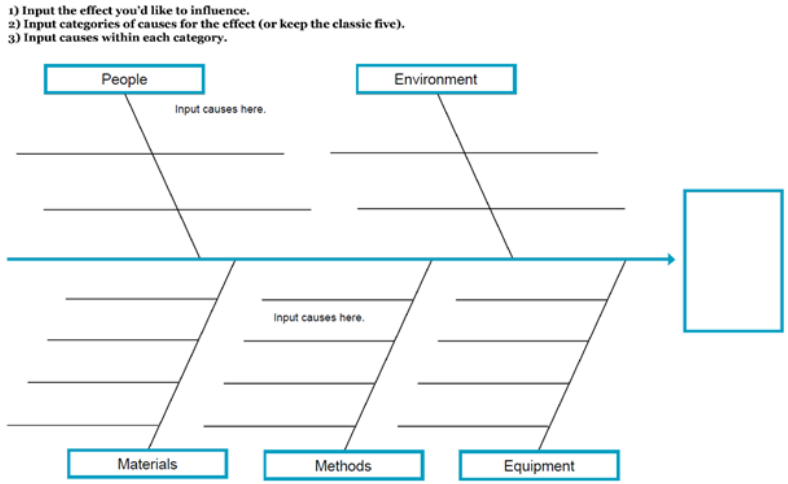
- Multidisciplinary
- Clinical Leader
  - understands clinical implications and consequences
- Technical Expertise
  - Understands QI process and data management
- Day to Day Leadership
  - Project driver and coordinator
- Project Sponsor
  - Administrative representative
  - Leverages resources
  - Provides accountability

Step 2: Setting Aims

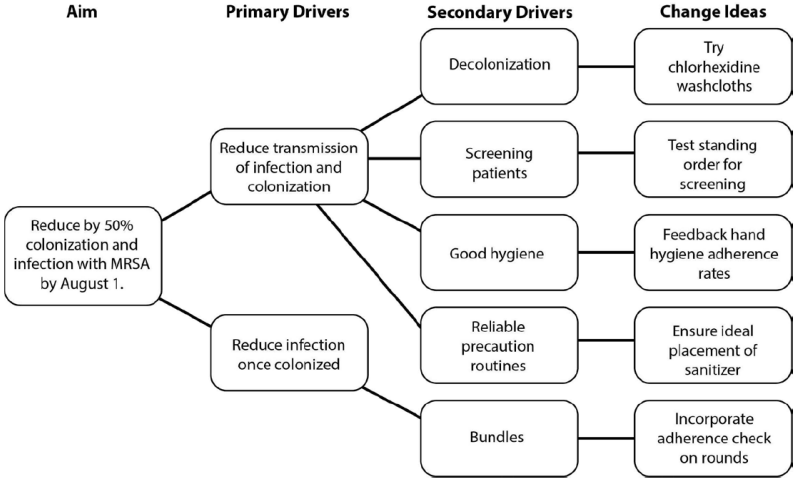
- IOM Global Aims for Healthcare
  - Safe: Avoid injuries to patients from the care that is intended to help them.
  - Effective: Match care to science; avoid overuse of ineffective care and underuse of effective care.
  - Patient-Centered: Honor the individual and respect choice.
  - Timely: Reduce waiting for both patients and those who give care.
  - Efficient: Reduce waste.
  - Equitable: Close racial and ethnic gaps in health status.
- Set Specific , Quantifiable, and Achievable Aims
  - "reduce ROP by 20% in 1 yr" instead of "improve O2 use"

QI Tools for Aims

- Cause-and-effect diagram (aka "fishbone" diagram)



- Driver Diagram



Step 3: Establish Measures

- Process Measures
  - How well are we implementing practices?
- Outcome Measures
  - Are we improving our aims?
- Balanced Countermeasures
  - What else is being affected?
  - Does reducing abx use lead to increased death from sepsis?
- Quality Improvement is not research
  - QI measures how well we implement current standard of care
  - Our goals for measures are different

Research vs. QI

	Measurement for Research	Measurement for Learning and Process Improvement
Purpose	To discover new knowledge	To bring new knowledge into daily practice
Tests	One large "blind" test	Many sequential, observable tests
Biases	Control for as many biases as possible	Stabilize the biases from test to test
Data	Gather as much data as possible, "just in case"	Gather "just enough" data to learn and complete another cycle
Duration	Can take long periods of time to obtain results	"Small tests of significant changes" accelerates the rate of improvement

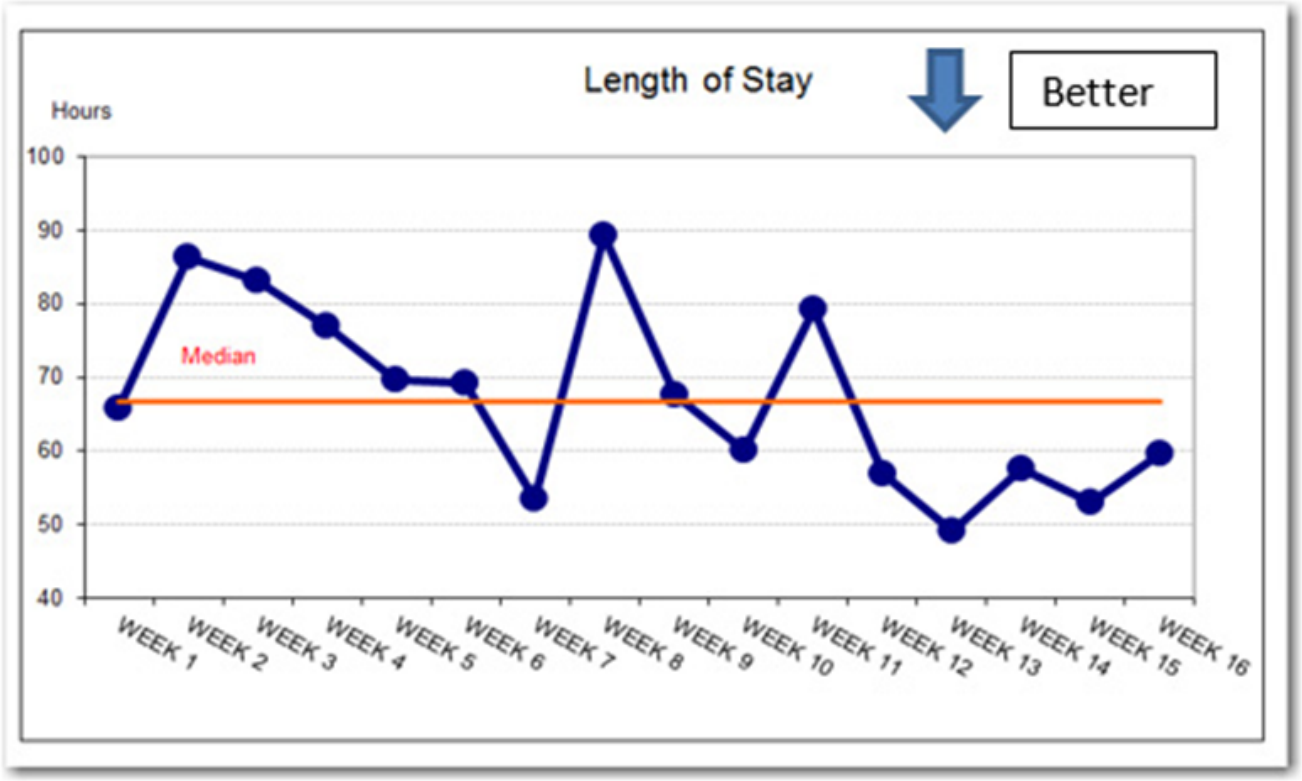
Data collection tools

- Checklists
- Random Value Audits-
  - weekly audits of bedside care
- Event Audits
- EHR data analytics
- Databases
  - PDX, VON

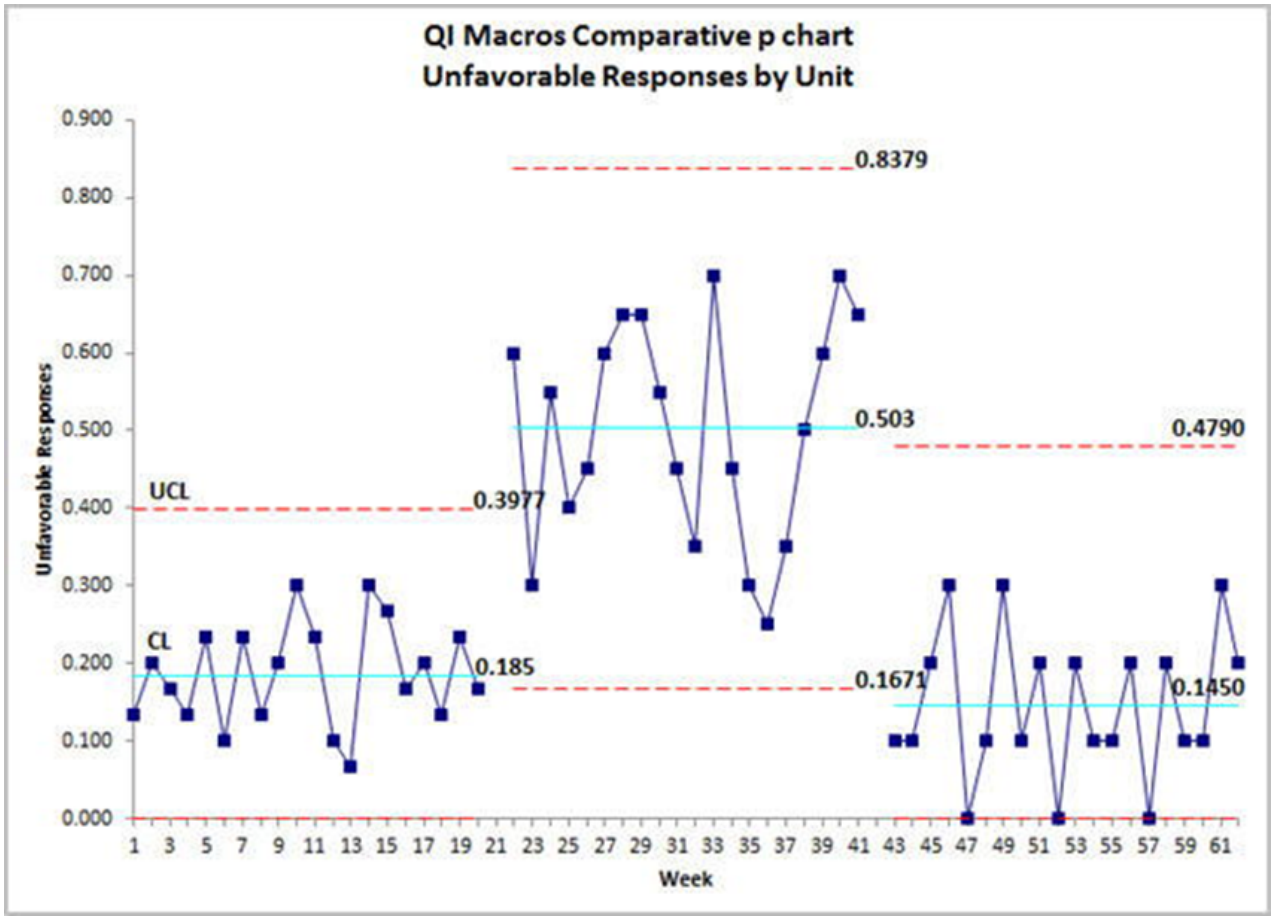
Data Display Tools

- Timelines
- Algorithms
- Run Charts
- Control Charts

Run Charts

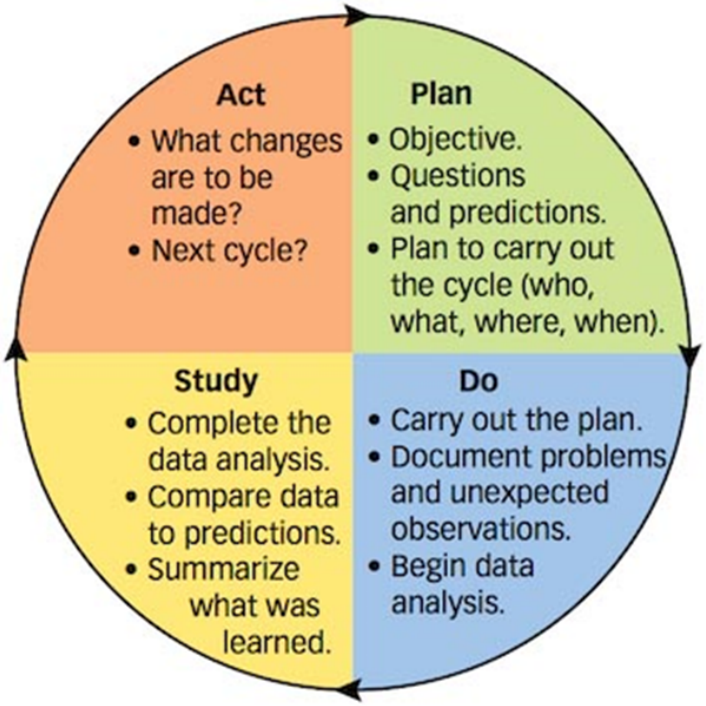

Length of Stay
Better
Hours
100
90
80
70
60
50
40
Median
WEEK 1
WEEK 2
WEEK 3
WEEK 4
WEEK 5
WEEK 6
WEEK 7
WEEK 8
WEEK 9
WEEK 10
WEEK 11
WEEK 12
WEEK 13
WEEK 14
WEEK 15
WEEK 16

Control Charts



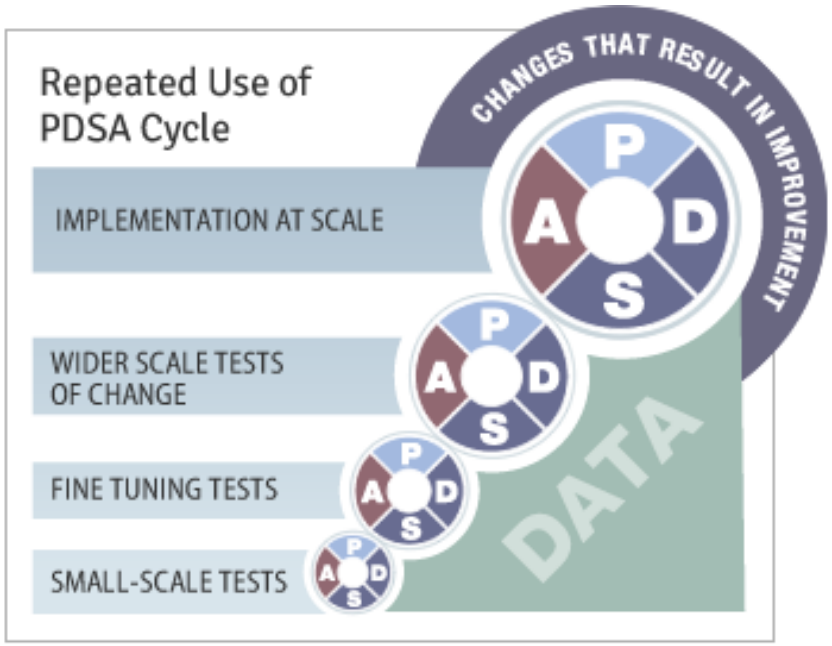
Step 4-7: PDSA Cycle

- Step 4- select change
- Step 5- tests of change
- Step 6- implement change
  - Implement in small trials
  - Measure change from trials
- Step 7- sustain change

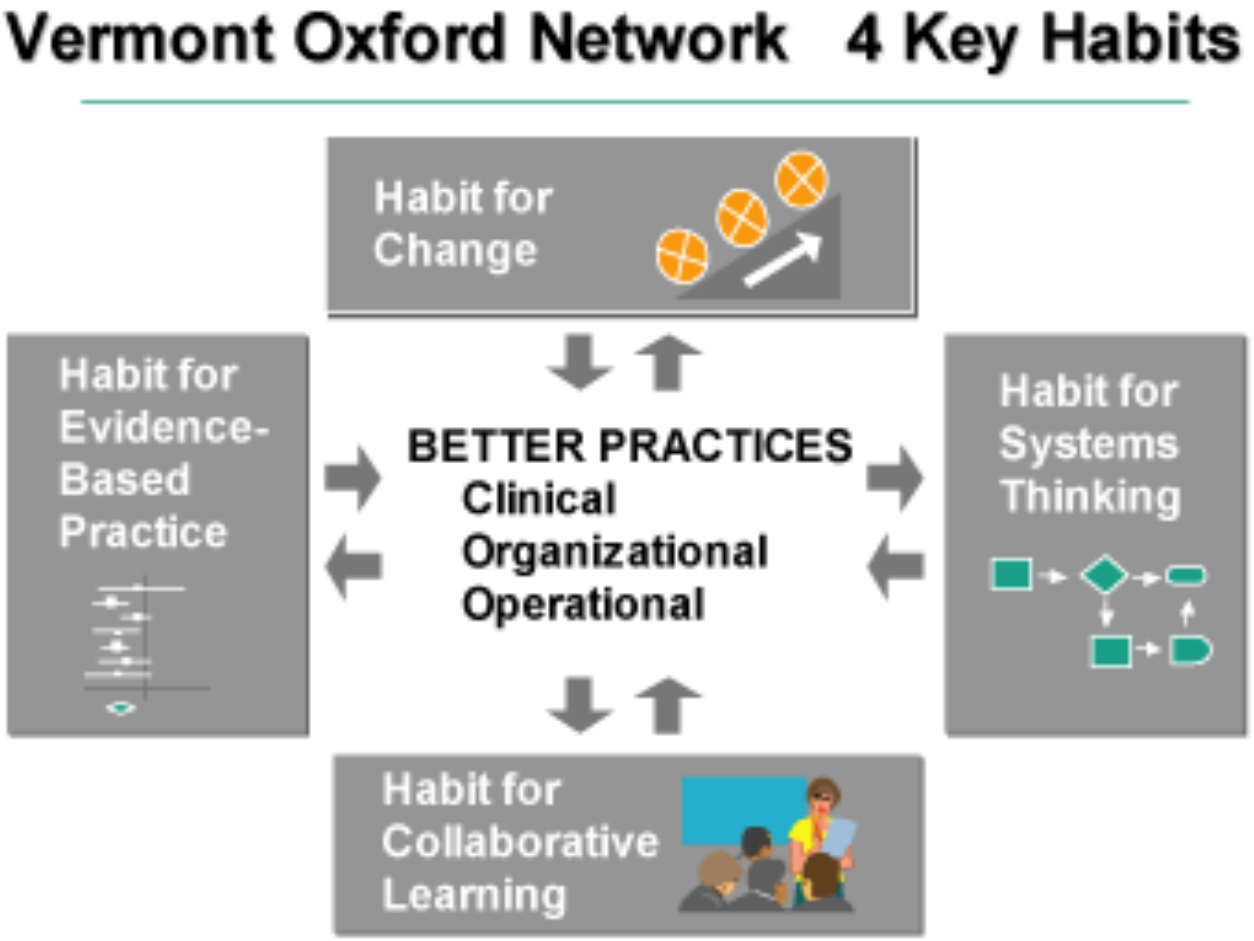


Sustaining Improvement

- Continue to track process measures
- Staff feedback of data
- Continued education



Sustaining Improvements



TAKING QI TO THE NEXT LEVEL

…from a side project to "the way we do things"

"A Multifaceted Approach to Improving Outcomes in the NICU: The Pediatrix 100,000 Babies Campaign"

PEDIATRICS, April 2016

Background

"QI collaboratives commonly focus on a single clinical problem, rather than the most common group of problems that drive poor health outcomes"

Goal

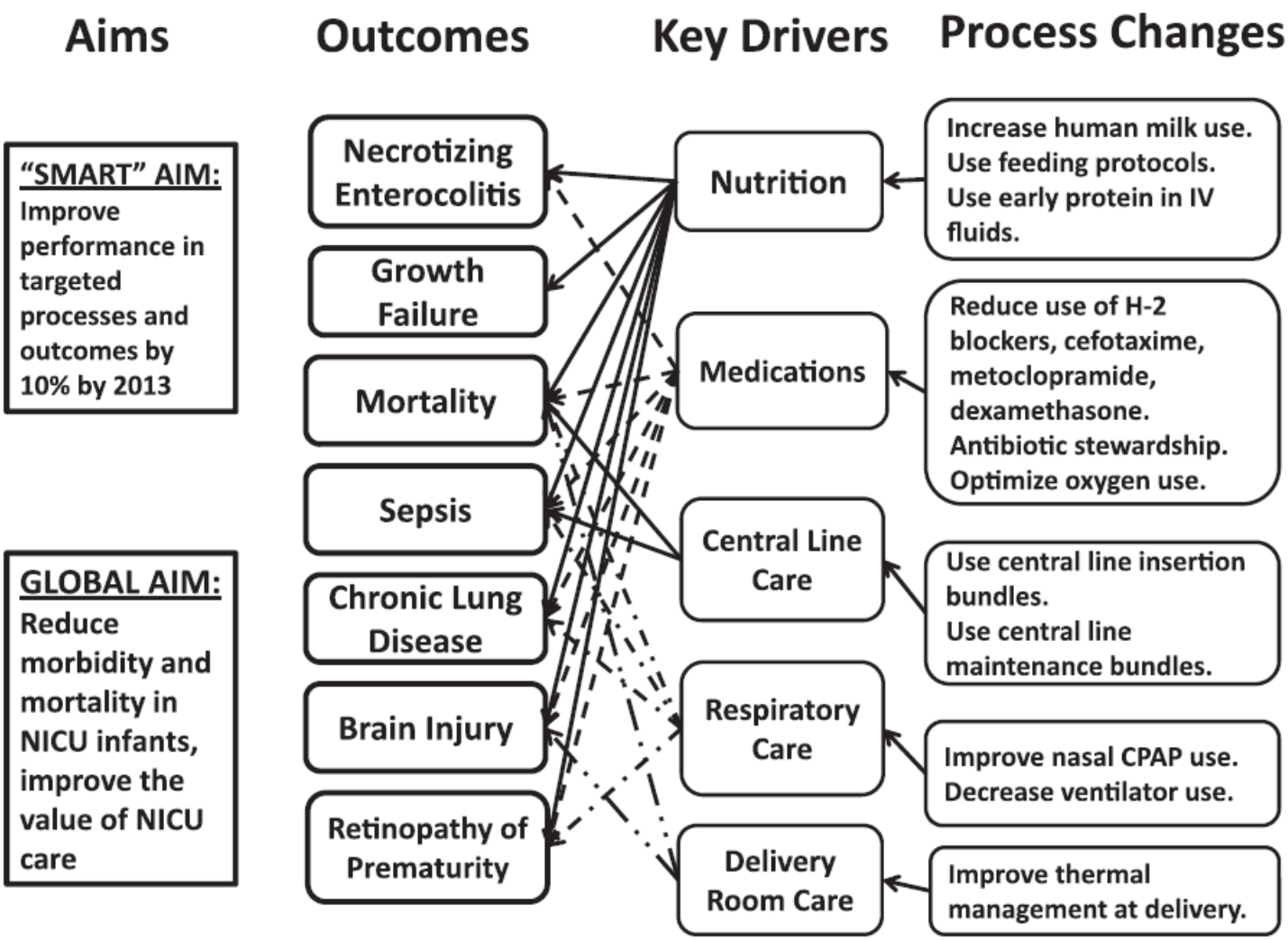
- "..simultaneous multidimensional improvements in process and outcome."
- "..structured approach to system evaluation and reengineering of neonatal intensive care in multiple key process areas would yield sustained improvement in neonatal morbidity and mortality."

Setting

- Pediatrix Medical Group
- 330 NICU's
- CDW- database
  - VON equivalent
- Volunteered participation among units
- 2007-2013
  - 58,555 VLBW infants

Model Development

- 2007-2009
  - Key drivers defined
  - Clinical processes identified
    - Modifiable
    - Substantial impact
- Kotter's 8 Step Model for Organizational Change
- Standardized QI Methodology
  - Multiple small teams


Aims
Outcomes
Key Drivers
Process Changes
"SMART" AIM:
Improve performance in targeted processes and outcomes by 10% by 2013
GLOBAL AIM:
Reduce morbidity and mortality in NICU infants, improve the value of NICU care
Necrotizing Enterocolitis
Growth Failure
Mortality
Sepsis
Chronic Lung Disease
Brain Injury
Retinopathy of Prematurity
Nutrition
Medications
Central Line Care
Respiratory Care
Delivery Room Care
Increase human milk use.
Use feeding protocols.
Use early protein in IV fluids.
Reduce use of H-2 blockers, cefotaxime, metoclopramide, dexamethasone.
Antibiotic stewardship.
Optimize oxygen use.
Use central line insertion bundles.
Use central line maintenance bundles.
Improve nasal CPAP use.
Decrease ventilator use.
Improve thermal management at delivery.

Unit Engagement

- Participation not mandated
- Local unit flexibility
  - Adaptation is individualized to each center
- Improve QI Culture
  - 3 quality summits per year
  - Education on QI methodology
  - QI project presentations

Survey of Existing Performance

- Individual Center Outcome Review
  - NICU self-assessment
- Staff Survey
  - Identify gaps in knowledge
  - Local education needs identified
- Project Prioritization Matrix
- Project Implementation Tool

Process Measures

- Early ampicillin
- Ampicillin > 3days with negative blood cultures
- Any human milk
- Human milk at discharge
- Ventilator days
- Admission hypothermia
- Medication use
  - Anti-reflux meds, Cefotaxime, Dexamethasone

Outcome Measures

- Mortality
- Severe IVH
- Severe ROP
- NEC
  - Clinical + radiographic criteria
- CLD
  - FiO2 > 21% at 36 weeks CGA
- Weight gain over hospital stay

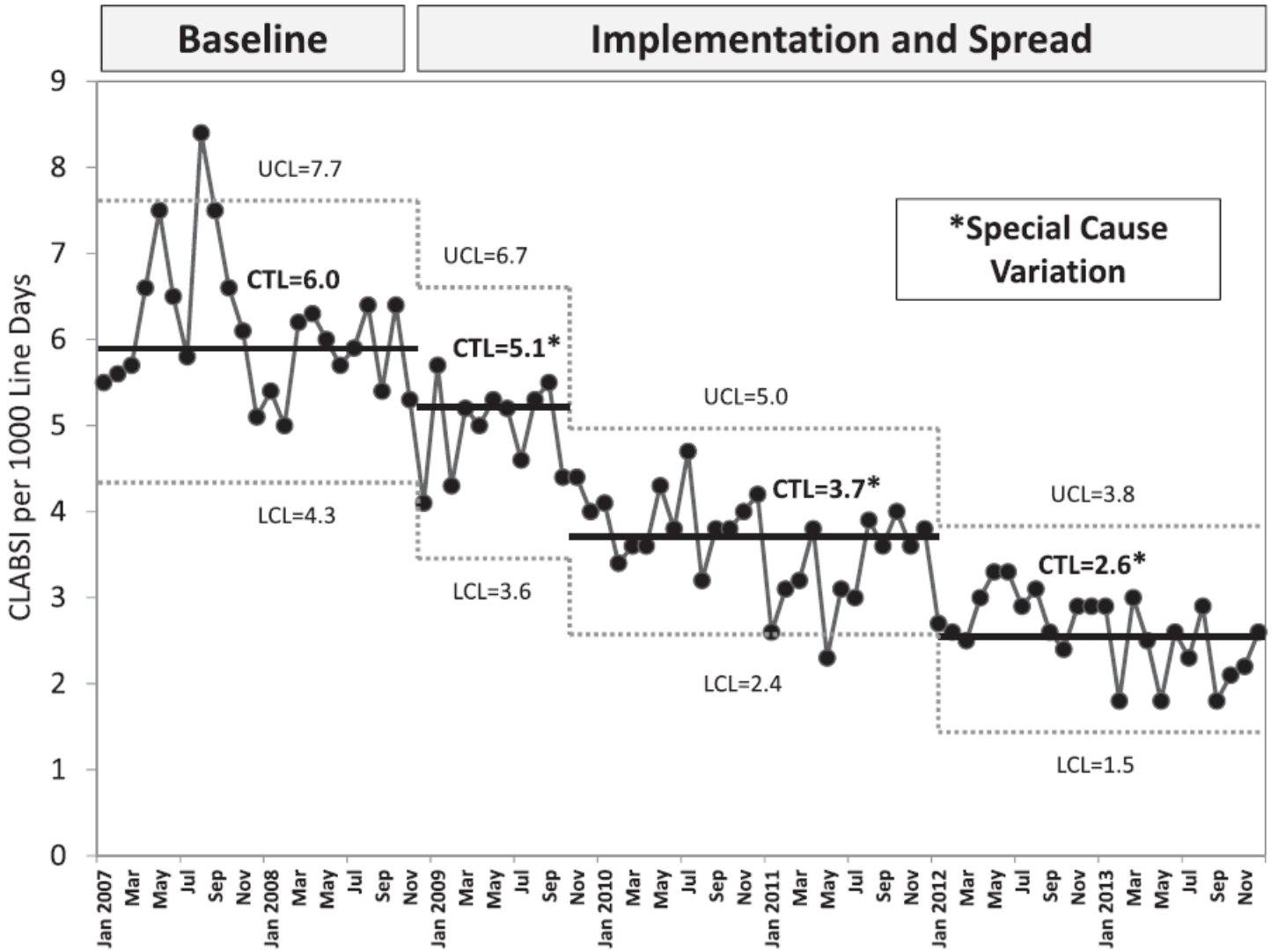


FIGURE 3

Statistical process control chart, CLABSI per 1000 line days, monthly data from 2007 through 2013. Sustained decrease in CLABSI rate with special cause variation shown over 3 time periods after implementation of the initiative. Control limits were adjusted with each special cause event. CTL, center line (mean); LCL, lower control limit; UCL, upper control limit.

Tracking Process Measures

TABLE 1 Results for Process Measures for Infants With Birth Weight of 501–1500 g

	2007	2008	2009	2010	2011	2012	2013	*P*
Any human milk, *n* (%)[a]	6217 (77.3)	6648 (78.5)	6910 (82.3)	7184 (85.2)	7239 (85.9)	7326 (86.9)	7351 (87.9)	<.0001
Any human milk at discharge in survivors, *n* (%)[a]	3057 (42.5)	3199 (42)	3477 (45.4)	3712 (48.4)	3779 (49)	3889 (50.3)	4043 (52.7)	<.0001
Dexamethasone, *n* (%)[a]	645 (8)	644 (7.6)	612 (7.3)	571 (6.8)	576 (6.8)	568 (6.7)	562 (6.7)	.0035
H2 blockers, *n* (%)[a]	1386 (17.2)	1286 (15.2)	1199 (14.3)	932 (11.1)	885 (10.5)	694 (8.2)	589 (7)	<.0001
Metoclopramide, *n* (%)[a]	1660 (20.6)	1415 (16.7)	1097 (13.1)	411 (4.9)	181 (2.1)	142 (1.7)	90 (1.1)	<.0001
Cefotaxime, *n* (%)[a]	1152 (14.3)	940 (11.1)	769 (9.2)	692 (8.2)	679 (8.1)	677 (8)	599 (7.2)	<.0001
Patients receiving early (on day 0, 1, 2) ampicillin, *n* (%)[a]	6432 (80)	6745 (79.7)	6603 (78.7)	6702 (79.5)	6404 (76)	6361 (75.4)	6197 (74.1)	<.0001
Early ampicillin duration of >3 d with negative cultures, *n* (%)[a]	2138/6076 (35.2)	2226/6398 (34.8)	2110/6272 (33.6)	2096/6391 (32.8)	1968/6111 (32.2)	1832/6065 (30.2)	1671/5893 (28.4)	<.0001
Patients ventilated in first 3 d after birth, *n* (%)[a]	4831 (60.1)	4875 (57.6)	4677 (55.7)	4625 (54.9)	4400 (52.2)	4280 (50.7)	3899 (46.6)	<.0001
Ventilator days in ventilated patients, median (10–90th)[b]	6 (1–46)	6 (1–45)	6 (1–43)	5 (1–42)	5 (1–41)	5 (1–40)	5 (1–42)	<.0001
Hypothermia (admit temperature <36°C), *n* (%)[a]	1869 (23.2)	1762 (20.8)	1619 (19.3)	1446 (17.2)	1180 (14)	1070 (12.7)	968 (11.6)	<.0001

H2 blocker (famotidine, cimetidine, ranitidine).

[a] Discrete categorical variables were evaluated by using a Cochran-Armitage trend test to determine if there were significant changes over time.

[b] Continuous variables were evaluated by using a 1-way ANOVA and linear regression to determine if there were significant changes over time.

Tracking Outcome Measures

TABLE 2 Results for Outcome Measures for Infants With Birth Weight of 501–1500 g

	2007	2008	2009	2010	2011	2012	2013	*P*
Died, *n* (%)[a]	836 (10.4)	838 (9.9)	728 (8.7)	750 (8.9)	714 (8.5)	702 (8.3)	681 (8.1)	<.0001
IVH grade 3 or 4 in patients with neuroimaging, *n* (%)[a]	471 (7.2)	466 (6.5)	493 (6.9)	474 (6.6)	471 (6.6)	452 (6.3)	422 (5.8)	.1
NEC medical or surgical/All, *n* (%)[a]	529 (6.6)	542 (6.4)	454 (5.4)	463 (5.5)	410 (4.9)	338 (4)	323 (3.9)	<.0001
Medical NEC/All, *n* (%)[a]	351 (4.4)	363 (4.3)	301 (3.6)	329 (3.9)	296 (3.5)	236 (2.8)	220 (2.6)	<.0001
Surgical NEC/All, *n* (%)[a]	178 (2.2)	179 (2.1)	153 (1.8)	134 (1.6)	114 (1.4)	102 (1.2)	103 (1.2)	<.0001
ROP 3, 4, or 5 in patients with an eye examination reported, *n* (%)[a]	346 (5.9)	373 (5.8)	373 (5.7)	353 (5.3)	304 (4.6)	295 (4.4)	272 (4.1)	<.0001
ROP treated (laser or Avastin)/All, *n* (%)[a]	236 (2.9)	237 (2.8)	224 (2.7)	193 (2.3)	162 (1.9)	175 (2.1)	153 (1.8)	<.0001
CLD (alive on > room air at 36 wk PMA)/All, *n* (%)[a]	1816 (22.6)	1803 (21.3)	1756 (20.9)	1742 (20.7)	1744 (20.7)	1760 (20.9)	1680 (20.1)	.01
Late-onset sepsis (positive blood culture obtained >3 d after birth)/All, *n* (%)[a]	1579 (19.6)	1499 (17.7)	1360 (16.2)	1150 (13.6)	983 (11.7)	888 (10.5)	754 (9)	<.0001
Survived with no morbidity/All, *n* (%)[a]	5092 (63.3)	5491 (64.9)	5545 (66.1)	5563 (66)	5651 (67.1)	5674 (67.3)	5733 (68.5)	<.0001
Age at discharge in survivors, median (10–90th)[b]	52 (26–98)	52 (26–100)	54 (27–102)	55 (27–103)	55 (28–103)	56 (28–105)	55 (28–104)	<.0001
Discharge weight, kg in survivors, median (10–90th)[b]	2.23 (1.82–3.08)	2.25 (1.83–3.16)	2.30 (1.85–3.25)	2.34 (1.86–3.31)	2.37 (1.88–3.32)	2.38 (1.89–3.41)	2.39 (1.89–3.4)	<.0001
Weight gain (g/d) in survivors, median (10–90th)[b]	21 (16–27)	22 (16–27)	22 (16–28)	22 (17–28)	23 (17–28)	23 (17–28)	23 (18–28)	<.0001

[a] Discrete categorical variables were evaluated by using a Cochran-Armitage trend test to determine if there were significant changes over time.

[b] Continuous variables were evaluated by using a 1-way ANOVA and linear regression to determine if there were significant changes over time.

	PDX 2007	2013	VON 2007	2013
Antenatal Steroids	78.8%	85%	73.7%	79.4%
Any human milk at d/c	42.5%	52.7%	44.6%	55.4%
Adm hypothermia	23.2%	11.6%	31.3%	18.7%
Mortality	10.4%	8.1%	16.5%	14.6%
NEC	6.6%	3.9%	7.4%	5.1%
CLD	22.6%	20.1%	26.7%	24.5%
Late Onset Sepsis	19.6%	9%	20.7%	12.3%
Severe ROP	5.9%	4.1%	8.1%	6.2%

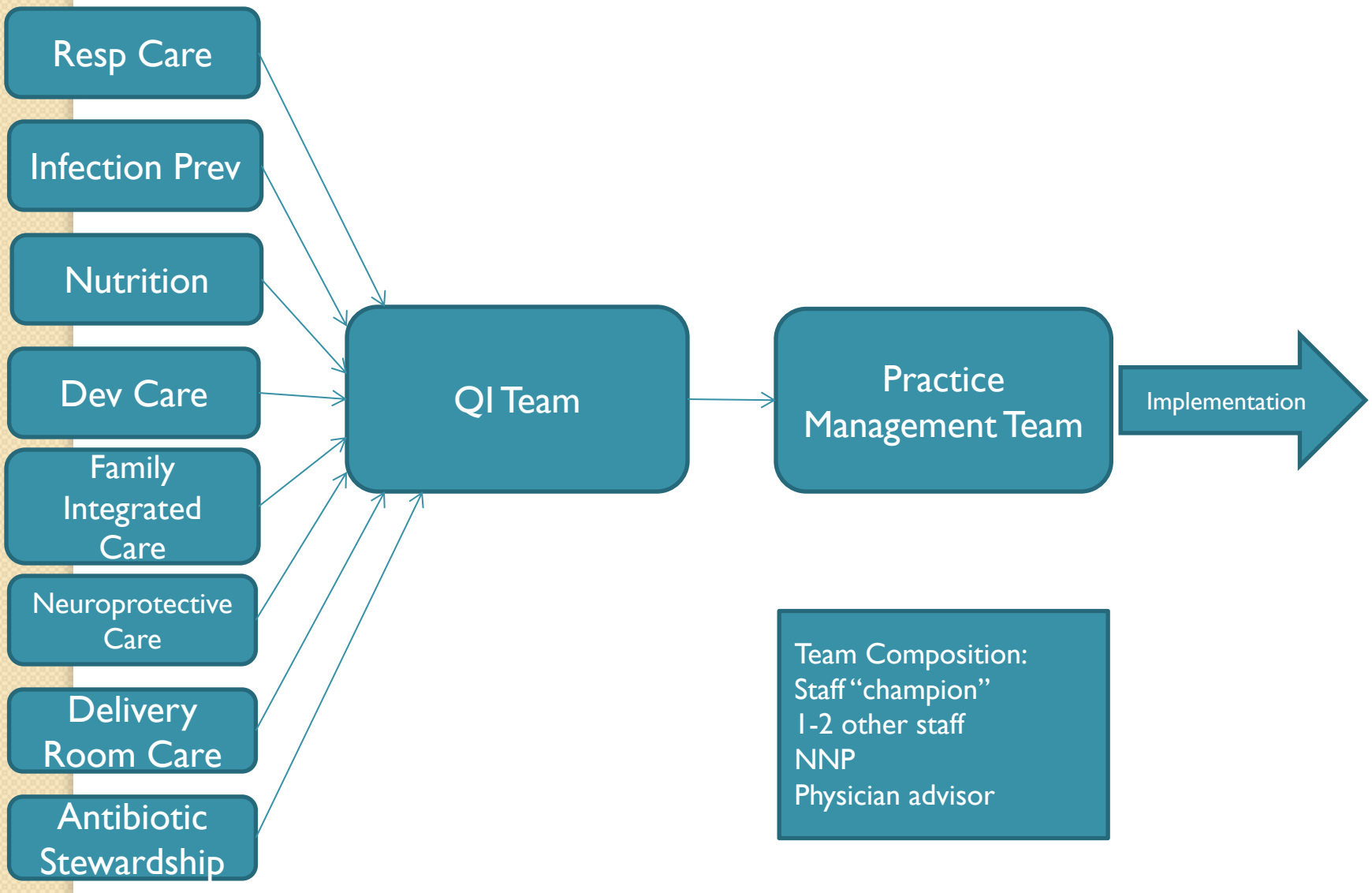
PHOEBE PUTNEY MEMORIAL HOSPITAL

Implementing the QI Model to NICU Management

PPMH NICU

- GA Regional Perinatal Center
- 200 VLBW Admissions Last Year
- 4 Neonatologists
- 5 NNP's
  - In-house 24/7
- Regional Neonatal Transport System
- MFM
- Pediatric Cardiology, Radiology

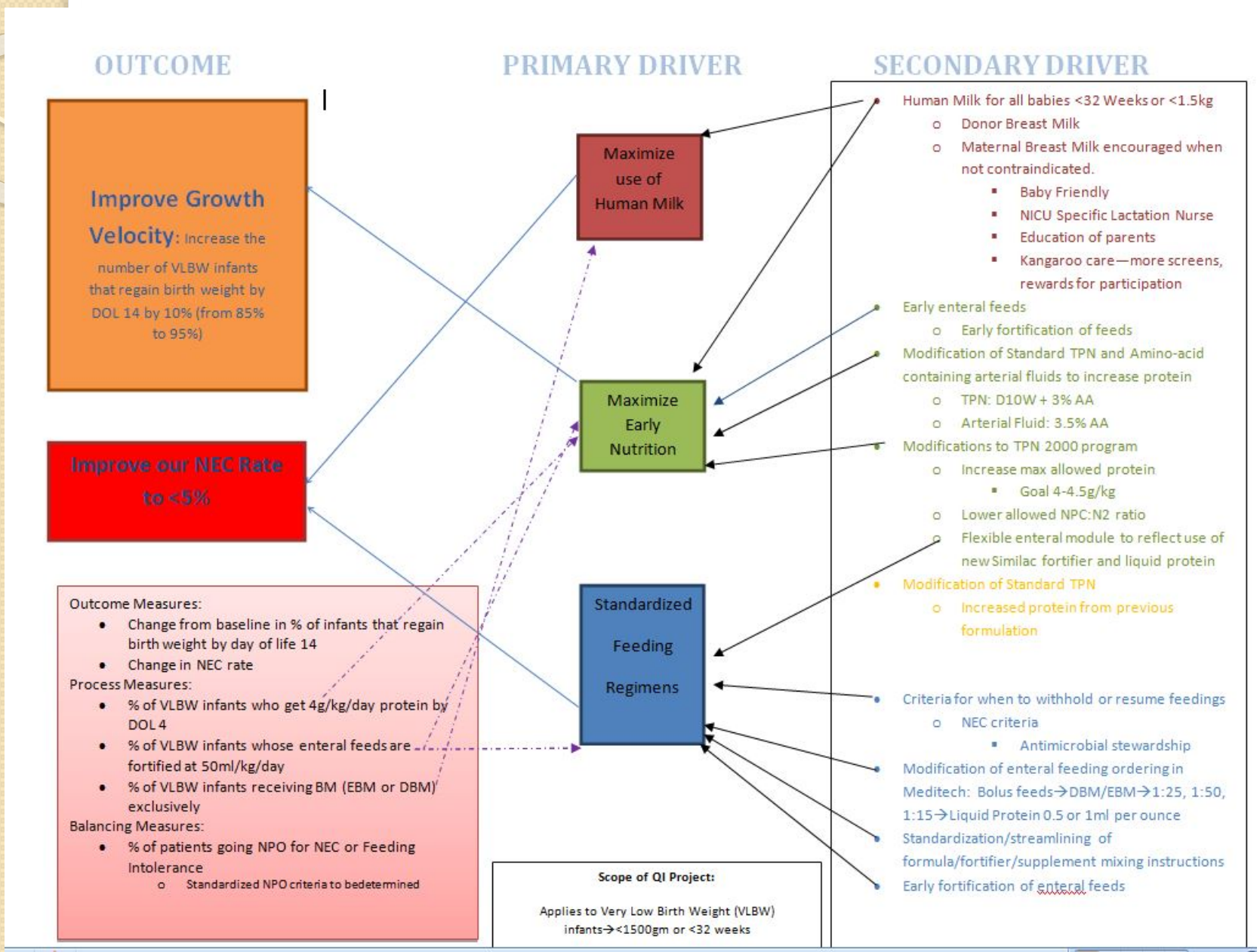
Team Based Leadership Model



Sept 1, 2017
Physician Advisor: Erwinson Bassig, MD
Committee Members: Fatima Ahmad, MS RD LD; Katie Brown, PharmD; Margaret Funk, RN BSN; Jennifer Hill, RN BSN; Cathy Saylor, NNP-BC

NICU QI INITIATIVE: EARLY NUTRITION COMMITTEE STATUS UPDATE

Driver Diagram



Goals:

- Improve Growth Velocity
  - Increase the number of very low birth weight (VLBW) infants that regain birth weight by Day of Life (DOL) 14 from 85% to 95%
- Improve necrotizing enterocolitis (NEC) Rate to <5%

Target Population:

- Infants <1500 grams and/or <32 weeks gestation at birth
  - Exclude patients who expire or are transferred to another facility before DOL 14
  - Exclude patients with conditions that do not allow accurate assessment of dry weight (hydrops)

Interventions:

- Maximize use of Human Milk
  - Maternal Breast Milk or Donor Breast Milk for all patients in target population
  - NICU Specific Lactation Nurse
  - Encourage Kangaroo Care
  - Parent Education
- Maximize Early Nutrition
  - Early enteral feedings
  - New fortification product and standardized fortification of enteral feeds
    - Change to Similac Human Milk Fortifier Extensively Hydrolyzed Protein Concentrated Liquid
  - Modification to TPN2000 Software to allow more aggressive protein administration
  - Modification to Standard TPN and protein-containing arterial fluid to provide more aggressive nutrition (in progress)
  - Begin using Abbott Liquid Protein Fortifier
- Implement Standardized Feeding Regimen
  - See diagram outlining standardized feeding regimen

Measurements:

- Outcome Measures:
  - Change from baseline in % of patients that regain birth weight by DOL 14
  - Change in NEC rate
    - Note: Must distinguish NEC from feeding intolerance and spontaneous intestinal perforation. Because of prior discrepancies in how this was defined in patient documentation, it is not possible to determine an accurate baseline NEC rate.
- Process Measures:
  - % of patients who receive 4gm/kg/day protein by DOL 3
  - Average ml/kg/day at which feedings are fortified
  - % of patients who receive human milk exclusively
- Balancing Measures:
  - Frequency of patients going NPO for feeding intolerance
    - Requires implementation of standardized NPO criteria.
      - See Standardized Feeding Regimen
      - Note: Standardized Feeding Regimen has been modified to reflect concerns over feeding intolerance. Goal ml/kg/day of enteral feeding fortification has changed from 60-75ml/kg to 100ml/kg.

PDSA Cycle Timeline

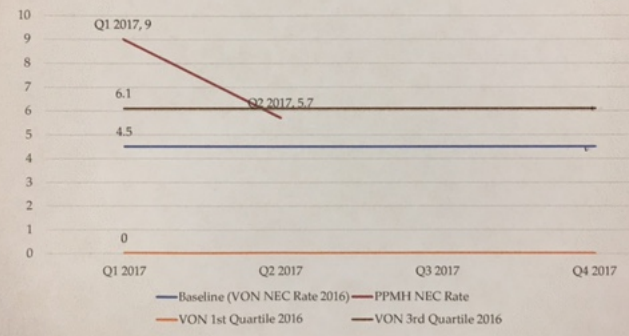
- **March 2016:** Implementation of donor breast milk
- **October 2016:** Begin using Similac Human Milk Fortifier
- **March 2017**: Implementation of liquid protein; initial modification of TPN 2000 program to allow more aggressive protein administration.
- **April-June 2017**: implementation of standardized feeding regimen (SFR) and revision of feeding plans to eliminate >1 feeding volume change within 24 hours; specify patient conditions which justify expanded use of donor breast milk; re-evaluation of breast milk fortification practices (change from targeting 50ml/kg enteral to 60-75ml/kg to start fortification); standardized NPO criteria.
- **June 2017:** Approval of revised nutrition support policy to allow administration of calcium gluconate in peripheral TPN.
- **July 2017:** Re-evaluation of SFR and breast milk fortification practices; adopted a more conservative approach of fortifying at 100ml/kg/day. Also revised to consider starting minimal enteral nutrition (MEN) at 48hrs of life in patients at high risk of spontaneous intestinal perforation (SIP).

Future Interventions:

- Changes to Stock/Standard TPNs and Amino Acid containing UAC fluid
  - Stock TPN: D12.5W + 4% Amino Acid
  - Amino Acid UAC fluid: 3.5% Amino Acid with 1:1 Heparin
- Further Changes to TPN 2000 to more accurately reflect and communicate what is received in enteral feedings on the TPN order sheet.

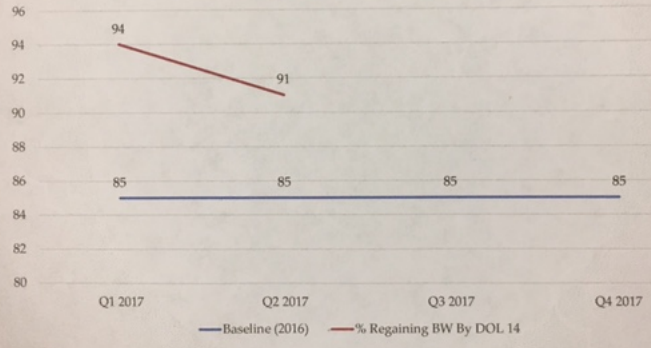
- **See supplemental poster for education on these changes.**

Outcome Measure: NEC Rate



Outcome Measure:

% of patients who regain BW by DOL 14



Change Management: Kotter's 8 Step Change Model

Bundles Completed or In-Progress

- Oxygen targeting
- VAP Protocol
- Maximizing non-invasive ventilation
- Early nutrition/NEC prevention
- Antibiotic Stewardship
  - Current VON project
- Hand Hygiene
- Central Line Care
- Baby Friendly (hospital wide, not just NICU)

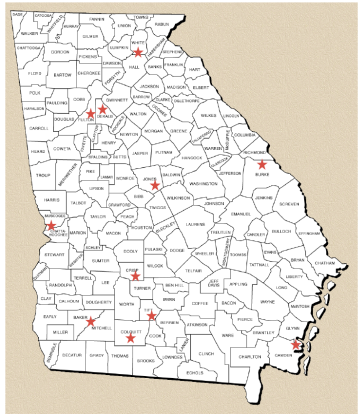
New Initiatives

- Family Integrated Care
- Developmentally Sensitive Care
- IVH Prevention

Value Analysis Team

- Reducing Cost
  - Reducing unnecesary x-rays and labs
  - Changing from vent NCPAP and Vapotherm to Bubble NCPAP
    - Estimated $90,000/yr savings
- Evidence based antibiotic usage
  - Antibiotic stewardship
  - Tracking AUR
  - Using local data for selection of empiric abx
    - antibiograms
    - cost

Georgia Perinatal Quality Collaborative



GaPQC Member Sites

- Colquitt Regional Medical Center
- Columbus Regional Health System
- Crisp Regional Medical Center
- DeKalb Medical Center
- Georgia Regents University Health System
- Grady Health System/Emory University
- Navicent Health Medical Center
- Northeast Georgia Health System
- Phoebe Putney Memorial Hospital
- Tift Regional
- Southeast Georgia Health System

- VON iNICQ and GA DPH
- Current project:
  - Antibiotic Stewardship
- Coordinated through RPC, or
- Dr. David Levine
  - Columbus RPC NICU Medical Director

Georgia Perinatal Quality Collaborative (GaPQC)

Physician Burnout

- Also applies to other healthcare workers
- Negatively affects quality
- Side effect of the Triple Aim (and EHR, etc)
  - *Burnout!*
- Enter Healthcare's New QUADRUPLE AIM
  - Original Triple Aim,
  - AND ... Improving the work life of health care clinicians and staff
- Cannot address quality without physician engagement


LOST
CONFUSED
UNSURE
UNCLEAR
PERPLEXED