

ΠΡΟΓΡΑΜΜΑΤΑ ΒΕΛΤΙΩΣΗΣ ΠΟΙΟΤΗΤΑΣ στις ΜΟΝΑΔΕΣ ΕΝΤΑΤΙΚΗΣ ΝΟΣΗΛΕΙΑΣ ΝΕΟΓΝΩΝ

Χατζηιωαννίδης Η, MD, PhD, MBA
Επ. Καθηγητής Νεογνολογίας
Α' Νεογνολογική Κλινική & ΜΕΝΝ Α.Π.Θ.
Μάιος 2023

ΘΕΜΑΤΟΛΟΓΙΑ

- Ορισμός ποιότητας (Quality) /Ανταλλαγή Βέλτιστων πρακτικών (Benchmarking)
- Βασικοί stakeholders (εμπλεκόμενοι φορείς/οργανισμοί)
- Βραβείο Αριστείας EQAM-Βασικοί Παράμετροι ποιότητας
- Βελτίωση Ποιότητας (Quality improvement)
- Προγράμματα Ποιότητας

Ορισμός Ποιότητας στην Υγεία

«Η μεγιστοποίηση της ικανοποίησης του ασθενή λαμβάνοντας υπόψη τα κέρδη και τις ζημίες που υπάρχουν σε μία διαδικασία περίθαλψης»

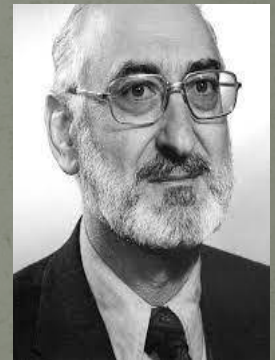
(Avedis Donabedian)

ΠΑΡΟΧΗ ΥΠΗΡΕΣΙΩΝ ΥΓΕΙΑΣ ΣΤΟΝ ΑΣΘΕΝΗ ΠΡΟΣ
ΕΠΙΤΕΥΞΗ ΒΕΛΤΙΣΤΗΣ ΕΚΒΑΣΗΣ
ΒΑΣΕΙ ΤΗΣ ΣΥΓΧΡΟΝΗΣ ΕΠΙΣΤΗΜΟΝΙΚΗΣ ΓΝΩΣΗΣ

Institute of Medicine 2015

1919 –2000

'The Donabedian Model of Care'



Βασικοί stakeholders σε ένα τυπικό οργανισμό Υγείας

GOPAL K. KANJI¹ & PATRÍCIA MOURA E SÁ²

TOTAL QUALITY MANAGEMENT, VOL. 14, NO. 3, 2003, 269–289 HEALTHCARE EXCELLENCE 271

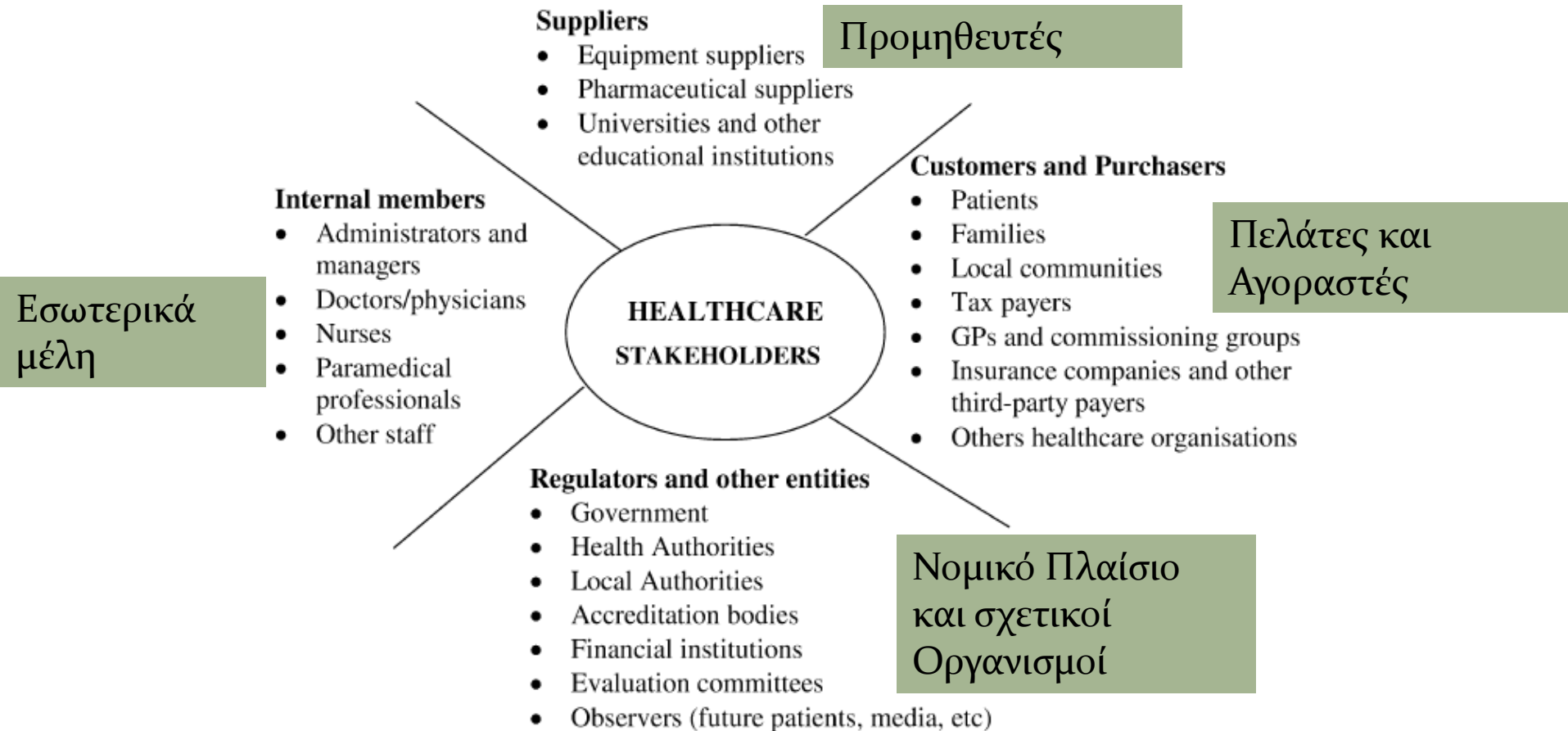
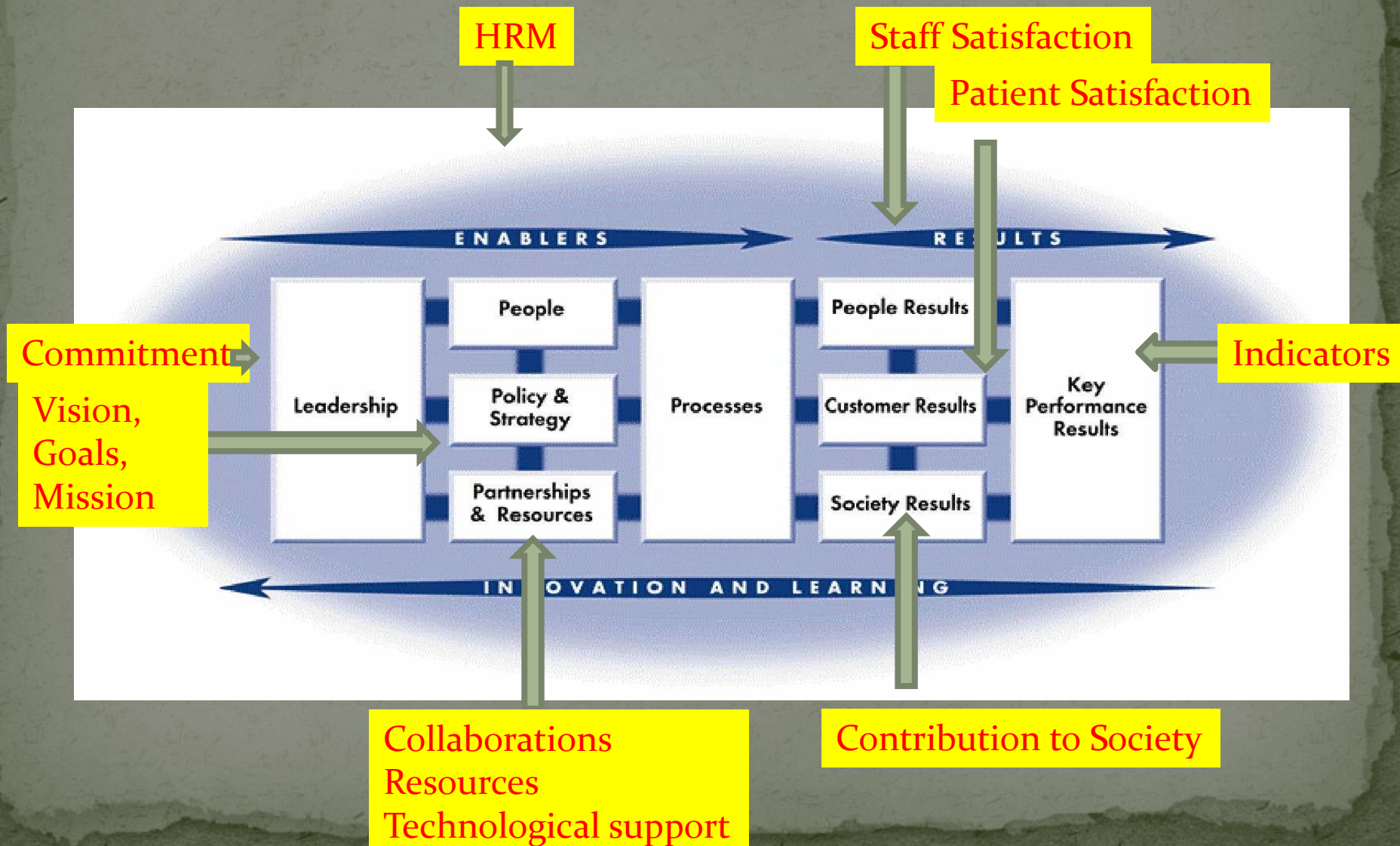


Figure 1. Key stakeholders of a typical healthcare organization.

Το Μοντέλο Αριστείας του EQAM

European Quality Award Model



Συνήθη «Προβλήματα Ποιότητας» σε Υπηρεσίες Υγείας

- Λανθασμένες διαγνώσεις (Avoidable errors)
- Καθυστερήσεις στην εκτέλεση του έργου
- Προβληματική θεραπεία (*Hospital Injuries, Laboratory Tests, Medication Errors, Ear Infections*)
- Αδυναμία τυποποίησης διαδικασιών –κλινική μεταβλητότητα (Variation of services)
(*Hospital Services, Cesarean Section Rates, Diabetes Care*)
- Έλλειψη μέτρησης δεικτών ποιότητας
- Συγκεντρωτισμός και δια-τμηματικά προβλήματα
- Φτωχή αξιοποίηση ανθρώπινου δυναμικού και υποδομών
(**Underuse of services**) (*Diabetes Care, Mammograms, Cervical Cancer Screening , Heart Attacks*) (**Overuse of services**) (*Antibiotics ,Hysterectomies, Tympanostomy Tubes*)

(World Health Organization)

1% ΑΝΑΦΕΡΟΜΕΝΑ ΛΑΘΗ (ΗΠΑ2023)

- 3 αεροπορικά ατυχήματα/ημέρα
- 160000 απωλεσθέντα e-mail /ημέρα
- 370000 λάθη ΑΤΜ/ώρα

ΙΑΤΡΙΚΑ ΛΑΘΗ- ΕΠΙΛΟΚΕΣ

- Μαιευτική (10.4-22.6% λοιμώξεις, αιμορραγίες, τραύμα)
- Γενική χειρουργική (30.3%)
- Αγγειοχειρουργική (42.4%)

6 ELEMENTS OF HIGH QUALITY CARE

Dimension	Definition
Safe	Patient not harmed by healthcare system
Effective	Correct treatment for the condition
Patient centred	Patient voice respected when treatment decisions made
Efficient	Coordination of complex care without redundancy
Timely	Patients triaged appropriately, wait times communicated to patients
Equitable	Fair treatment independent of location, age, gender, SES, ethnicity, etc

Does it work in clinical practice? *

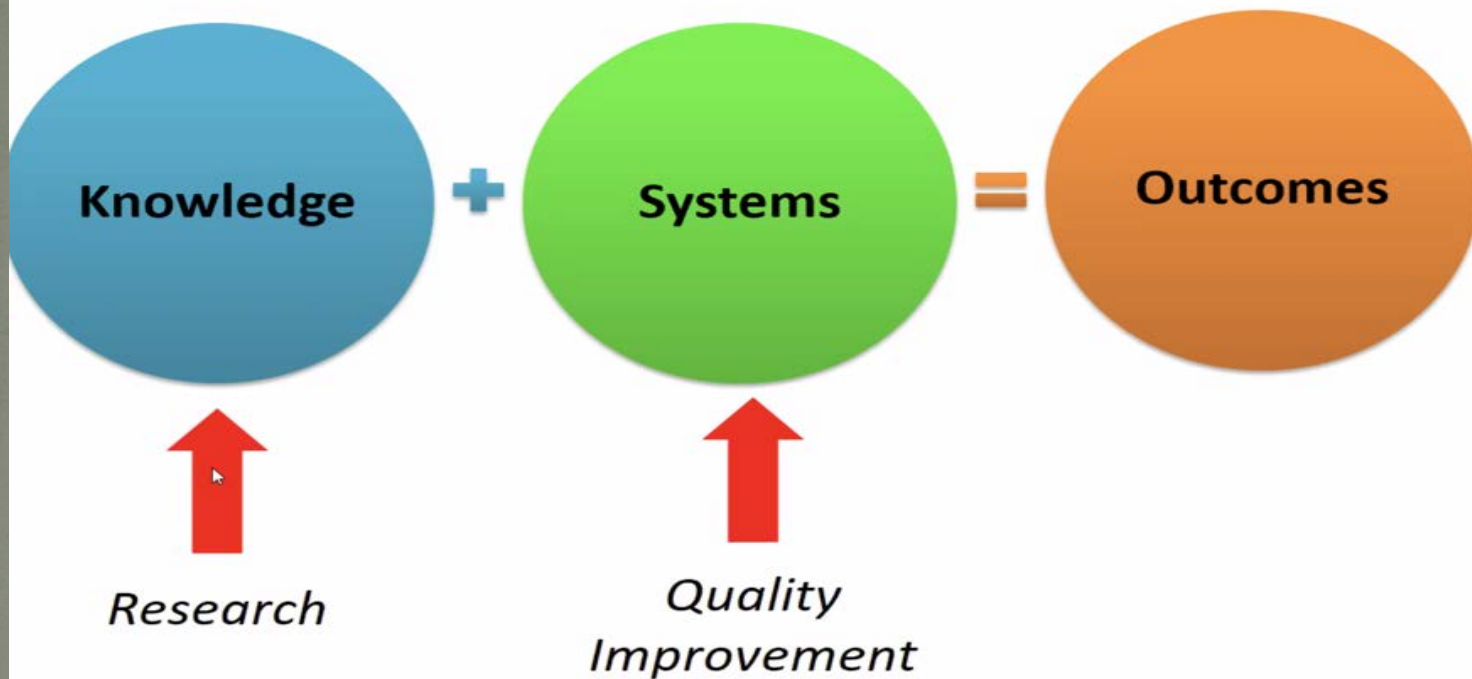
Does it contribute to efficient use of resources? **

Quality Matters: Realizing Excellent Care for All | Health Quality Ontario, Queens Printer for Ontario, 2015

* αποτελεσματικότητα=Σχέση κόστους /οφέλους. ** αποδοτικότητα=με τον πιο οικονομικό τρόπο

Quality improvement in the NICU

The Science of Improvement



ORGANIZATIONAL BARRIERS : can be technical, structural, psychosocial, managerial, and related to goals and values

WHAT IS QUALITY IMPROVEMENT?

- Using a systematic approach to make changes in the way we deliver healthcare
- Goal is to improve patient health outcomes, increase efficiency of care delivery by the healthcare system and often to reduce the associated costs of care
- QI requires engagement and participation from all stakeholders including patients and families, healthcare providers and researchers
- QI efforts should always focus on the patient, involve and empower the care providers, and use evidence to inform decision making

What QI is NOT

- Educating staff
- Writing a guideline
- Introducing a new technology
- Testing a new treatment

Batalden et al., 2007



CRITICAL ELEMENTS OF QI

- 1. Problem Statement
- 2. Aim
- 3. Family of Measures
- 4. Diagnostic Toolbox
- 5. Ideas for Change
- 6. Rapid cycle testing: PDSA
- 7. Measuring changes
- 8. Spread + sustainability

MAKE YOUR AIM STATEMENT “SMART”

S.M.A.R.T. Goals Defined



FAMILY OF MEASURES

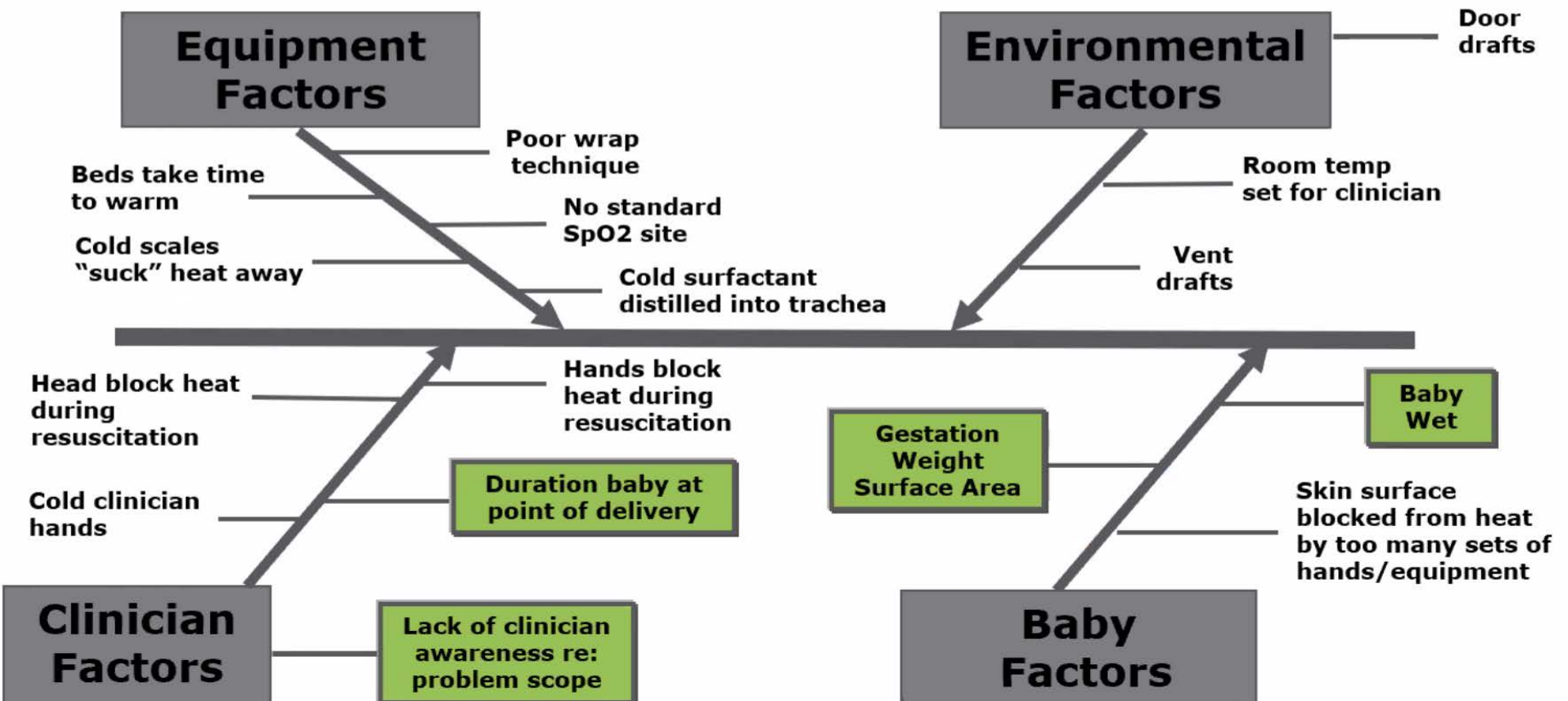
- Outcome measures
 - The end goal/target of your QI work
 - Example: incidence of IVH for inborn preterm infants under 26 weeks gestation
- Process measures
 - Capture the difference made by your QI intervention
 - Example: percent staff adherence to a new IVH prevention bundle
- Balancing measures
 - Is your QI intervention having unintended side effects?
 - Example: proportion of infants receiving skin to skin during the first 72 hours with the new IVH bundle



ΕΡΓΑΛΕΙΑ ΒΕΛΤΙΩΣΗΣ ΠΟΙΟΤΗΤΑΣ

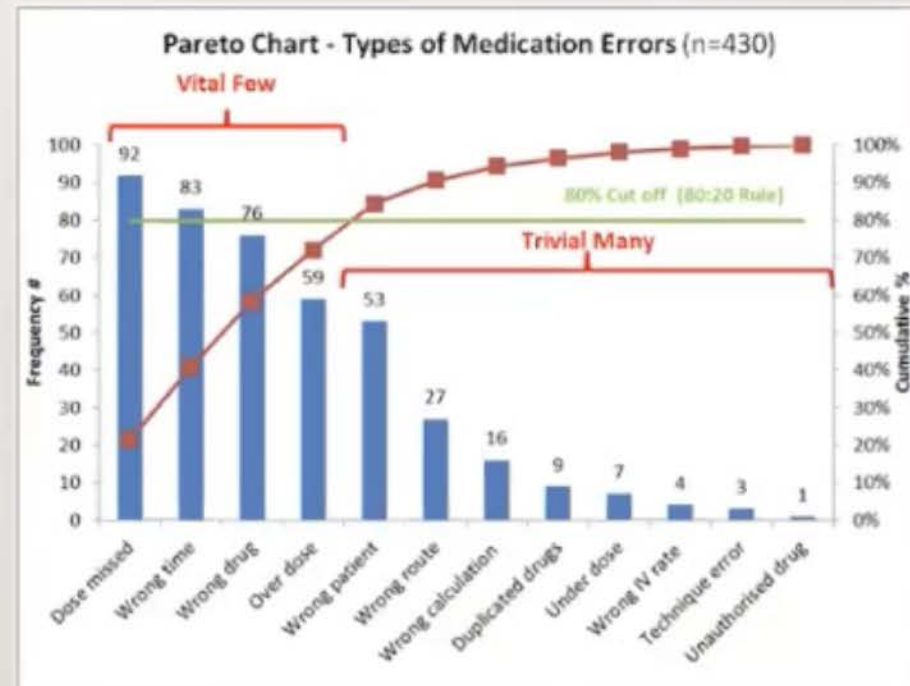
- Process mapping
- Fishbone diagrams
- Pareto analysis
- Driver diagrams
- 5 Whys

Fishbone Diagram



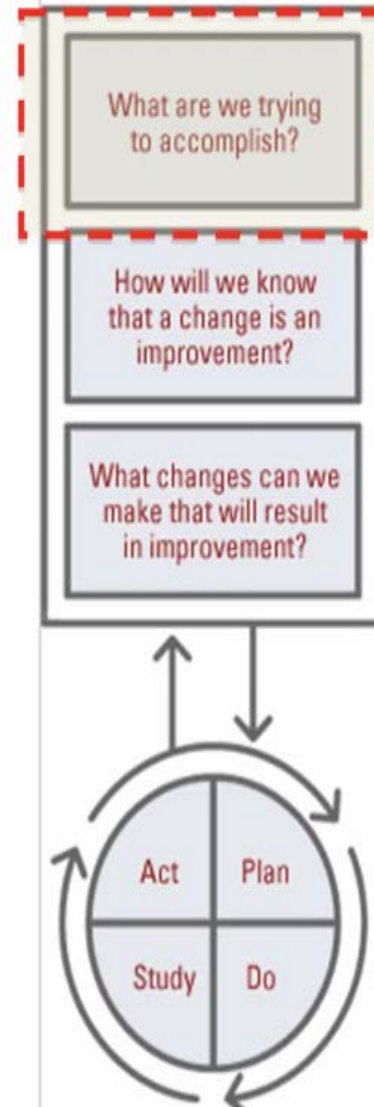
QI TOOLBOX: PARETO CHARTS

- A pareto chart is a graphical representation of the potential causes of the clinical problem
- Better for analyzing the types of a larger umbrella of problems
- Difficult to interpret when many different causes can happen in the same patient and cause an adverse clinical outcome



Establishing Measures

- Quantitative measures need to determine if a specific change lead to improvement
- Donabedian's 3 types of measures :
 - Structure measures
 - Process measures
 - Outcomes measures



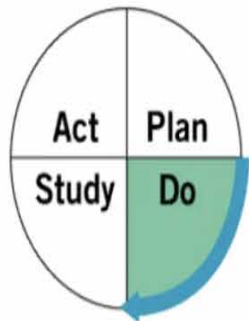
Interventions for change

- PDSA Cycles: Useful tool for documenting a test of change



Plan: Plan the test, including a plan for collecting data.

- State the question you want to answer and make a prediction about what you think will happen.
- Develop a plan to test the change. (Who? What? When? Where?)
- Identify what data you will need to collect.



Do: Run the test on a small scale.

- Carry out the test.
- Document problems and unexpected observations.
- Collect and begin to analyze the data.



Study: Analyze the results and compare them to your predictions.

- Complete, as a team, if possible, your analysis of the data.
- Compare the data to your prediction.
- Summarize and reflect on what you learned.



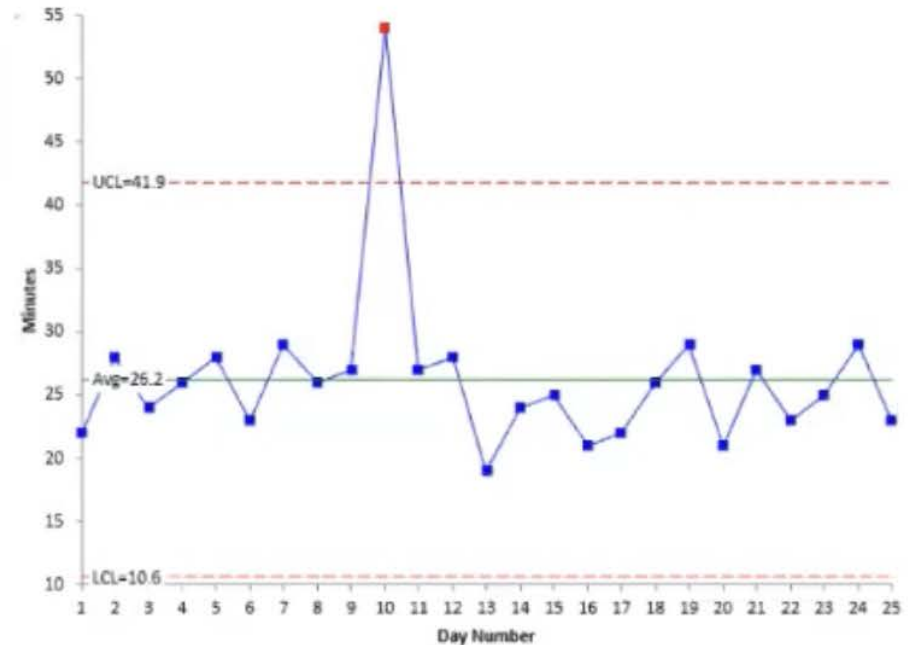
Act: Based on what you learned from the test, make a plan for your next step.

- Adapt (make modifications and run another test), adopt (test the change on a larger scale), or abandon (don't do another test on this change idea).
- Prepare a plan for the next PDSA.

<http://www.ihl.org/resources/Pages/Tools/Quality-Improvement-Essentials-Toolkit.aspx>

MEASURING IMPROVEMENT: CONTROL CHARTS

- Control charts are also used to plot changes over time
- Control charts have a central line (CL) to show the average of the data, an upper control limit and lower control limit to show historical data
- Run charts lack the benefit of statistical control limits



BEST PRACTICES for BPD

- Non invasive ventilation
- Updated Resp Guidelines
- Hyperoxia (<95%)
- PRBC transfusion
- Vit A
- Fluid restriction (till 3rd-5th DOL)

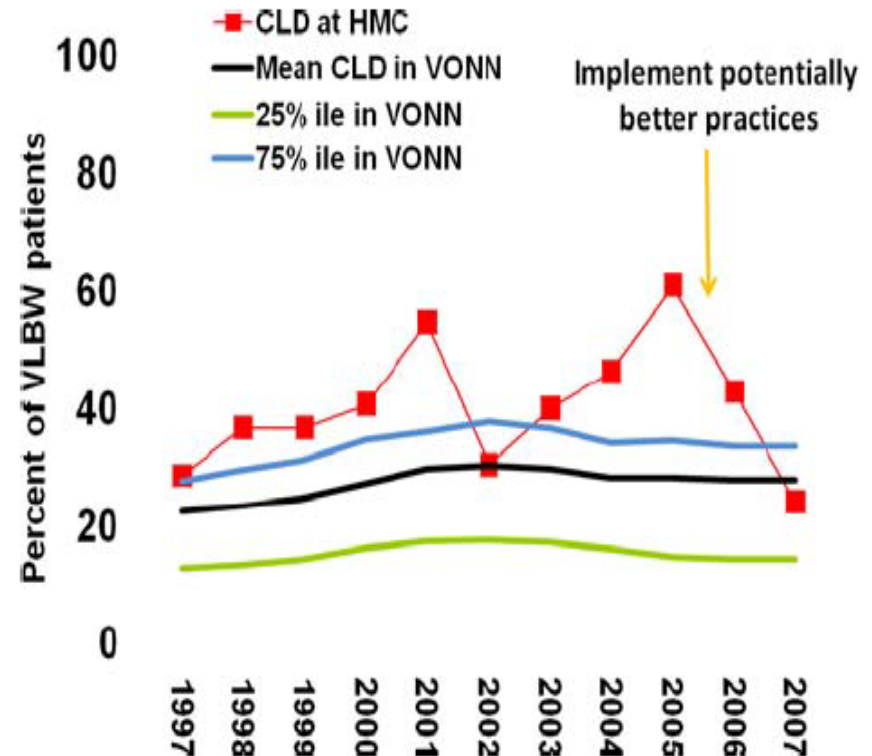


Figure. Since implementation of potentially better practices the percentage of VLBW infants with BPD has decreased from well above the 75th percentile of the Vermont-Oxford Network to below the mean for the Vermont-Oxford Network.

Vermont Oxford Network

Worldwide Improvement Community

MEASUREMENT



EVIDENCE



FAMILIES



EQUITY



COLLABORATION



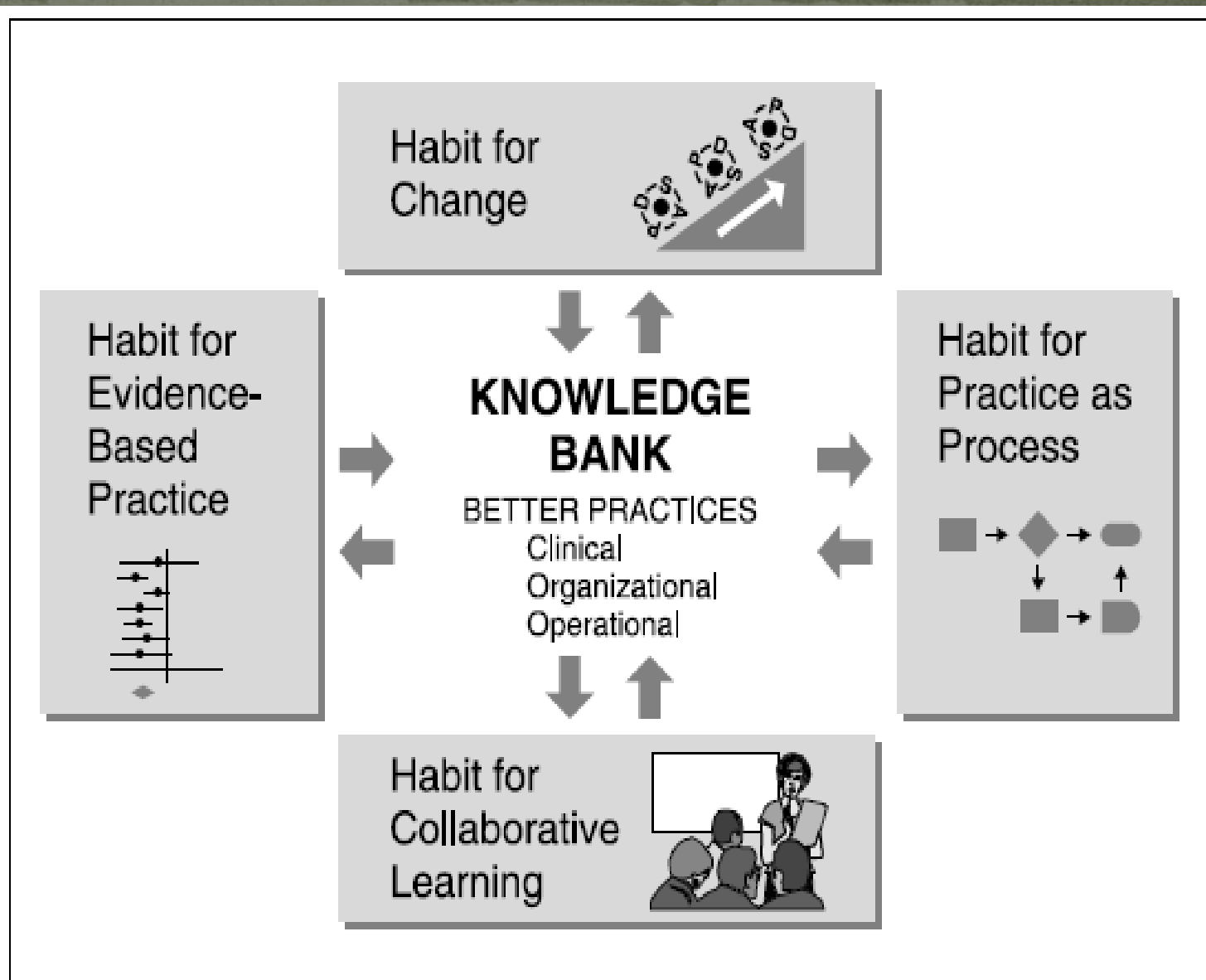


Figure 2. The 4 key habits supported by the Vermont Oxford Network. Reprinted with permission from the Vermont Oxford Network.

In search of excellence—the Neonatal Intensive Care Quality Improvement Collaborative

JONATHAN WHITFIELD, MBChB, FRCP(C), FAAP, DIANNE CHARSHA, MSN, NNP, AND PAM SPRAGUE, RN

BUMC PROCEEDINGS 2001;14:94-97

Baylor University
Medical Center, Dallas, Texas

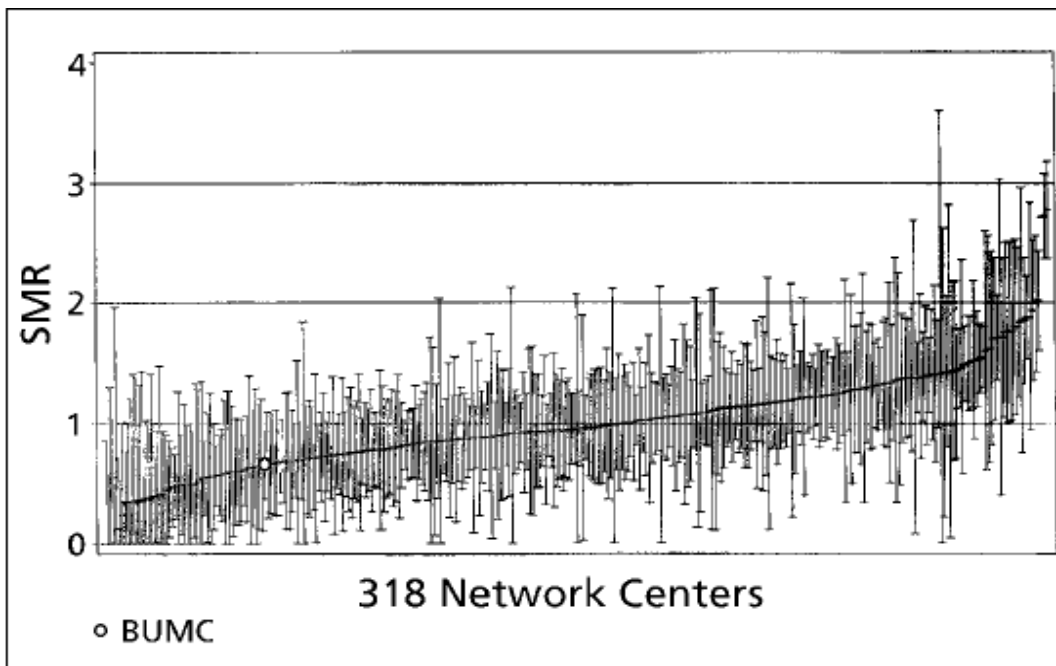


Figure 1. The standardized mortality ratio (SMR) at 318 neonatal intensive care units participating in the Vermont Oxford Network in 1999. Values range from <0.5 to almost 2. The SMR, represented by the line, is the ratio of the number of observed deaths to the number of predicted deaths for infants weighing 501 to 1500 g. The bars show 95% confidence intervals. The open circle represents Baylor University Medical Center. Reprinted with permission from the Vermont Oxford Network.

As part of its effort to improve the quality of care in the neonatal intensive care unit at Baylor University Medical Center (BUMC), the unit has participated in the Vermont Oxford Network. This network tracks outcomes and pools data, allowing comparisons and benchmarking. A group of 34 nurseries from the Vermont Oxford Network has collaborated in an innovative quality improvement initiative. This article describes this initiative, called the Neonatal Intensive Care Quality Collaborative 2000 project, and its impact on the neonatal service at BUMC. The project promotes the practice of 4 key habits: the habit for change, the habit for understanding the processes of care, the habit for collaborative learning, and the habit for using evidence-based practices of care.

BAPM:
**British Association of Perinatal
Medicine**



High Quality Neonatal Care in the UK How do we achieve it?

BAPM Neonatal Service Quality Indicators (NSQI)

Evidence-based care

Team working and collaboration

Parental partnership in care

Benchmarking

Patient Safety

Quality Improvement

Training

Research

Other Standards

BAPM Service Standards for Hospitals Providing Neonatal Care 2010

BAPM Categories of Care 2011

BAPM Optimal Arrangements for NICUs 2014

NICE guidelines

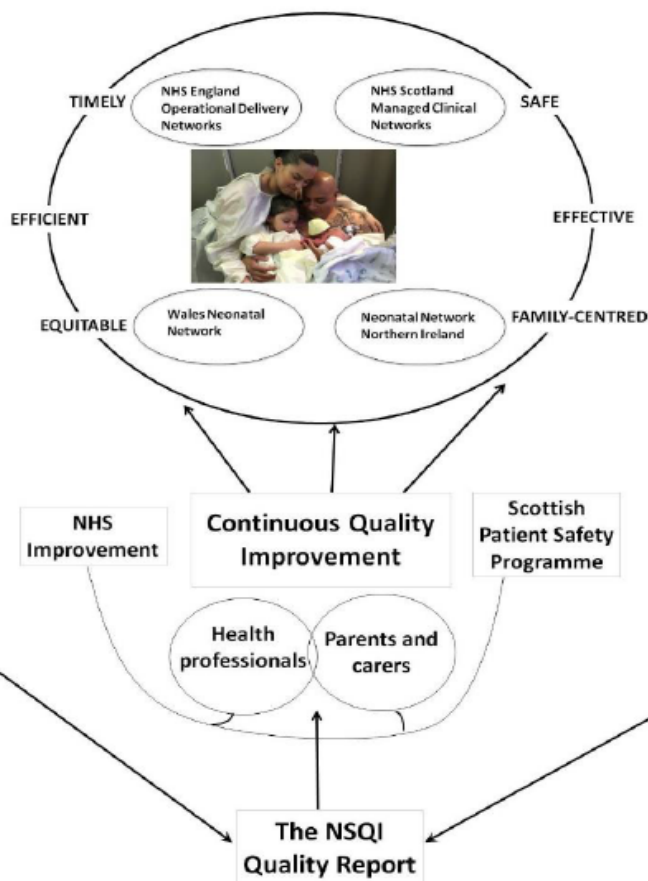
DoH Toolkit for high quality neonatal services 2009

NHS Improvement publications

NICE Quality Standard for Specialist Neonatal Care 2010

Neonatal Care in Scotland: A Quality Framework 2013

All Wales Neonatal Standards 2013



California Perinatal Care Collaborative [CPQCC]

California Perinatal Quality Care Collaborative



CPQCC

A Group of Public and Private CA Leaders in Healthcare,
Committed to Improving Care and Outcomes for the
State's Pregnant Mothers and Newborns

127 CA Hospitals, Representing Over 90% of
All Neonates Cared for in CA NICUs

CPQCC MISSION

To Optimize the Health and Outcomes of California's pregnant women and their infants by developing a ***Collaborative Network*** of Public and Private, Obstetric and Neonatal Providers, Insurers, Public Health Professionals and Business Groups to ***Support a System for Bench Marking and Performance Improvement Activities*** for Perinatal Care

CPQCC QI Initiatives For Which Toolkits Are Available

www.cpqcc.org

- Antenatal Steroids (*underuse*) - released 10/00; revised 7/01
- Postnatal Steroids (*overuse*) - released 2/03; revised 8/03
- Nosocomial Infections (*misuse*) - released 5/02; revised 8/03
- Improving Initial Lung Function - released 5/01; revised 7/01
- VLBW Nutritional Support Parts 1&2 - Part I released 2/04
Part II released 3/05
- Perinatal Group B Streptococcus Prevention - released 9/04
- Hyperbilirubinemia Prevention - released 10/05
- Perinatal HIV Prevention - released 3/06
- Delivery Room Management, VLBW Baby - released 10/06



CNN-EPIQ's
Research Community

EPIQ: Evidence Based Practice for Improving Quality

Facilitators of QI



Barriers of QI



EPIQ Progress

2002-2005



EPIQ 1

Review, data, training, engagement in a randomized trial

Scientific

2006-2008



EPIQ-PHSI

Training, dissemination

Learning as to what works and what does not

2008-2013



EPIQ 2

Review, data, training, engagement, expansion

Generalizable

2013-2020



EPIQ 3

All above plus Sentinel event review and Site visits

Sustainable

2020-



EPIQ 4

All above plus Comparative Effectiveness Studies, consistency and training

Advancement



Data



Information



Community



Collaboration



Knowledge



Wisdom

The EPIQ 1 - 2002-5

CMAJ

RESEARCH

Improving the quality of care for infants: a cluster randomized controlled trial

Shoo K. Lee MBBS PhD, Khalid Aziz MBBS, Nalini Singhal MBBS, Catherine M. Cronin MD MBA, Andrew James MBChB MBI, David S.C. Lee MBBS, Derek Matthew MBBS, Arne Ohlsson MD MSc, Koravangattu Sankaran MBBS, Mary Seshia MBChB, Anne Synnes MDCM MHSc, Robin Walker MBChB, Robin Whyte MBBS, Joanne Langley MD MSc, Ying C. MacNab PhD, Bonnie Stevens PhD, Peter von Dadelszen MBChB DPhil



Data obtained from the Canadian Neonatal Network™ and affiliated networks for infants admitted between 2002 and 2019

Supported by  **M-Care**  **Ontario**  **CIHR IRSC** Canadian Institutes of Health Research
Instituts de recherche en santé du Canada
Maternal-Infant Care Research Centre MINISTRY OF HEALTH, TC AND LONG-TERM CARE

Συχνότητα	Λοιμώξεις (5 MENN, n=2465)	ΒΠΔ (6 MENN, n=3070)	MENN ελέγχου (5, n=984)
Λοιμώξεις	32% (25.4 σε 17.4%)	45% (16% στο 8.8%)	Καμμία αλλαγή
ΒΠΔ	Καμμία αλλαγή	15% (29.4% στο 24.9%)	Καμμία αλλαγή

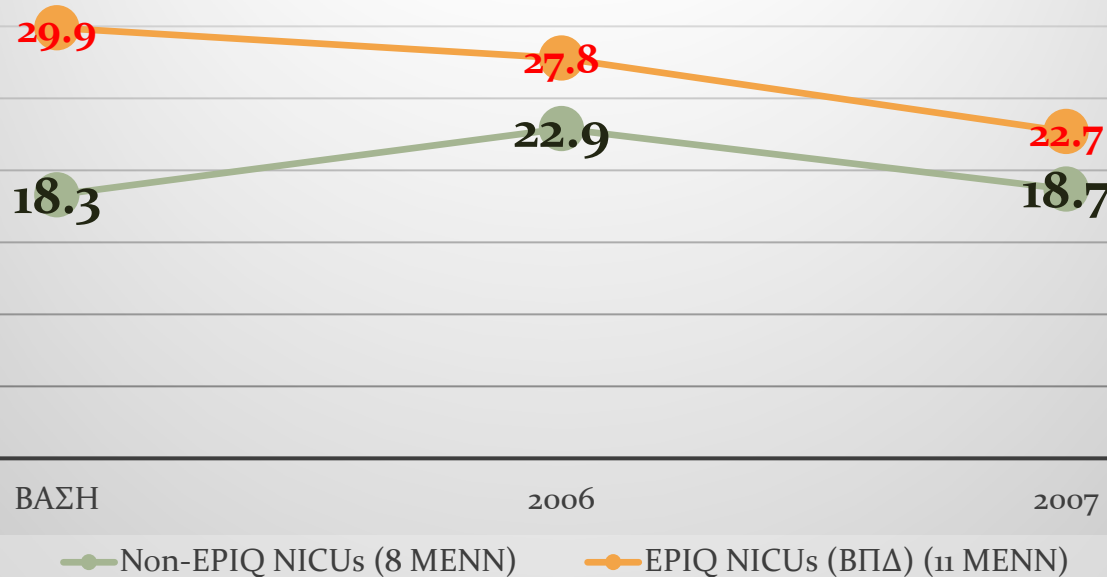
< 32 εβδ

The Evidence-based Practice for Improving Quality method has greater impact on improvement of outcomes than dissemination of practice change guidelines and quality improvement training in neonatal intensive care units

Shoo K Lee MBBS FRCPC PhD¹, Khalid Aziz MBBS FRCPC², Nalini Singhal MBBS FRCPC³, Catherine M Cronin MD FRCPC MBA⁴; on behalf of the Canadian Neonatal Network Partnerships for Health System Improvement Study Group

Paediatr Child Health 2015;20(1):e1-e9

PHSI 2005-2007: BΠΔ



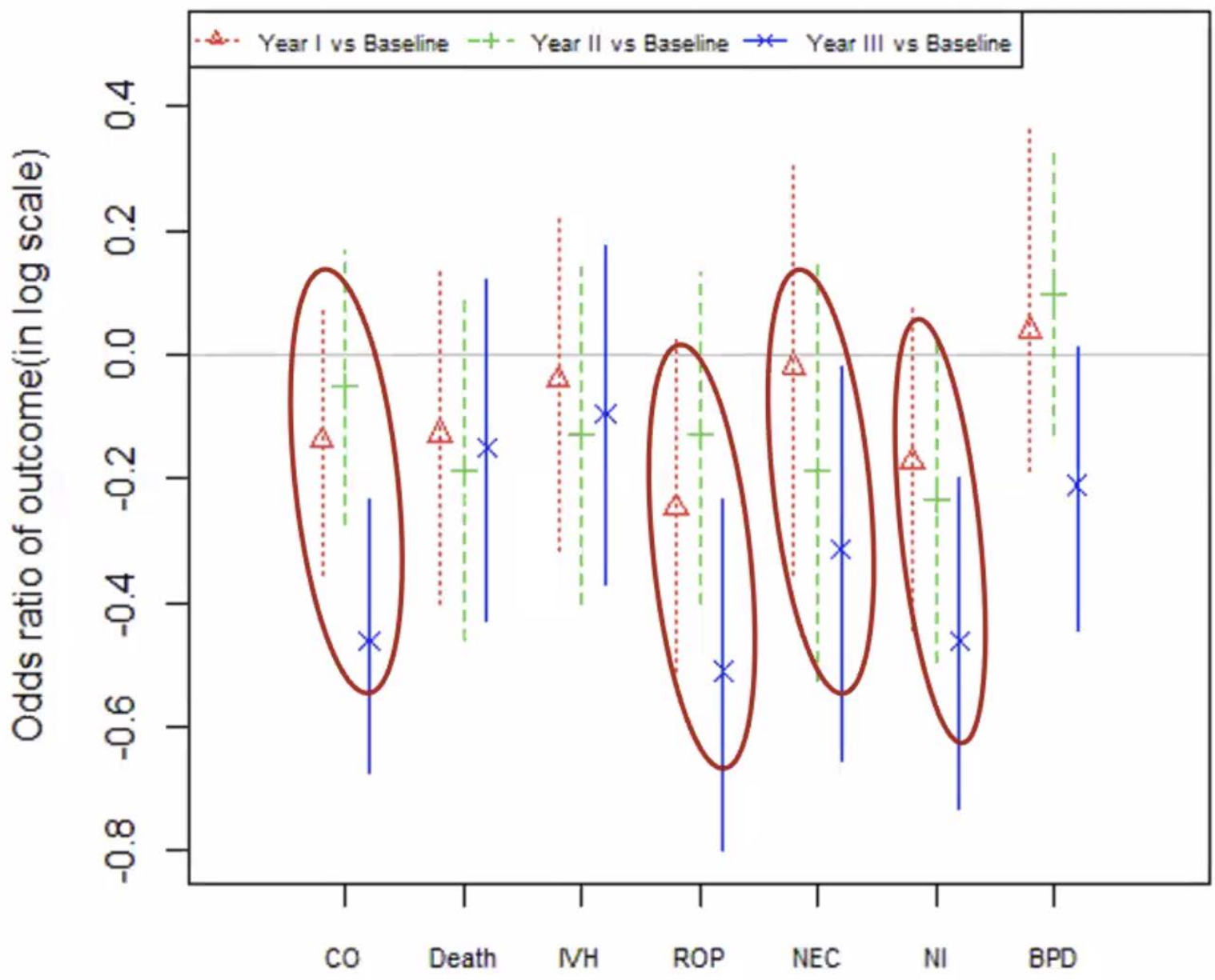
Association of a quality improvement program with neonatal outcomes in extremely preterm infants: a prospective cohort study

Lee S et al. CMAJ, September 16, 2014, 186(13)

25 Canadian units ; 6026 extremely premies ; 2008 and 2012

Outcome*	Baseline <i>n</i> = 1422	Year 1 <i>n</i> = 1611	Year 2 <i>n</i> = 1508	Year 3 <i>n</i> = 1485
Outcomet	Baseline to year 1	Baseline to year 2	Baseline to year 3	
Composite	0.87 (0.70 to 1.08)	0.95 (0.76 to 1.18)	0.63 (0.51 to 0.79)	
GA 22 ⁰ to 25 ⁶ wk	0.84 (0.51 to 1.39)	0.99 (0.59 to 1.68)	0.73 (0.44 to 1.20)	
GA 26 ⁰ to 28 ⁶ wk	0.89 (0.70 to 1.12)	0.94 (0.74 to 1.19)	0.62 (0.49 to 0.78)	

*Adjusted ORs (and 95% CIs) based on hierarchical logistic regression models with random intercept and random site-intervention interaction, adjusted for sex, GA, small-for-GA status, Apgar score at 5 min and Score for Neonatal Acute Physiology, version II (SNAP-II score) > 20.



Outcomes for infants born at 22-28 weeks gestation

ΒΑΣΙΚΑ ΣΥΜΠΕΡΑΣΜΑΤΑ

- Ποιότητα αποτελεί η επίτευξη αριστείας & ικανοποίησης αναγκών
- Βασικοί παράμετροι ποιότητας αποτελούν η ηγεσία, στρατηγικός σχεδιασμός, το ανθρώπινο δυναμικό και οι διαδικασίες
- Σημαντική η γνώση εμποδίων επίτευξης της ποιότητας στην Υγεία
- Η βελτίωση ποιότητας βασίζεται στην χρήση 5 εργαλείων
- Δίκτυα όπως BAPM, VON, CPQCC, CNN εφαρμόζουν προγράμματα ποιότητας
- Βασικοί στόχοι των προγραμμάτων ποιότητας αποτελούν βελτίωση της ποιότητας, το Benchmarking, η εφαρμογή EBM (νοσηρότητα/επιβίωση), η διασφάλιση της ομαδικότητας, η συμμετοχή των γονέων, η ασφάλεια των ασθενών, η εκπαίδευση & η έρευνα

“...everyone in healthcare really has two jobs when they come to work every day: to do their work and to improve it.”

What is "quality improvement" and how can it transform healthcare?
Batalden,P; Davidoff.F Qual Saf Health Care. 2007 February; 16(1): 2-3

ΕΥΧΑΡΙΣΤΩ