BORN Better Outcomes Registry & Network
Registre et Réseau des Bons Résultats dès la naissance

How do hospitals receive and act on A&F: The Better Outcomes Registry & Network (BORN) experience

Audit & Feedback Scientific Update
Oct 19 2017
Calgary

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Disclosure

- KT Specialist at BORN

- Received research funding
  - Canadian Institutes of Health Research (CIHR) and
  - Ontario Ministry of Health and Long-Term Care (MOHLTC)

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Objectives

- Present case study comparison results

- Describe individual and organizational facilitators & barriers to using an electronic audit and feedback system

- Identify strategies to support hospitals and address barriers

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Measuring Quality in Maternal-Newborn Care: Developing a Clinical Dashboard

Ann E. Sprague, RN, PhD,[1] Sandra I. Dunn, RN, PhD,[1] Deshayne B. Fell, MSc,[1]
JoAnn Harrold, MD, FRCPC,[2] Mark C. Walker, MD, FRCSC,[1,3,4] Sherrie Kelly, MSc,[1]
Graeme N. Smith, MD, PhD, FRCSC[5]

- Rigorous dashboard development process

- Key stakeholders – SMEs
  - Clinical practice, KT, performance measurement, analysis, research, policy)

- Key Performance Indicator (KPI) selection
  - Clinically meaningful
  - Feasible to measure
  - Amenable to change

- Evidence-based benchmarks & evidence summaries

- Multi-functional design features to present data and facilitate audits

- Communication and Implementation plan

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[Sprague, A., **Dunn, S.,** Fell, D., Harrold, J., Walker, M., Kelly, S., Smith, G. (2013). Measuring quality in maternal-newborn care: Developing a clinical dashboard, *Journal of Obstetrics and Gynecology in Canada,* 35(1), 29-38.]
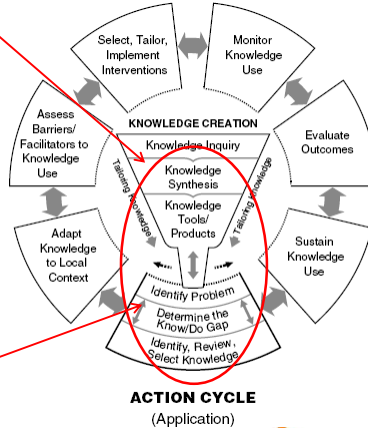
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Maternal Newborn Dashboard (MND): A KT Intervention for Quality Improvement

MND launched Nov 19, 2012

Allows these users to better meet their quality mandate as set out in the *Excellent Care for All Act (2010)*.
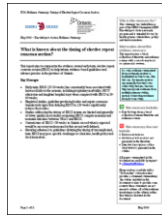
[Graham et al., (2006) Lost in knowledge translation: time for a map? *Journal of Continuing Education Health Professionals, 26(1), 13-24*]

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Maternal Newborn Dashboard Study

Purpose:
• To evaluate the effect of an electronic audit and feedback system on six key performance indicators (KPIs) in Ontario

Explore:
• Attributes of the dashboard

• Organizational factors

• Facilitation/resource factors

Multi-phased, mixed methods design

Dunn et al. *Implementation Science* (2016) 11:59
DOI 10.1186/s13012-016-0427-1

Implementation Science

STUDY PROTOCOL　　Open Access

A mixed methods evaluation of the maternal-newborn dashboard in Ontario: dashboard attributes, contextual factors, and facilitators and barriers to use: a study protocol

Sandra Dunn[9][*], Ann E. Sprague[9], Jeremy M. Grimshaw[2], Ian D. Graham[3], Monica Taljaard[4], Deshayne Fell[1], Wendy E. Peterson[5], Elizabeth Darling[6], JoAnn Harrold[7], Graeme N. Smith[8], Jessica Reszel[9], Andrea Lanes[1], Carolyn Truskoski[10], Jodi Wilding[1], Deborah Weiss[1] and Mark Walker[11]

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METHODS - ITS

- **Data (2009-2015)**
  - o BORN Registry datasets - Niday & BIS
  - o Perinatal Services BC data - external controls

- **Study time period**
  - o 3 years pre-MND implementation and 2 years post-implementation.
  - o 5 month implementation time period was censored from the analysis.

- **Analysis**
  - o Segmented regression (accounting for serial autocorrelation)
  - o Effect of the MND was assessed at 30 months post-implementation
  - o Measured as both the absolute and relative differences between observed KPI rates and KPI rates predicted based on pre-implementation trends

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1.5 fewer episiotomies (*per hundred women*)

10.4 fewer ERCS<39 weeks in low risk women *(per hundred women)*

2.8 more women receiving GBS screening *(per hundred women)*

11.7 fewer inductions for post-dates for women <41 weeks at delivery *(per hundred women)*

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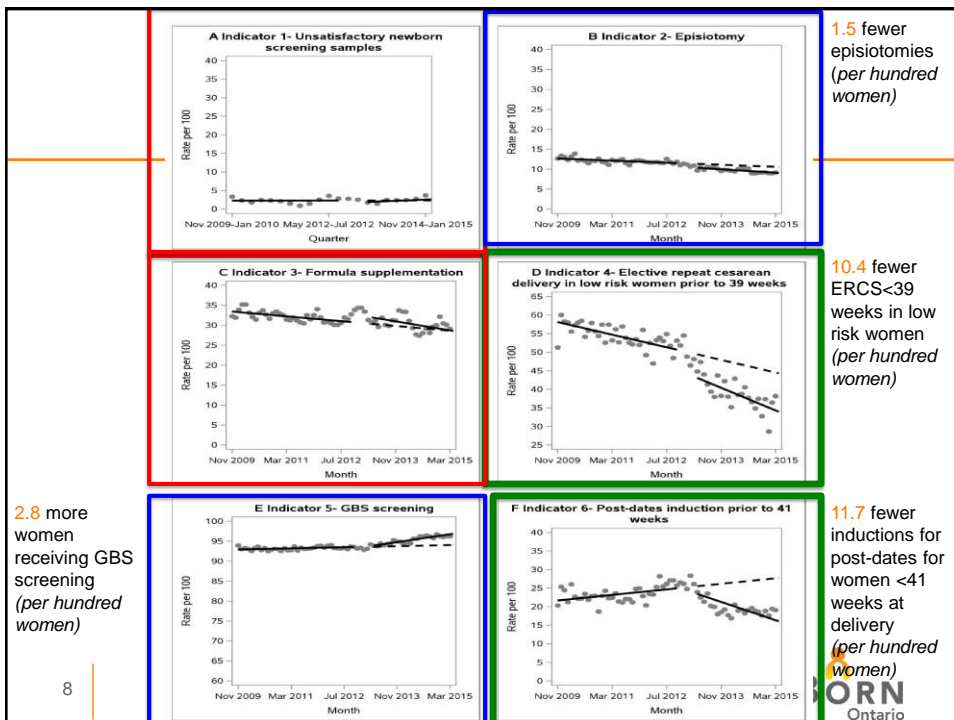
Case Study Comparison

Objective:

- To increase our understanding about the factors that explain variability in performance after implementation of the Maternal Newborn Dashboard.

  o *How* maternal-newborn units responded to and used the MND for clinical practice change

  o *Why* some units were successful and others were not

  o *What* is working well with the dashboard and what can be improved

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METHODS

- **Design:**
  - Collective case study
  - Case → hospital providing maternal-newborn care

- **Sampling:**
  - Criterion-based approach to identify a purposeful sample of hospitals

- **Recruitment:**
  - Obstetrical director/manager from selected hospitals & BORN coordinators contacted by research team

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METHODS

Data collection:

- Individual and dyadic interviews

- Focus groups

- Observations (with photographs and researcher notes)

- Document review

Data analysis:

- Conventional content analysis

- Additional data sources helped to corroborate our findings

- Interpretive summary for each site written according to guiding questions

- Classification of hospitals into one of four quadrants according to their level of buy-in/effort and performance on the Dashboard

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METHODS *(cont'd)*

Theoretical framework *(Donabedian, 2005)*

- Barriers and facilitators – clustered based on organizational structures and processes

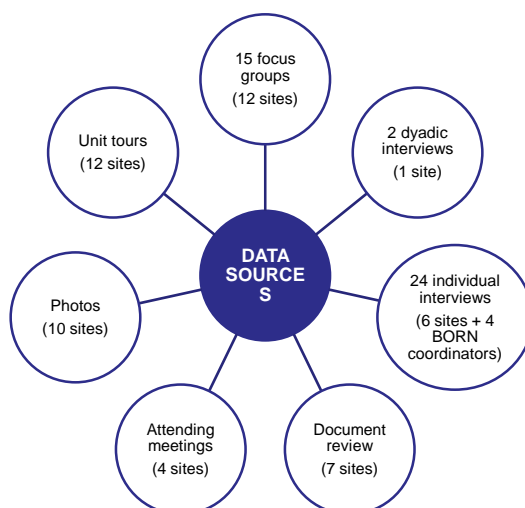| **Structure**	• Setting in which care is delivered
Process	• How the organization works to implement change
Outcomes	• # KPIs changed from red/yellow to green • # of currently green KPIs

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RESULTS

Between June to November 2016, we visited 14 sites and met with 107 people

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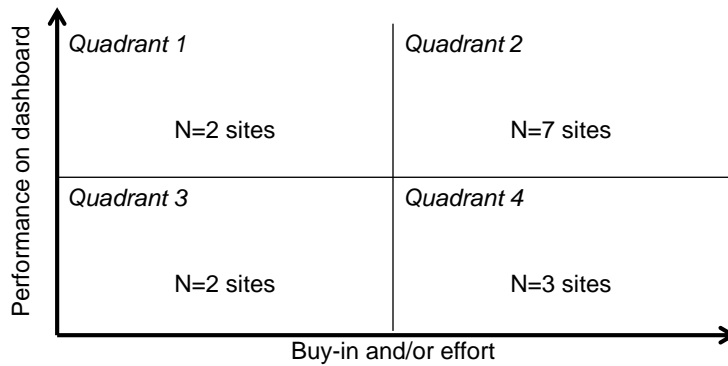|	N
TOTAL	107 participants from 14 sites
Role	
Manager	21 (from 12 sites)
Registered nurse	19 (from 11 sites)
Obstetrician	13 (from 10 sites)
Program director	8 (from 7 sites)
Pediatrician	7 (from 3 sites)
Nurse educator	6 (from 4 sites)
Clinical resource nurse	5 (from 3 sites)
Midwife	5 (from 5 sites)
Advanced practice nurse	4 (from 4 sites)
BORN Coordinator	4 (covering 12 sites)
Analyst	3 (from 3 sites)
Clerk	3 (from 1 site)
Family physician	2 (from 2 sites)
Vice President	2 (from 2 sites)
Other	2 (from 2 sites)
Registered practical nurse	1 (from 1 site)
Lab technician	1 (from 1 site)
Parent	1 (from 1 site)

	Total N=14	Q1 N=2	Q2 N=7	Q3 N=2	Q 4 N=3
Level of care – n (%)					
Low-risk	4 (29)	2 (100)	2 (29)	0 (0)	0 (0)
High-risk	10 (71)	0 (0)	5 (71)	2 (100)	3 (100)
Birth volume/year – n (%)					
≤500	4 (29)	2 (100)	2 (28)	0 (0)	0 (0)
501-2499	5 (36)	0 (0)	3 (43)	1 (50)	1 (33)
≥2500	5 (36)	0 (0)	2 (29)	1 (50)	2 (67)
Method of Data Entry into BORN Information System (BIS) – n (%)					
Manual	9 (64)	1 (50)	5 (71)	1 (50)	2 (67)
Upload from EHR	5 (36)	1 (50)	2 (29)	1 (50)	1 (33)
Number of KPIs changed from red/yellow to green between April 2013 to March 2016 – mean (st dev) [range]	1.9 (1.3) [0-4]	2.5 (0.7) [2-3]	2.4 (1.5) [0-4]	0.5 (0.7) [0-1]	1.3 (0.6) [1-2]
Number of KPIs green in March 2016 (out of 6) – mean (st dev) [range]	3.9 (1.5) [1-6]	4.5 (0.7) [4-5]	5 (0.8) [4-6]	2 (1.4) [1-3]	2.3 (0.6) [2-3]

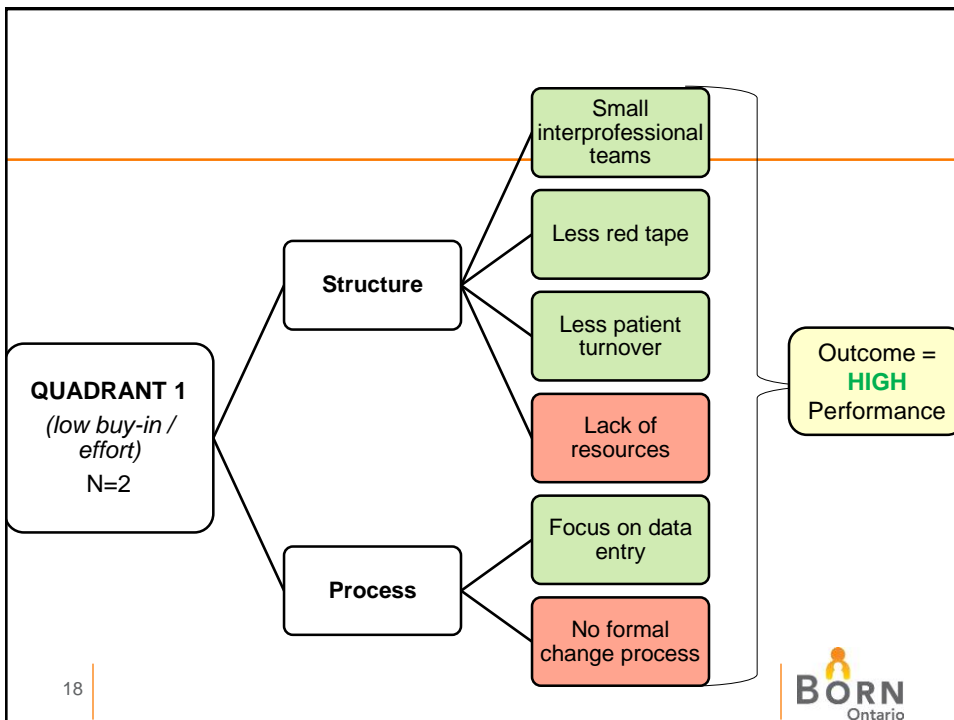| "Green" Sites Common Themes	"Red" Sites Common Themes
MND/ BIS "champion" present[15]	No MND/BIS champion[15]
Leadership support and buy-in[11]	Lack of leadership support and buy-in[11]
Believes in the evidence behind the KPIs[13]	Questioned the credibility of the KPI selection process[13]
Feels KPIs align with priorities[1]	Doesn't believe the MND KPIs are a priority or relevant[1]
Clear accountability and ownership of the data[2]	Lack of accountability or ownership[2]
Staff empowerment to communicate interprofessionally[2]	Lack of interprofessional communication[2]
Prioritizes data quality and trusts in the data[13]	No trust in the data[13]
Accesses BORN resources, engages with BORN liaison[15]	Do not use BORN resources – not aware of BORN liaison[15]

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RESULTS *(cont'd)*

Distribution of enrolled sites based on level of buy-in/effort and performance

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QUADRANT 2
(high buy-in / effort)
N=7

Structure
- Flattened interprofessional hierarchy
- Key roles for driving change
- MND alignment with organizational priorities

Process
- Sharing MND data
- Improving data quality
- Increasing interprofessional communication
- Use of change framework

Outcome = **HIGH** Performance

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QUADRANT 3
(low buy-in / effort)
N=2

Structure
- Lack of MND alignment with organizational priorities
- Disconnect between leadership and frontline

Process
- Lack of team buy-in
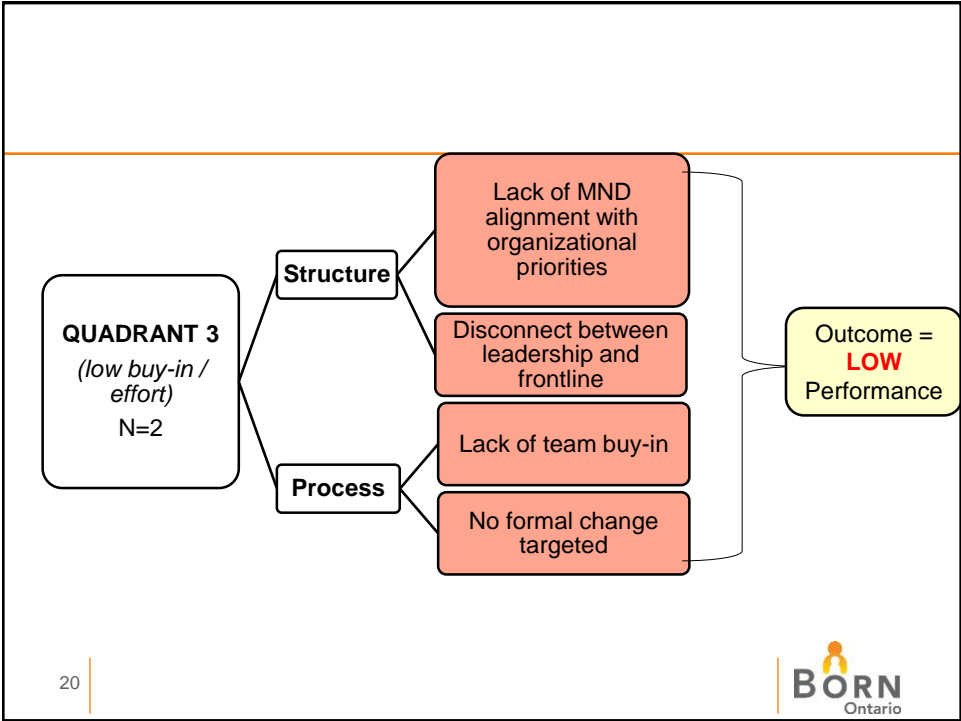- No formal change targeted
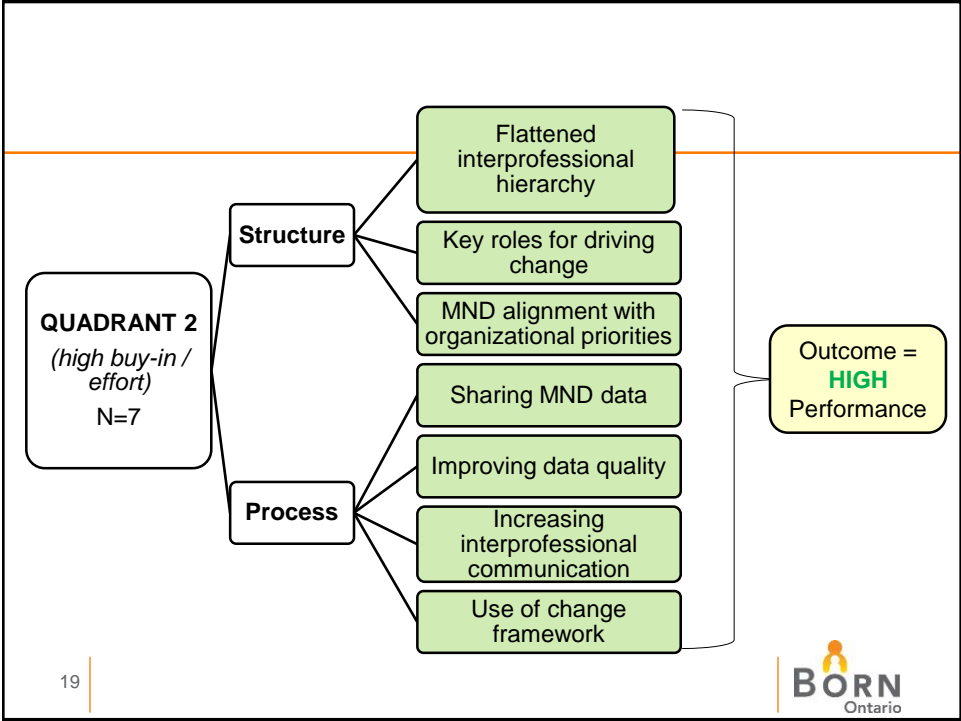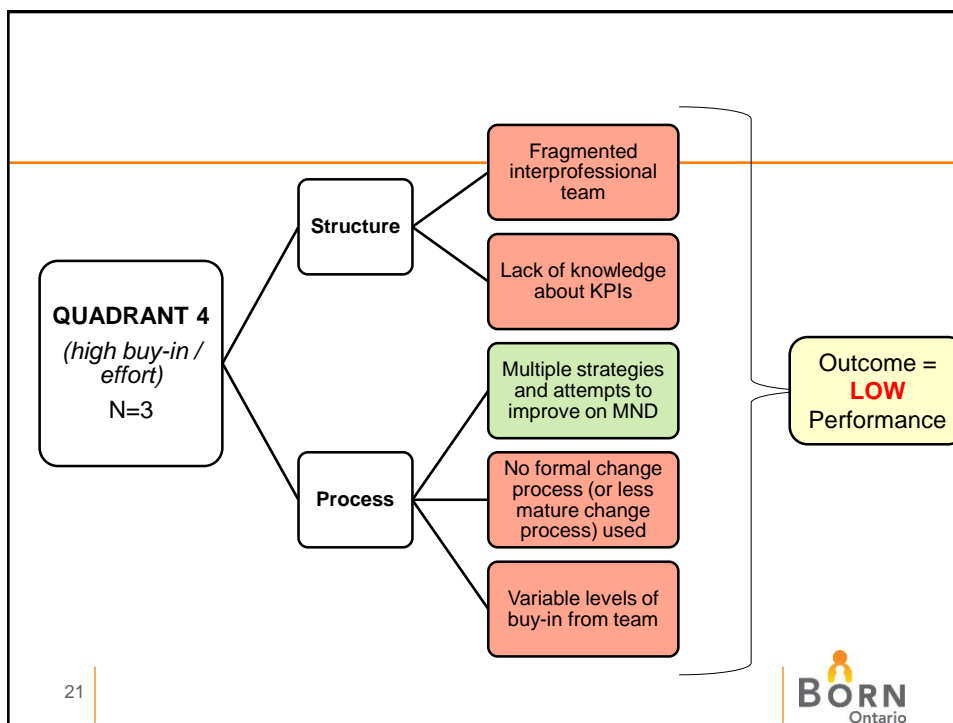
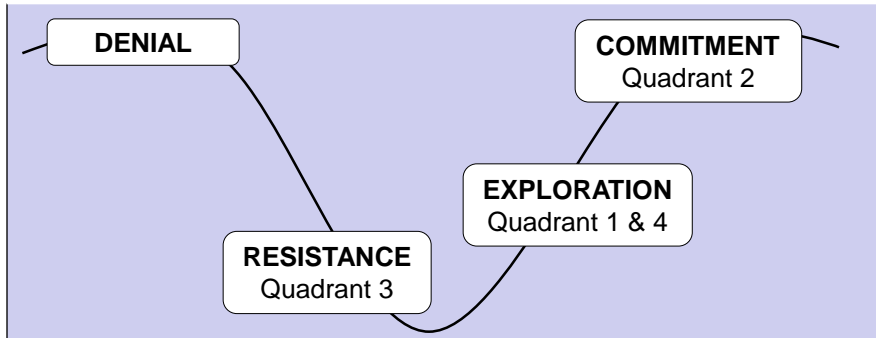Outcome = **LOW** Performance

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DISCUSSION

What factors explain variability in performance after implementation of the Maternal Newborn Dashboard?

- Our study identified *structure* and *process* facilitators and barriers to using the dashboard for quality improvement in 14 diverse hospital settings

- Question: How can we use these study findings to improve uptake and use of an audit and feedback system in maternal-newborn care?

DISCUSSION *(cont'd)*

Integrating findings with existing organizational change frameworks – The Change Curve

DENIAL		COMMITMENT Quadrant 2

EXPLORATION
Quadrant 1 & 4

RESISTANCE
Quadrant 3

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DISCUSSION *(cont'd)*

Stage of change	Potential strategies	
Denial	**Need information (knowledge)** • Why KPIs important, quality of data, site specific rates • Evidence summaries, MND report access • Peer consultation - answer questions, explore concerns • Leverage provincial momentum, accountability	**RECEPTIVITY**
Resistance	**Need support (persuasion)** • Facilitate discussion and expression of concerns • KPI options - reinforce benefits • Allow time – minimize and mitigate problems	
	• **DECISION TO COMMIT**	
Exploration	**Need direction & guidance** • Encourage IP team involvement • Coaching and training to develop new skills – KT toolkits • Celebrate success • Connect with other sites who have had success	**CAPACITY**
Commitment	**Need encouragement (implementation)** • Provide regular feedback • Ongoing training • Recognizing success • Using as role model for other sites	

IMPLICATIONS

For practice:

- Identify *a priori*
  - Stage of change of the organization for implementing and using the audit and feedback system for QI

  - Organizational Readiness for KT

- Develop tailored strategies for support based on
  - Stage of change and
  - Barriers to implementation

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Acknowledgements

MND Study:

• **The Effect of an Electronic Audit and Feedback System on Six Key Performance Indicators in Ontario: The BORN Maternal Newborn Dashboard**

Funding support:
• CIHR Operating Grant
• MOHLTC – HSRF Capacity Award

Research Team:
• Jessica Reszel RN MScN (Research Coordinator)
• Deborah Weiss PhD (Epidemiologist/Analyst)
• Holly Ockenden MSc (Research Assistant)
• Grad Students:
  - Andrea Lanes MSc, PhD(c)
  - Ashley Desrosiers BScN
  - Kira Friesen, RN MScN
  - Carolyn Truskoski RN MScN

For research:

- Develop and evaluate:

  - Screening tools

  - Implementation tool kits

  - Tailored support

  - Coaching

  - Public reporting

• **Investigators**
  - Sandra Dunn RN PhD (Co-PI)
  - Mark Walker MD FRCSC (Co-PI)
  - Ann Sprague RN PhD
  - Monica Taljaard PhD
  - Deshayne Fell PhD
  - Wendy Peterson RN PhD
  - Ian Graham PhD
  - Jeremy Grimshaw PhD
  - Elizabeth Darling RMW PhD
  - JoAnn Harrold MD FRCPC
  - Graeme Smith MD PhD

• All the participants who so willingly gave of their time to provide data and feedback for the study

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Questions

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