



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

Use of a maternal newborn audit and feedback system in Ontario: A case study comparison

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BACKGROUND

- November 2012 – launch of BORN Ontario Maternal Newborn Dashboard (MND)

Key Performance Indicators	Rate (%)	Status	Benchmark values (%)			Comparator values (%)		
			Target (green)	Warning (yellow)	Alert (red)	Other Neonatal Level II hospitals	Other 1001-2499 birth volume hospitals	Ontario
1 Proportion of newborn screening samples that were unsatisfactory for testing	1.2	●	<2.0	2.0-3.0	>3.0	1.1	1.5	1.1
2 Rate of episiotomy in women who had a spontaneous vaginal birth	12.3	●	<13.0	13.0-17.0	>17.0	15.6	10.0	11.2
3 Rate of formula supplementation at discharge in term infants whose mothers intended to breastfeed	35.6	●	<20.0	20.0-25.0	>25.0	34.0	33.6	32.7
4 Proportion of women with a cesarean section performed from ≥37 to <39 weeks' gestation among low-risk women having a repeat cesarean section at term	42.3	●	<11.0	11.0-15.0	>15.0	45.8	48.0	41.1
5 Proportion of women who delivered at term and had Group B Streptococcus (GBS) screening at 35-37 weeks' gestation	90.2	●	>94.0	90.0-94.0	<90.0	92.3	88.7	91.4
6 Proportion of women who were induced with an indication of post-dates and were less than 41 weeks' gestation at delivery	17.2	●	<5.0	5.0-10.0	>10.0	22.6	27.4	19.1

- Research project funded by CIHR and MOHLTC
 - Multi-phase
 - Mixed methods

OBJECTIVE

The objective of the *case study comparison phase* of the study was:

To improve our understanding about the factors that explain variability in performance after implementation of the MND.

METHODS

- **Design:** Case study comparison
- **Sampling:** Criterion-based approach to identify a purposeful sample of hospitals
- **Recruitment:** Obstetrical director/manager from selected hospitals contacted by research team

METHODS *(cont'd)*

- **Data collection:**
 - interviews
 - focus groups
 - observations
 - document review
- **Data analysis:** Qualitative content analysis

RESULTS

- Between June to November 2016, we visited 13 sites and met with 107 people

	Participating Hospitals (N=14)*	All of Ontario (N=94)
	n (%)	n (%)
LHIN Geographic Grouping		
1-4 – SW and Central Ontario	2 (14.3)	27 (28.7)
5-9 – Greater Toronto Area	4 (29.6)	28 (29.8)
10-11 – E and SE Ontario	3 (21.4)	13 (13.8)
12-14 – N Ontario	5 (35.7)	26 (27.7)
Level of Care		
1	4 (28.6)	47 (50.0)
2	8 (57.1)	41 (43.6)
3	2 (14.3)	6 (6.4)
Birth Volume/year		
≤100	1 (7.1)	11 (11.7)
101-500	3 (21.4)	27 (28.7)
501-2499	5 (35.7)	33 (35.1)
≥2500	5 (35.7)	23 (24.5)
Method of Data Entry into BIS		
Manual	9 (64.3)	73 (77.7)
Upload from EHR	5 (35.7)	21 (22.3)

*1 site visited was a corporation that had 2 hospital campuses

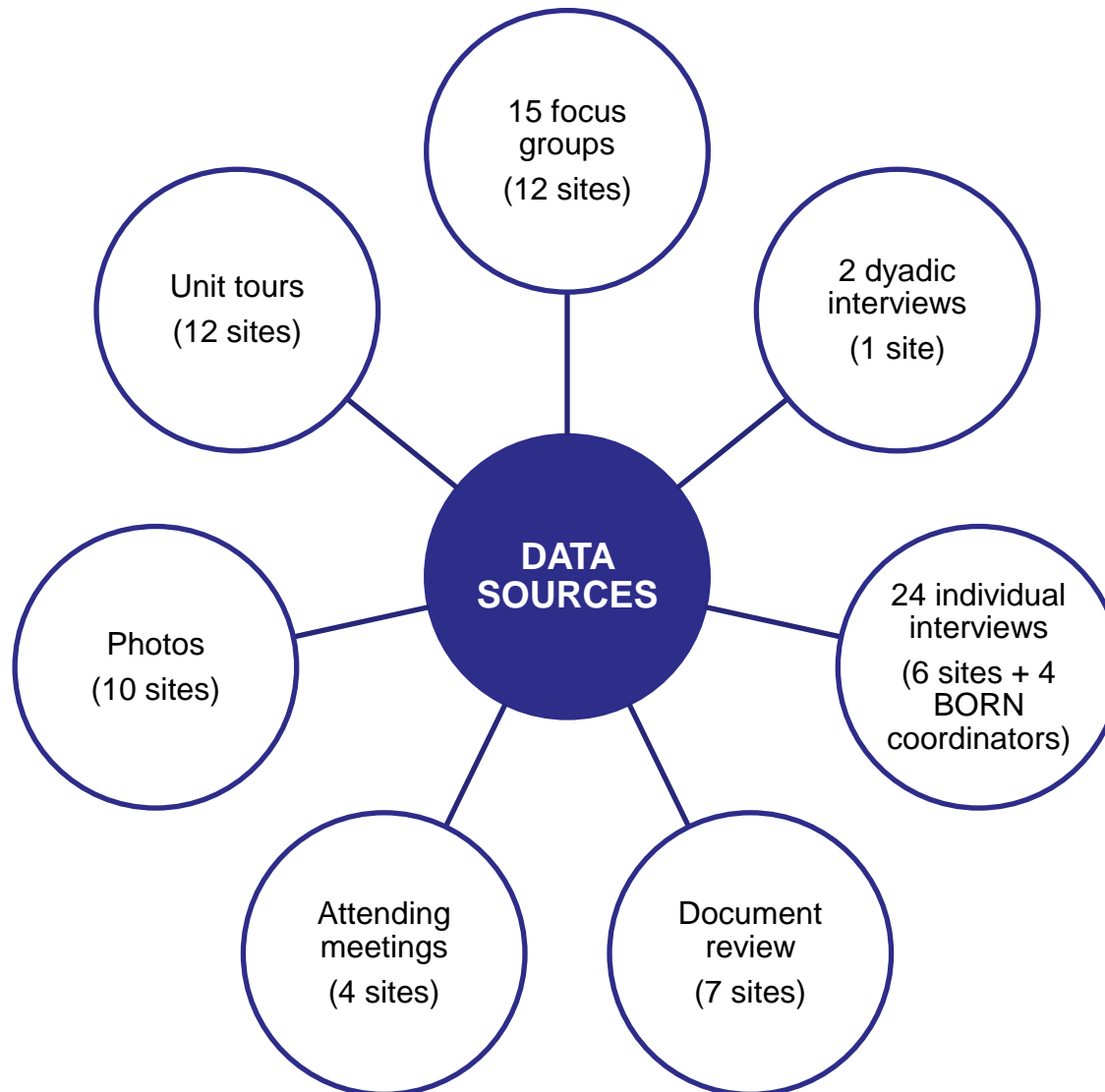
N**TOTAL**

107 participants from 13 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)

RESULTS *(cont'd)*



RESULTS *(cont'd)*

What factors explain variability in performance after implementation of the MND?

Identified factors well aligned with 5 domains of the Consolidated Framework for Implementation Research (CFIR):

- Intervention characteristics
- Outer setting
- Inner setting
- Characteristics of individuals
- Process

RESULTS *(cont'd)*

CFIR Domain	Examples of factors that influenced use of the MND
I. Intervention characteristics	<ul style="list-style-type: none">• <u>Intervention source & Evidence</u>: Credibility of the process used to select the KPIs and develop the MND• <u>Design quality & packaging</u>: Features of the MND such as coloured signals, comparator data
II. Outer setting	<ul style="list-style-type: none">• <u>Peer pressure</u>: Networking with external organizations and competition• <u>External policy</u>: Competing priorities with external initiatives

RESULTS *(cont'd)*

CFIR Domain	Examples of factors that influenced use of the MND
III. Inner setting	<ul style="list-style-type: none">• <u>Implementation climate</u>: Alignment of KPIs with organizational priorities• <u>Available resources</u>: Resources to support BIS data entry/quality and use of MND data; resources to support clinical practice change
IV. Characteristics of individuals	<ul style="list-style-type: none">• <u>Individual stage of change</u>: Degree to which individuals at sites are ready to embrace change on KPIs; willingness to change• <u>Self-efficacy</u>: Staff are empowered to communicate interprofessionally

RESULTS *(cont'd)*

CFIR Domain	Examples of factors that influenced use of the MND
V. Process	<ul style="list-style-type: none"><li data-bbox="624 572 1792 732">• <u>Leaders</u>: Presence of a formally appointed leader in the hospital/unit who plans, engages, executes, and evaluates the change<li data-bbox="624 746 1864 792">• <u>Champions</u>: Presence of an MND/BIS champion onsite

IMPLICATIONS

- The identified barriers and facilitators will inform strategies to improve:
 - design of audit and feedback systems
 - use of audit and feedback systems
 - BORN dashboard development processes
- Results of this study will contribute to international audit and feedback scientific community

ACKNOWLEDGEMENTS

- **Participants**
- **Study team:** Dunn S, Sprague A, Graham I, Grimshaw J, Peterson W, Ockenden H, Wilding J, Desrosiers A, Darling L, Fell D, Harrold J, Lanes A, Smith G, Taljaard M, Weiss D, Walker M
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QUESTIONS

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