# Supporting Local Birth in Rural and Remote Canada:

## Towards A Networked Model of Care

Jude Kornelsen, PhD
Associate Professor
Co-Director, Centre for Rural Health Research,
Department of Family Practice

# Speaker Disclosure

- I do not have an affiliation (financial or otherwise) with a pharmaceutical, medical device or communications organization.
- I do not intend to make therapeutic recommendations for medications that have not received regulatory approval (i.e. “off-label” use of medication).

# Session Learning Objectives

- To understand rural maternal-newborn outcomes by level of service in Canada;
- To understand international evidence on the safety of rural maternity services without local access to cesarean section;
- To identify evidence-based best practice models for support the perinatal needs of women from rural and remote communities.

*Bella Coola, BC*

*Maningrida, Northern Territories, Australia*

*Llanchama, Amazon Jungle, Ecuador*

- I am **a health services researcher and conduct primary research** on models of rural maternity and surgical care focusing on outcomes of and satisfaction with the care;
- I have a particular interest in moving ‘evidence’ into policy and decision-making;
- I have an abiding interest in **evaluating strength of evidence** and its applicability to to rural settings.

# (Lived) Research Focus

# Closer to Home

## ‘The Royal Commission on Health Care and Costs’ (The Seaton Report 1991)

“[M]edically necessary services must be provided in, or as near to, the patient’s place of residence as is consistent with quality and cost-effective health care” (B.C. Royal Commission on Health Care and Costs 1991: A-6).

Starbucks Coffee had 83 stores world-wide

# Position Papers

- Joint Position Paper on Rural Maternity Care (2010: SOGC, CAM, CAPWHN, CFPS, SRPC)

Recommendations

1. Women who reside in rural and remote communities in Canada should receive high-quality maternity care as close to home as possible.

- Returning Birth to Aboriginal, Rural and Remote Communities Policy Statement (December 2010)
- Joint Position Paper on Rural Surgery and Operative Delivery (2015: SOGC, CAGS

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- Joint Position Paper on Rural Surgery and Operative Delivery (2015)

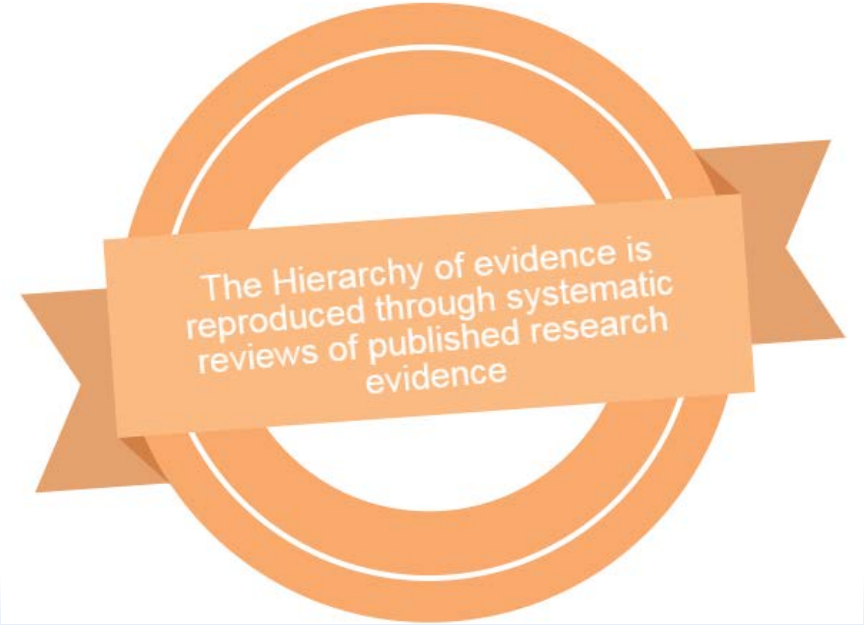
Implemented within the context of *best available evidence*.

# What evidence are we interested in?

- The safety of rural maternity care
- Provider sustainability
- Patient satisfaction
- Best practice models
- Cost-effectiveness

# Re-considering (problematizing) evidence

- The output of primary research is rigorous evidence, which sheds light on a phenomenon under consideration;
  - Pioneered by Archie Cochrane, who advocated for Randomized Controlled Trials as the highest form of evidence




- In the era of ‘evidenced based medicine’, health services research is at risk of normatively valuing scientific evidence (easily measurable) at the cost of alternative forms of knowledge (not easily measurable);
- This will be at the cost of pluralism – the acceptance of multiple points of view and experiences – that fulsomely represents reality.


# What Does Evidence Include?

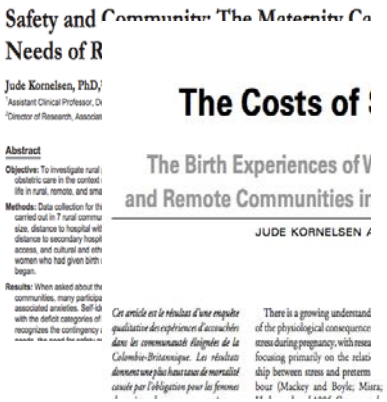
1. Experience of individuals
   - Understood through *reflection*
2. Community stories
   - Understood through *dialogue*
3. Expert opinion
   - Understood through *science*
4. Systems evidence
   - Understood through *cost-benefit*
5. Gestalt
   - *The whole is greater…*

# Evidence

Patient Satisfaction

Maternal-Newborn Outcomes

Provider Outcomes



Safety and Community The Maternity Ca
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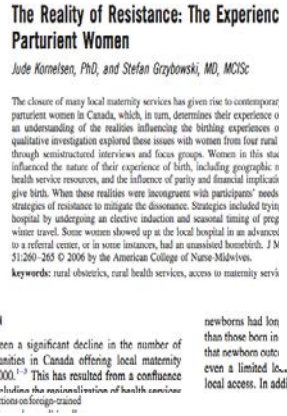
Jude Kornelsen, PhD,

The Costs of

The Birth Experiences of V
and Remote Communities ir

JUDE KORNELSEN

Abstract



The Reality of Resistance: The Experienc
Parturient Women

Jude Kornelsen, PhD, and Stefan Grzybowski, MD, MCISc

INTRODUCTION

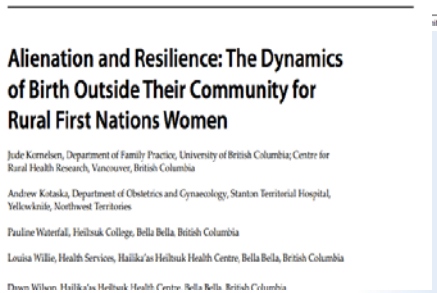
Contents lists available at ScienceDirect

Health & Place

journal homepage: www.elsevier.com/locate/healthplace

The geography of belonging: The experience of birthing at home for First Nations women ☆

Jude Kornelsen [a,b,*], Andrew Kotaska [c], Pauline Waterfall [d], Louisa Willie [e], Dawn Wilson [d]



Original Article

Stress and anxiety associ
maternity ser

Jude Kornelsen, K

Centre for Rural Healt
Vancouver, British Col

Abstract

Objective: The objective
level of stress and anxiet
communities with differ
maternity services.

Design: Cross-sectional

Setting: Fifty-two comm
Columbia with different

Alienation and Resilience: The Dynamics of Birth Outside Their Community for Rural First Nations Women

Jude Kornelsen, Department of Family Practice, University of British Columbia; Centre for Rural Health Research, Vancouver, British Columbia

Andrew Kotaska, Department of Obstetrics and Gynaecology, Stanton Territorial Hospital, Yellowknife, Northwest Territories

Pauline Waterfall, Heiltsuk College, Bella Bella, British Columbia

Louisa Willie, Health Services, Haíłzaʼas Heiltsuk Health Centre, Bella Bella, British Columbia

Does Distance Matte
Rates for Rural Wom
Intrapartum Care

Jude Kornelsen, PhD,[1] Shiraz Moola, MD,

[1]Centre for Rural Health Research, Department of Family Pr
[2]Kootenay Lake Hospital, Nelson BC

Abstract

Objectives: Although there has been a devolution of local m
maternity services across Canada in the past 10 years in
regional centralization, little is known about the health out
women who must travel for care. The objective of this stu
compare intervention rates and outcomes between wome
live adjacent to maternity service with specialist (surgical)
and women who have to travel for this care.



RESEARCH ARTICLE

Distance matters: a population based stu
examining access to maternity services f
women

Stefan Grzybowski*, Kathrin Stoll and Jude Kornelsen

Abstract

Background: In the past fifteen years there has been a wave of closures of small maternity services in Canada and
other developed nations which results in the need for rural parturient women to travel to access care. The purpose
of our study is to systematically document newborn and maternal outcomes as they relate to distance to trav

RESEARCH ARTICLE | OPEN ACCESS

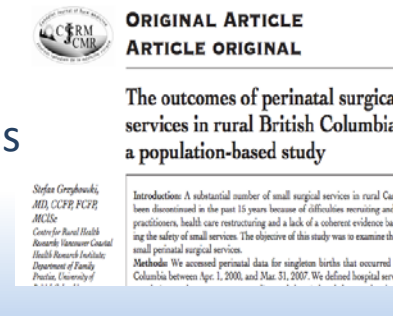
The safety of Canadian rural maternity services: a multi-jurisdictional cohort analysis

Stefan Grzybowski, John Fahey, Barbara Lai, Sharon Zhang, Nancy Aelicks, Brenda M. Leung, Kathrin Stoll and Rebecca Attenborough

BMC Health Services Research 2015 15:410 | DOI: 10.1186/s12913-015-1034-6 | © Grzybowski et al. 2015

Received: 20 January 2015 | Accepted: 4 September 2015 | Published: 23 September 2015

Open Peer Review reports



ORIGINAL ARTICLE
ARTICLE ORIGINAL

The outcomes of perinatal surgica
services in rural British Columbi
a population-based study

Stefan Grzybowski, MD, CCFP, FCFP, MCISc
Centre for Rural Health Research; Vancouver Coastal Health Research Institute; Department of Family Practice, University of

Introduction: A substantial number of small surgical services in rural Ca
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practitioners, health care restructuring and a lack of a coherent evidence ba
ing the safety of small services. The objective of this study was to examine th
small perinatal surgical services.
Methods: We accessed perinatal data for singleton births that occurred
Columbia between Apr. 1, 2000, and Mar. 31, 2007. We defined hospital ser

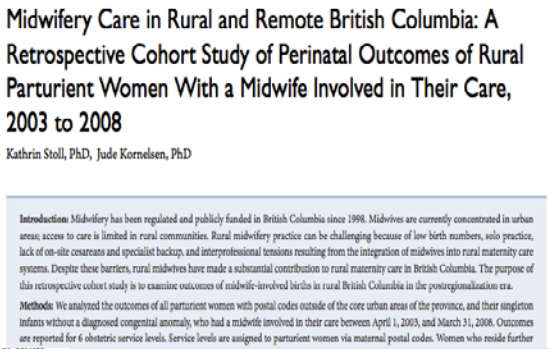
ARTICLE

Maternal and Newborn Outcome
Rural Midwifery-Led Maternity
in British Columbia: A Retrospe
Chart Review

by Jude Kornelsen, PhD, and Maggie Ramsey, RN, RM

ABSTRACT

Background: Maternity services in rural British Columbia
significant changes in the past decade, most notably m
closures in over 20 rural services. A potential solution to this rural maternity
service delivery challenge is a shift towards midwife-led or interprofessional



Midwifery Care in Rural and Remote British Columbia: A Retrospective Cohort Study of Perinatal Outcomes of Rural Parturient Women With a Midwife Involved in Their Care, 2003 to 2008

Kathrin Stoll, PhD, Jude Kornelsen, PhD

Introduction: Midwifery has been regulated and publicly funded in British Columbia since 1998. Midwives are currently concentrated in urban areas; access to care is limited in rural communities. Rural midwifery practice can be challenging because of low birth numbers, solo practice, lack of on-site cesareans and specialist backup, and interprofessional tensions resulting from the integration of midwives into rural maternity care systems. Despite these barriers, rural midwives have made a substantial contribution to rural maternity care in British Columbia. The purpose of this retrospective cohort study is to examine outcomes of midwife-involved births in rural British Columbia in the postregionalization era.

Methods: We analyzed the outcomes of all parturient women with postal codes outside of the core urban areas of the province, and their singleton infants without a diagnosed congenital anomaly, who had a midwife involved in their care between April 1, 2003, and March 31, 2008. Outcomes are reported for 6 obstetric service levels. Service levels are assigned to parturient women via maternal postal codes. Women who reside further

# Closer to home (or farther from care)?


Klemtu, BC Central Coast; Population ~460

# Systematic Needs-based planning

Birth Rate + Social Vulnerability + Distance to Nearest Cesarean Section

= Rural Birth Index (RBI) Score

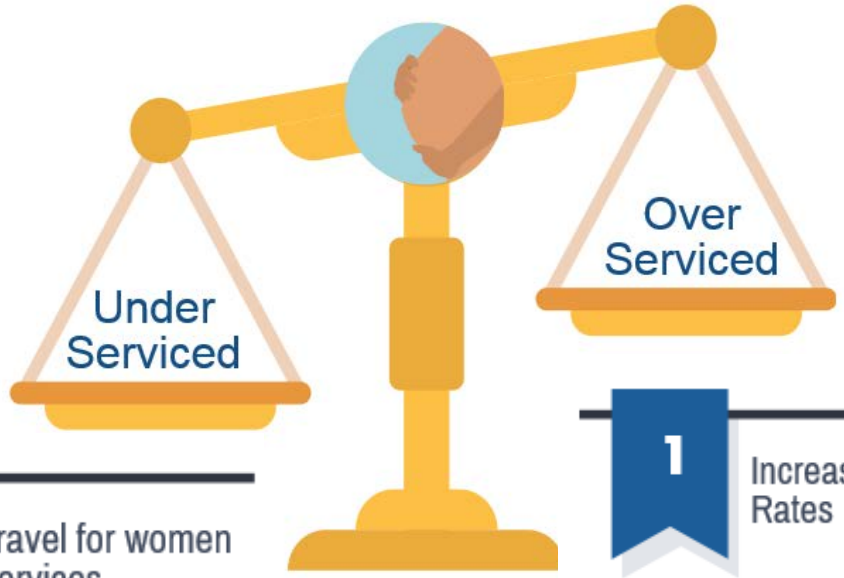
| | | |
|---|---|---|
| **Based on POPULATION, ISOLATION and VULNERABILITY rural and remote communities can support:** | **A** | Pre-post natal care only (no local intrapartum services) |
| | B | Local intrapartum services without cesarean section |
| | C | Local generalist (FP enhanced skills) services) |
| | D | Mixed models (Specialist/GP services) |
| | E | Specialist Models |

| |
|---|
| Pre-post natal care only (no local intrapartum services) |
| Local intrapartum services without cesarean section |
| Local generalist (FP enhanced skills) services) |

Focus on evidence for models of care for Aboriginal communities

# Level of Maternity Services and Population Need

The number of adverse perinatal outcomes increases the more that maternity services are under serviced.



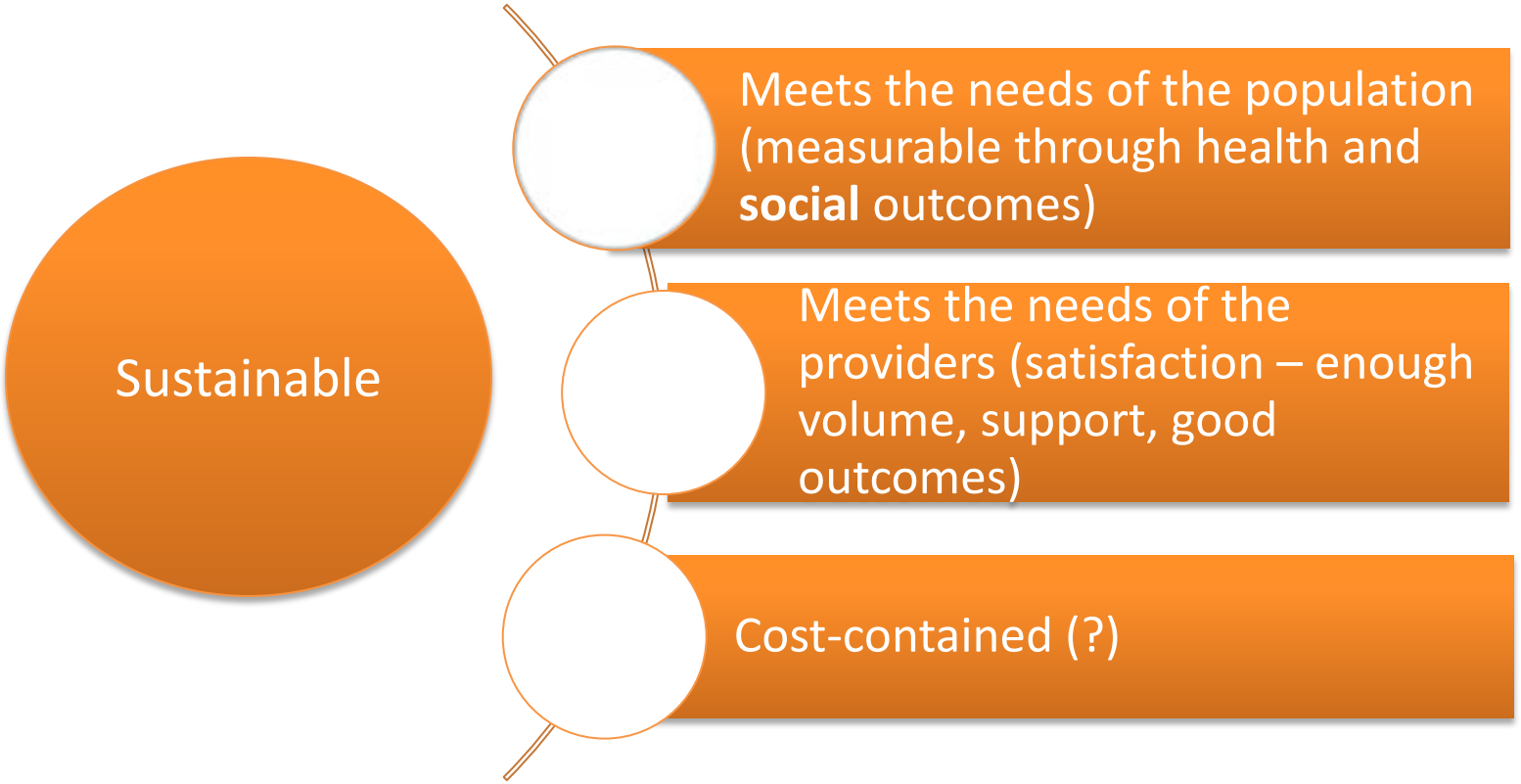

**Under Serviced**

1. Increased travel for women to access services
   - Increased stress
   - Increased adverse outcomes
2. Increase out of hospital births

**Over Serviced**

1. Increased Intervention Rates
2. Problem Retaining Provider
3. Undermining Surrounding Services

# Optimally Served



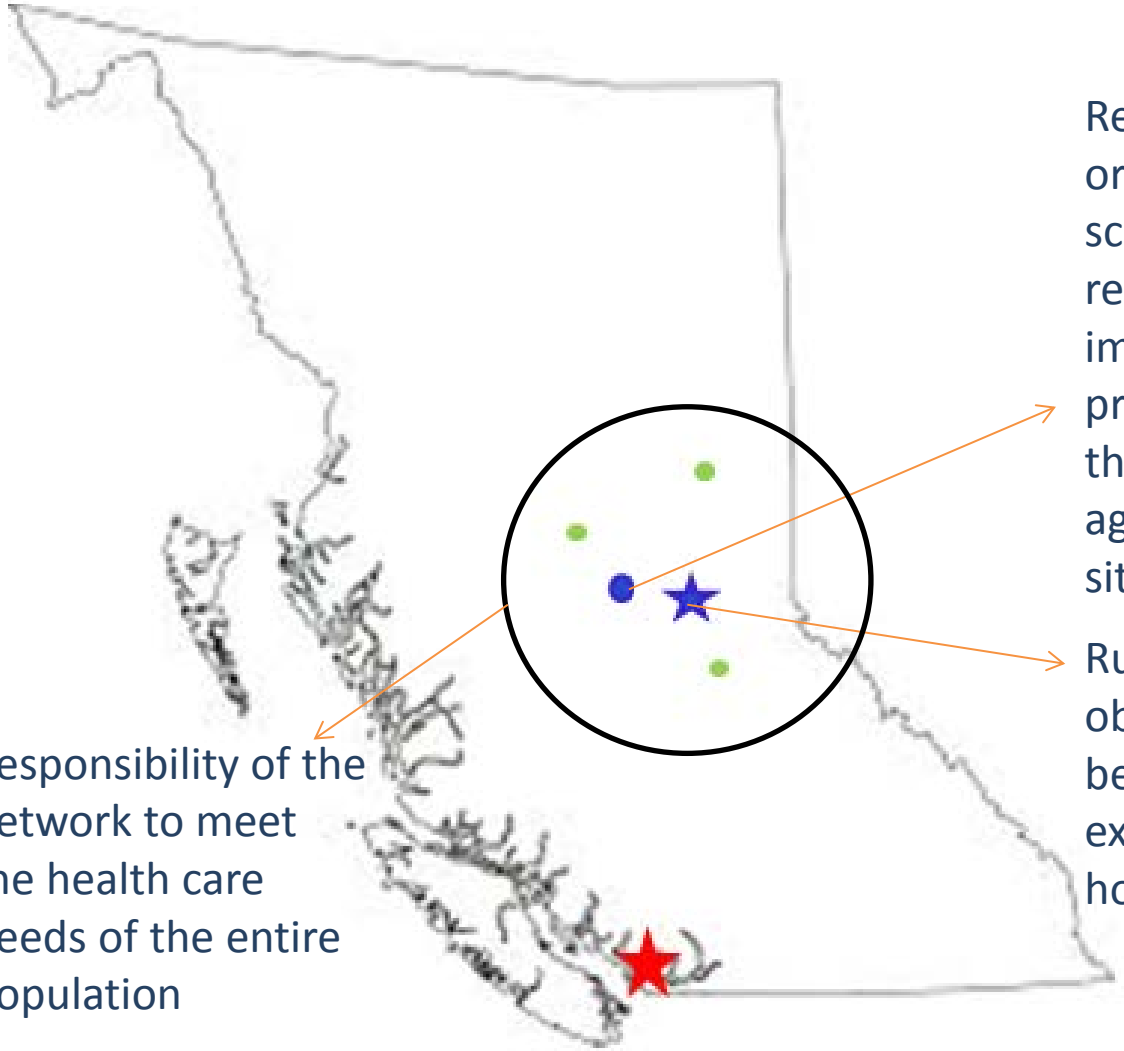
# Rural Health Service Delivery Networks

Based on appropriate triage from low-resource levels of care (typically rural) to secondary and tertiary (typically large urban centre) care

- Not a new construct: current work involves formalizing and optimizing naturally occurring networks

# Rural Health Service Delivery Networks

- Based on geographic population catchments



Requires a regional organization of the scope of practice and resources required to implement surgical programs, decided through consensus agreement between the sites;

Rural surgical and obstetrical programs become outreach extensions of core referral hospital surgical programs

Responsibility of the network to meet the health care needs of the entire population

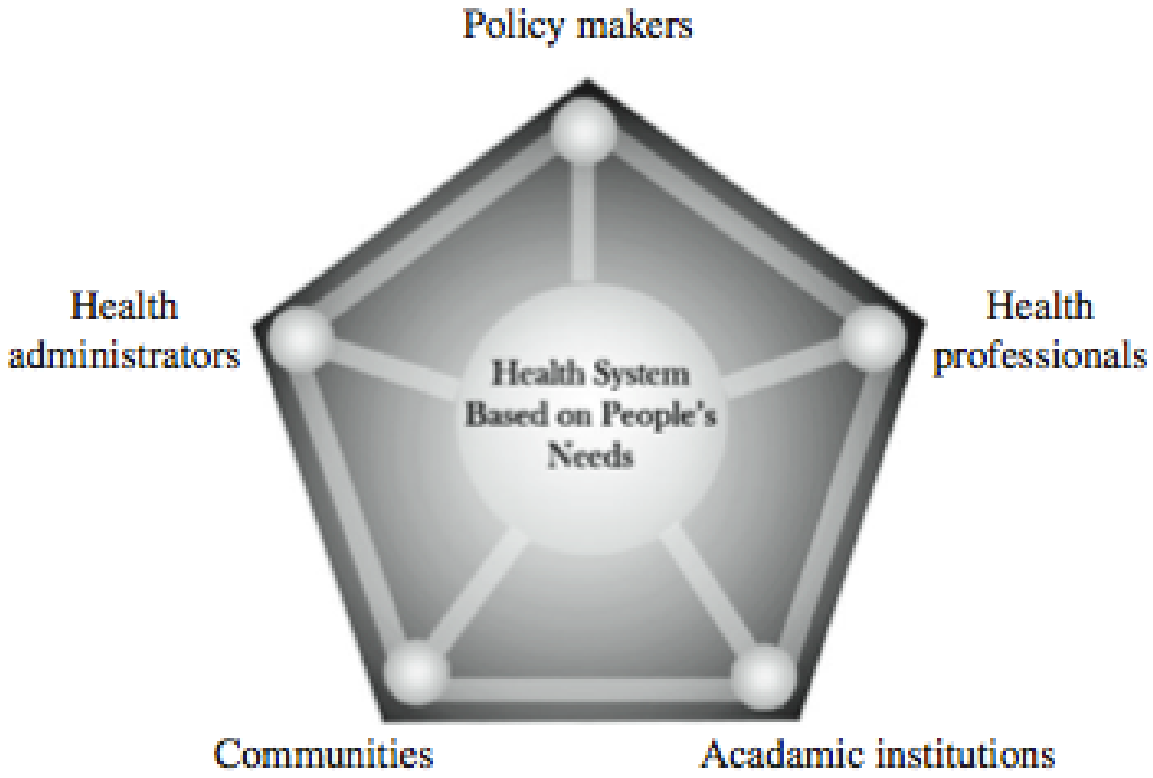
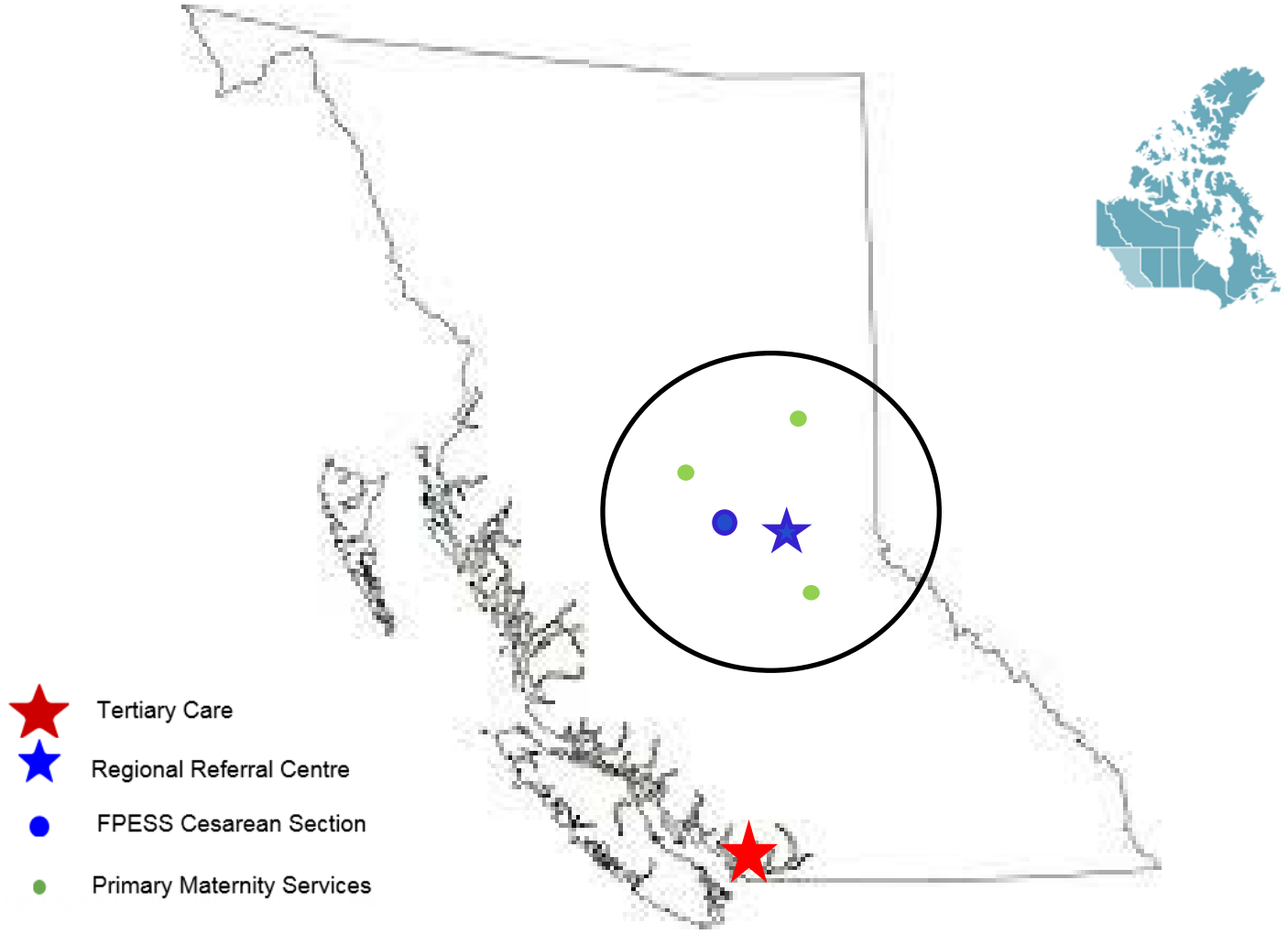



**Figure 1** Social accountability partership pentagram.

*Woollard, Robert. Caring for a Common Future: Medical Schools' Social Accountability. MEDICAL EDUCATION 2006; 40: 301–313*

# Rural Maternity Networks



RESEARCH ARTICLE Open Access

# Distance matters: a population based study examining access to maternity services for rural women

Stefan Grzybowski*, Kathrin Stoll and Jude Kornelsen

Research article Open Access

# The safety of Canadian rural maternity services: a multi-jurisdictional cohort analysis

**Stefan Grzybowski[1]*, John Fahey[2], Barbara Lai[1], Sharon Zhang[3], Nancy Aelicks[3], Brenda M. Leung[3], Kathrin Stoll[4] and Rebecca Attenborough[2]**

*BMC Health Services Research 2015, 15:410*

>4h

2-4h

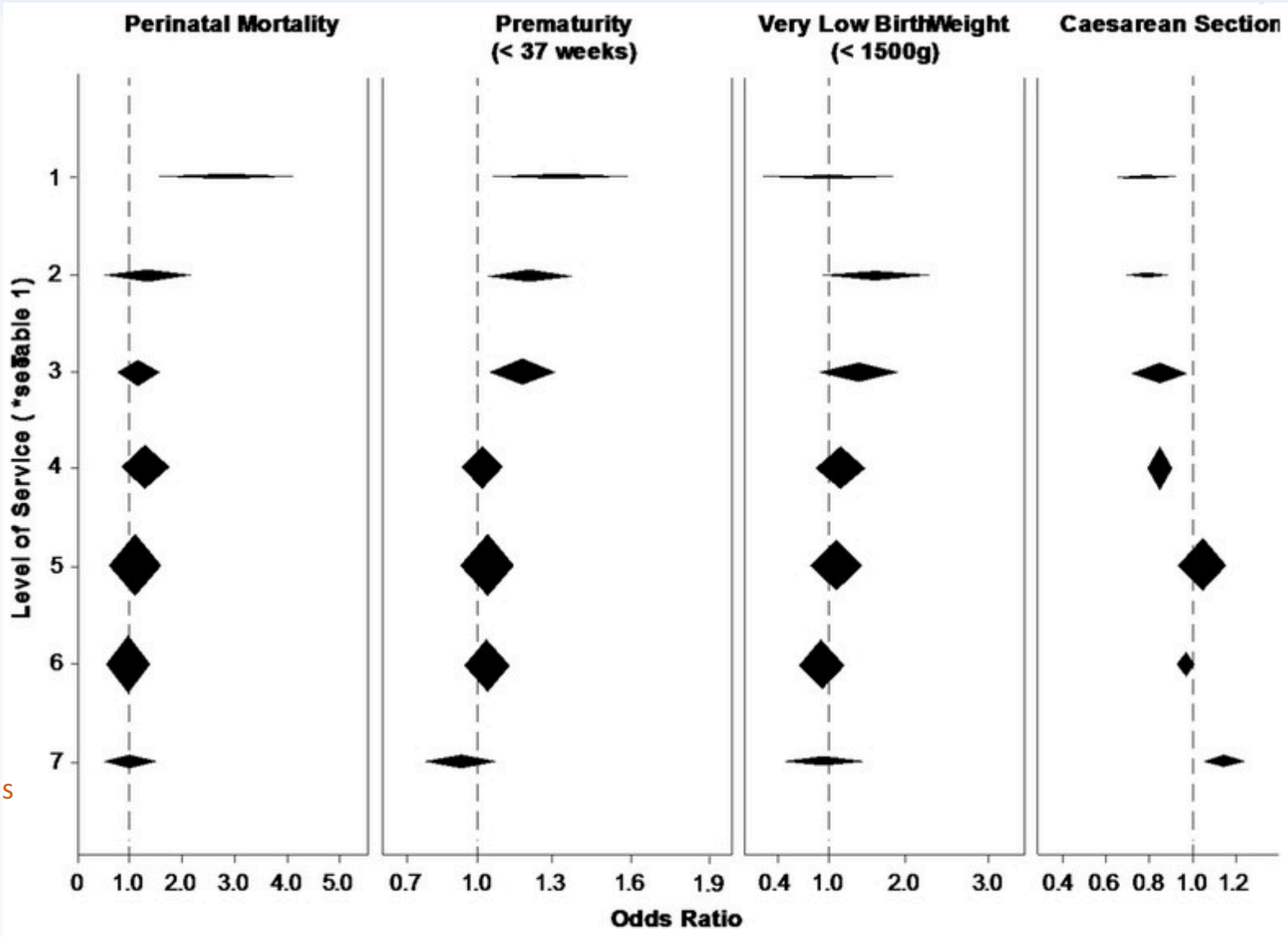
1-2h

Primary Care

GPESS

Mixed Model

General Surgeons




Composite forest plots demonstrating outcomes related to level of service

Grzybowski *et al. BMC Health Services Research* 2015 **15**:410 doi:10.1186/s12913-015-1034-6

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Primary Care

GPESS

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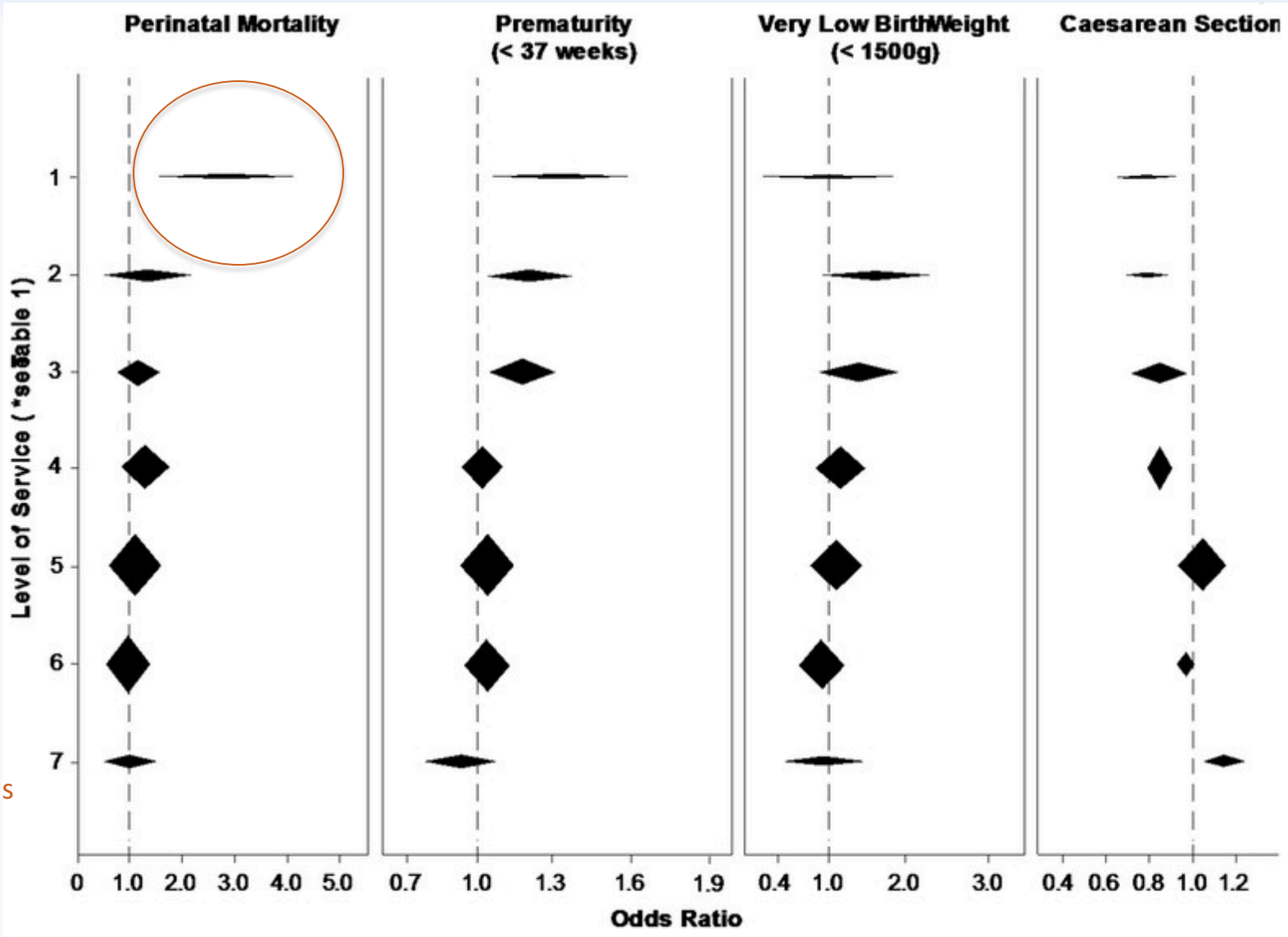


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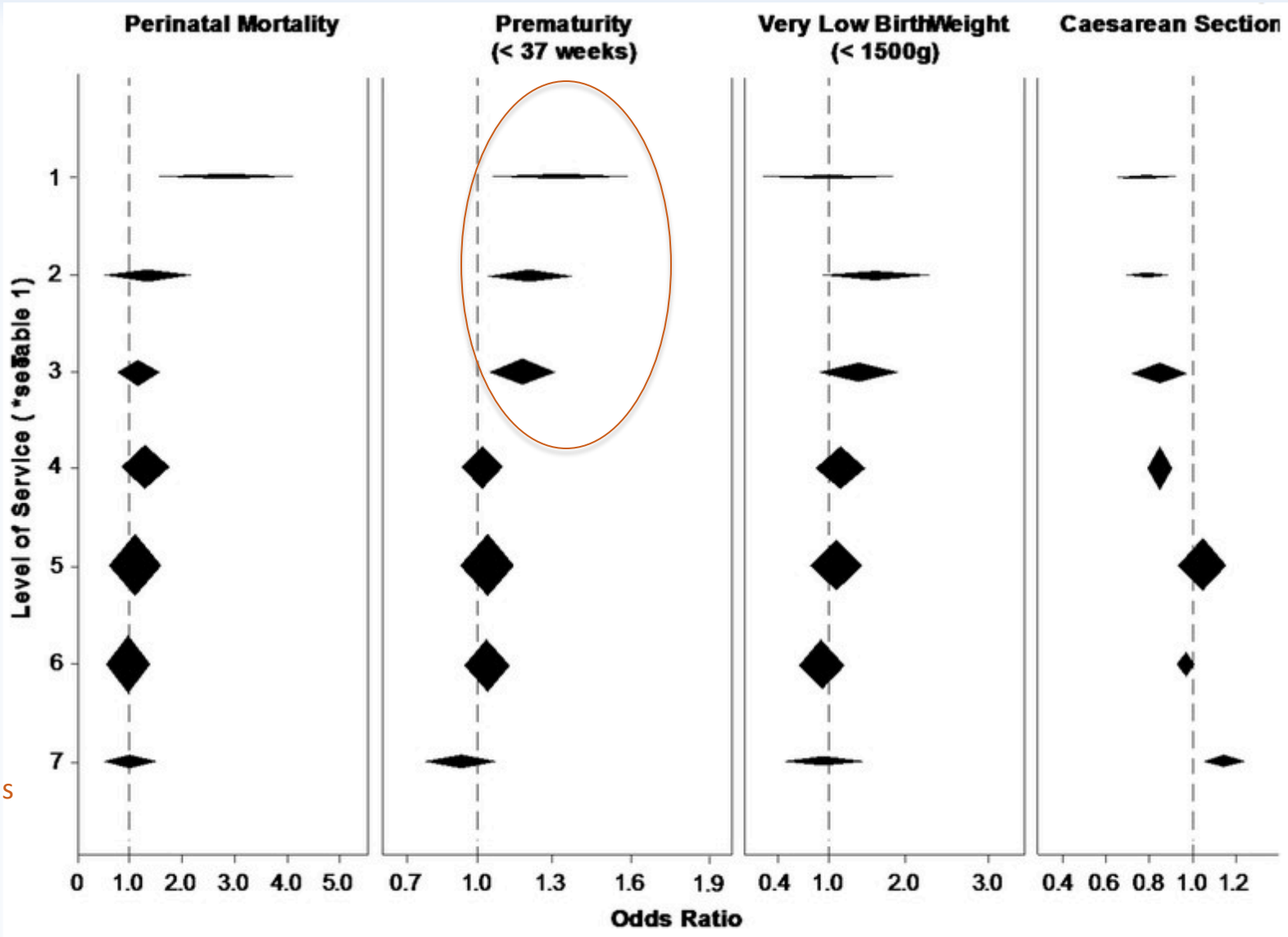


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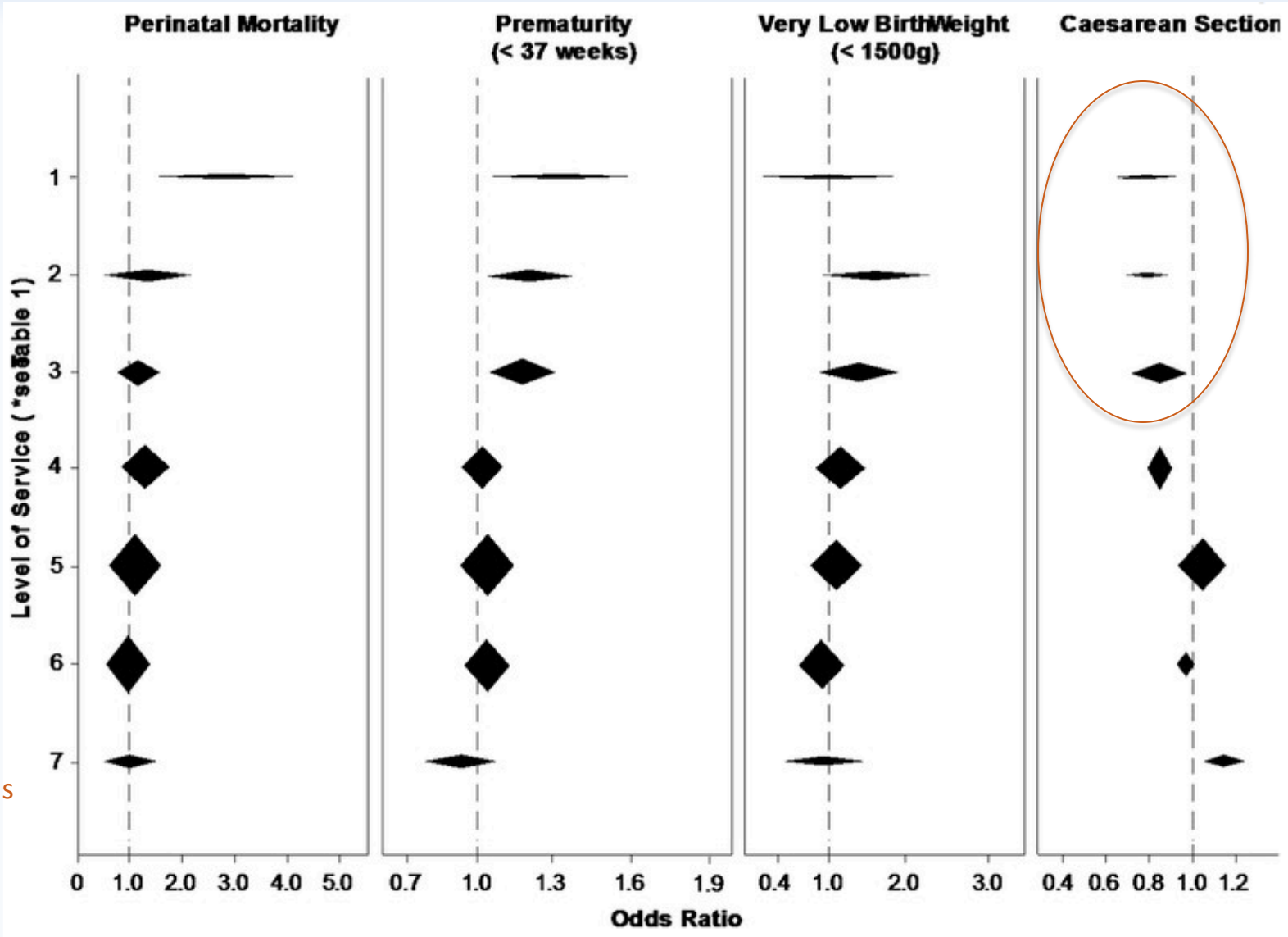


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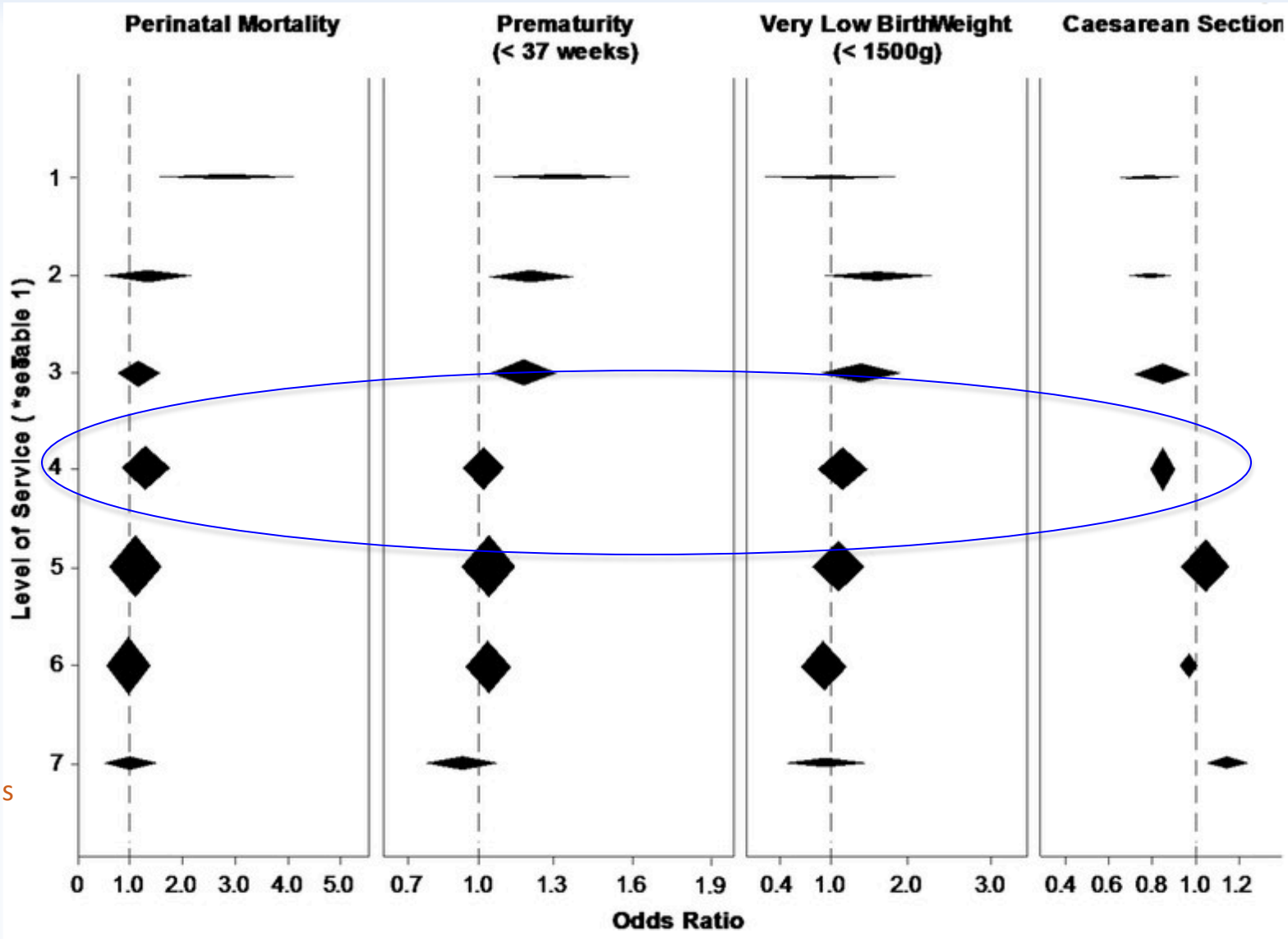


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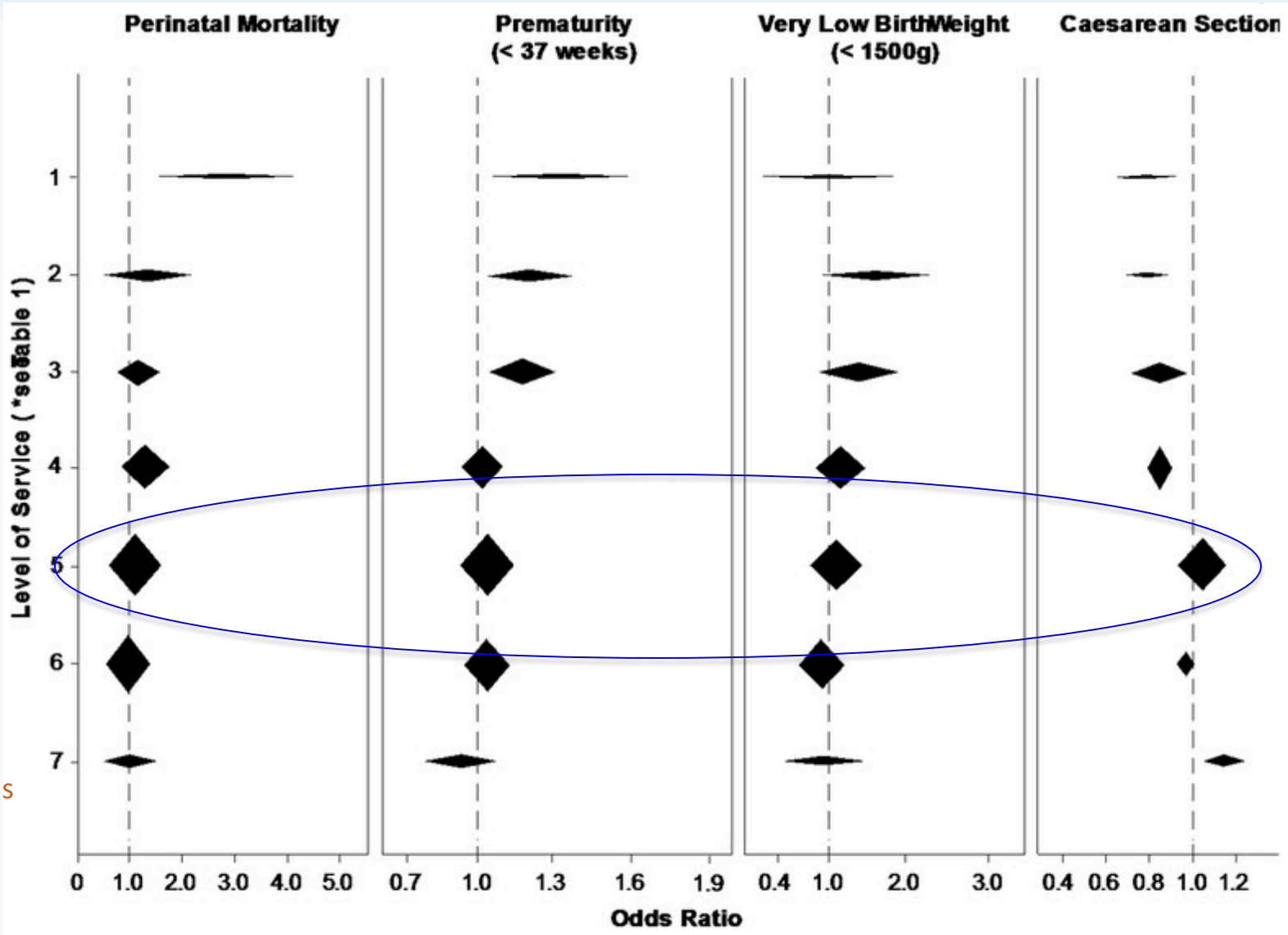


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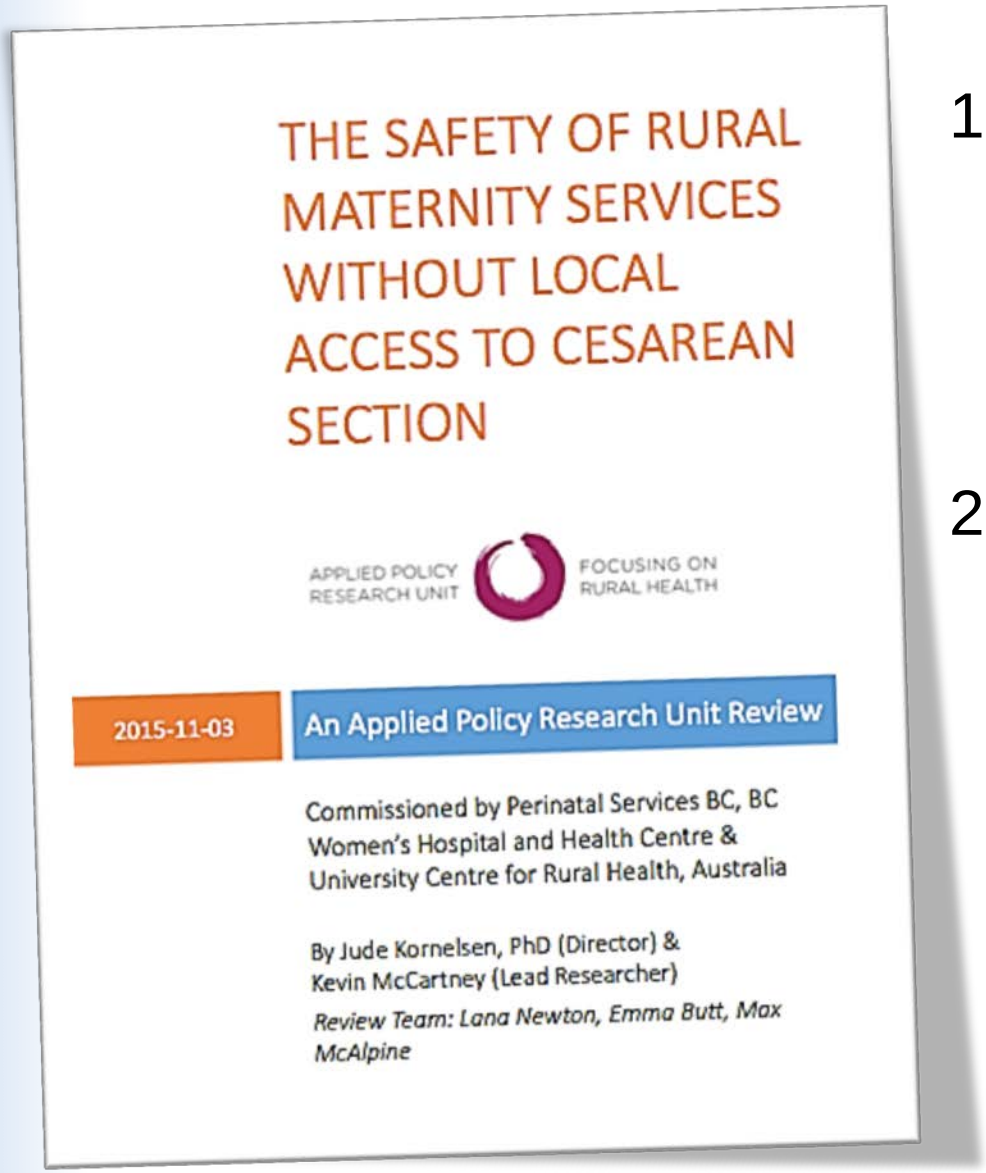
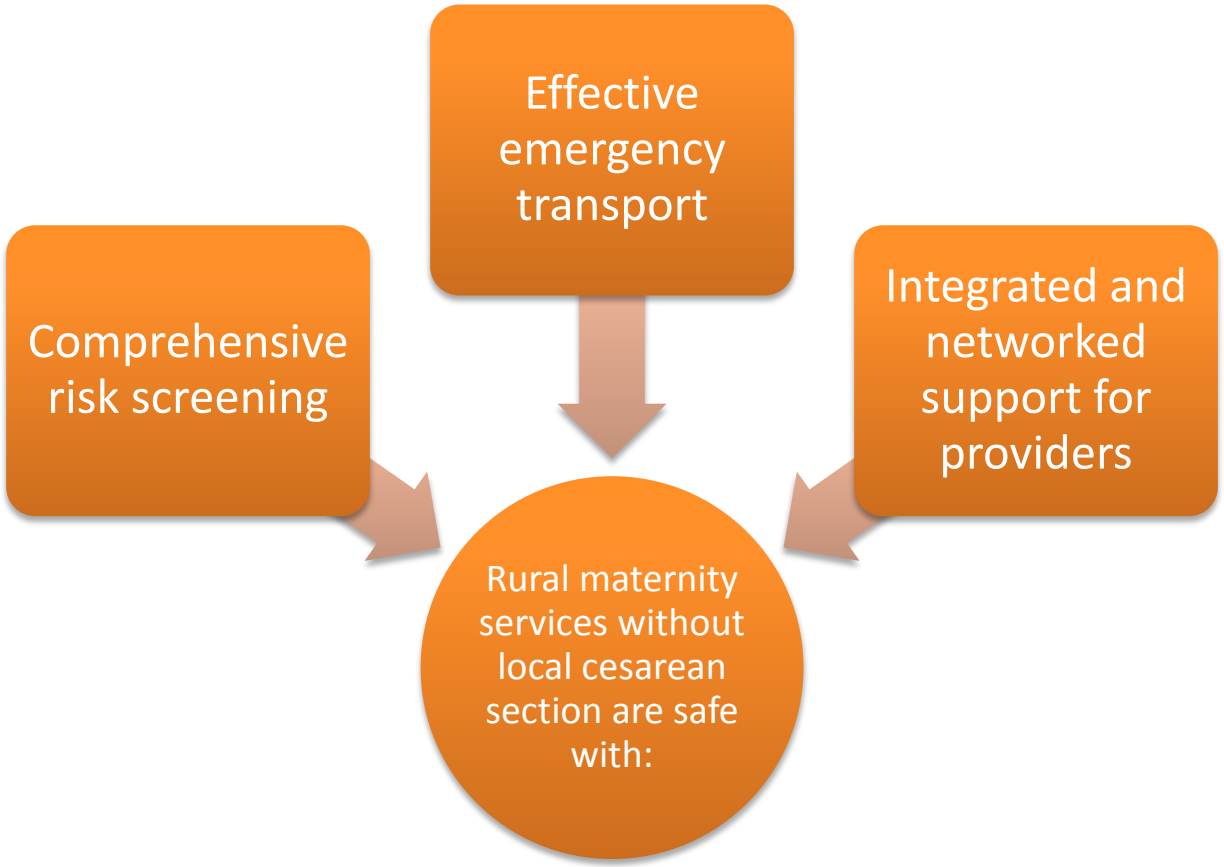



## Review Question:

1. What is the relative safety of rural maternity health services without local access to caesarean section?
2. Is it safer for a rural population to have no local intrapartum services, or primary maternity services?

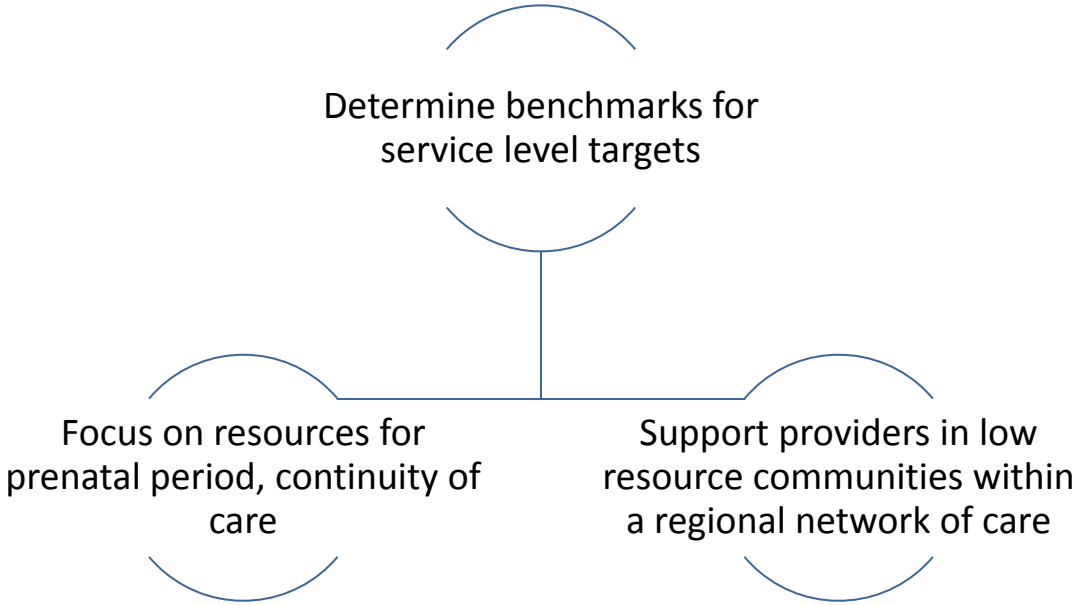
- Realist Review methodology (Pawson)
- 158 articles included
- www.crhr.ca/apru

# First key message from the data



# Second key message from the data

We haven't paid enough attention to communities without local cesarean section services.



# Third key message

(We have enough research evidence to inform planning.)

# Level ‘B’ considerations

# The Safety of Generalist Procedural Care

ORIGINAL ARTICLE
ARTICLE ORIGINAL

## The outcomes of perinatal surgical services in rural British Columbia: a population-based study

*Stefan Grzybowski, MD, CCFP, FCFP, MClSc*
*Centre for Rural Health Research; Vancouver Coastal Health Research Institute; Department of Family Practice, University of British Columbia, Vancouver, BC*

*Kathrin Stoll, PhD*
*Division of Midwifery, Department of Family Practice, University of British Columbia, Vancouver, BC*

*Jude Kornelsen, PhD*
*Department of Family Practice, University of*

**Introduction:** A substantial number of small surgical services in rural Canada have been discontinued in the past 15 years because of difficulties recruiting and retaining practitioners, health care restructuring and a lack of a coherent evidence base regarding the safety of small services. The objective of this study was to examine the safety of small perinatal surgical services.
**Methods:** We accessed perinatal data for singleton births that occurred in British Columbia between Apr. 1, 2000, and Mar. 31, 2007. We defined hospital service levels, population catchment areas surrounding each hospital and the postal codes linked to those catchment areas. Births were linked with specific catchment areas and amalgamated by service level. We made comparisons among service strata populations and adjusted for potentially confounding characteristics.
**Results:** A total of 87 294 births occurred during the study period. The births were distributed across 6 strata of services, which ranged from no local maternity services to services supported by obstetricians. Fifteen catchment areas were served by general practitioners with enhanced surgical skills (GPESSs), and 9174 births were included from this obstetric service level. Outcomes for surgical services provided by GPs compared favourably to those provided by obstetricians.
**Conclusion:** Our results suggest that small surgical services supported by GPESSs are

Grzybowski S, Stoll K, Kornelsen J. The Outcomes of Rural Perinatal Surgical Services in BC: A Population – Based Study. *Canadian Journal of Rural Medicine,* 2013; 18 (4): 123-129.

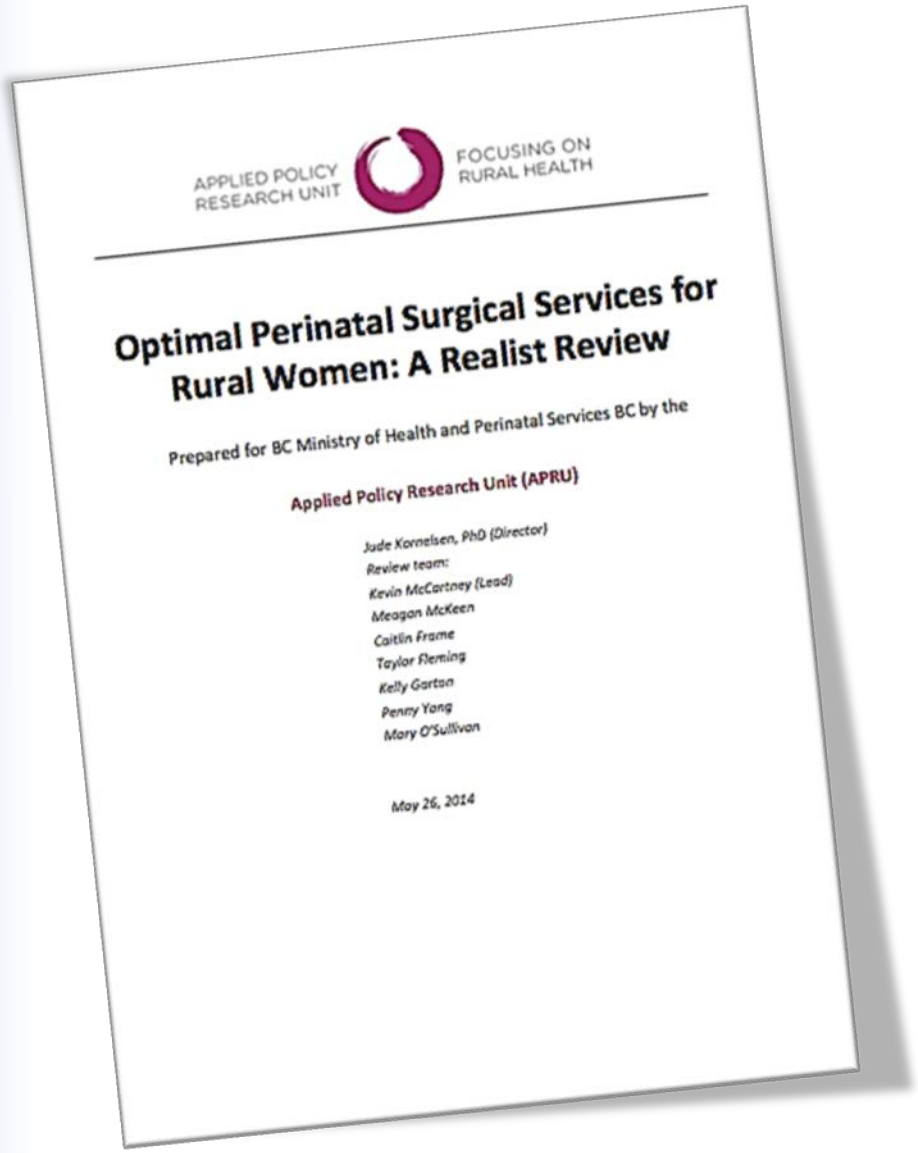
# Methods

- Perinatal data for singleton births that occurred in British
- Columbia between Apr. 1, 2000, and Mar. 31, 2007;
- Data requested by hospital service levels, population catchment areas surrounding each hospital and the postal codes linked to those catchment areas;
- Births were linked with specific catchment areas and amalgamated by service level
- Comparisons among service strata populations and adjusted for potentially confounding characteristics.

# FINDINGS

“The population outcomes for small surgical services staffed by GPESSs were as good as the population outcomes for referral services staffed by obstetricians.”

Grzybowski et al 2011: p 128


APPLIED POLICY RESEARCH UNIT

FOCUSING ON RURAL HEALTH

**Optimal Perinatal Surgical Services for Rural Women: A Realist Review**

Prepared for BC Ministry of Health and Perinatal Services BC by the

Applied Policy Research Unit (APRU)


Jude Kornelsen, PhD (Director)

Review team:

Kevin McCartney (Lead)

Meagan McKeen

Caitlin Frame

Taylor Fleming

Kelly Gartan

Penny Yang

Mary O'Sullivan


May 26, 2014

## REVIEW QUESTION:

- Can we meet the perinatal surgical needs of rural women more effectively through an optimally centralized or optimally decentralized model of care?
  - Realist Review methodology (Pawson)
  - 145 articles.
  - www.crhr.ca/apru

# Key Findings by Theme

## Safety and Outcomes

- There is no existing clinical, case study, or qualitative evidence that basic maternal surgical care, including caesarean section, is less safe when provided by GP proceduralists with enhanced surgical skills than when provided by specialist obstetricians;
- Volume-to-outcome associations are extremely variable across procedure and context, but evidence suggests greater birth volume does not improve birth centre outcomes in maternal surgical care in the Canadian context;
- Lack of any local maternity services is associated with worsened birth outcomes, with both the risk that women present to underprepared health service units, and distance to care affecting outcomes;
- Lack of local maternal surgical care is associated with a lesser ability to meet the needs of the community and substantially higher outflow;

# Key Findings by Theme

## Safety and Outcomes

## Costs and Cost-Effectiveness

The literature reviewed here demonstrates that higher costs are associated with greater distances that women must travel to access services, both in travel expenses and in the cost of managing poor outcomes due to delayed access. .

☐ Due to the lack of literature on comprehensive costs of either centralized or decentralized models and the tremendous variation in health service models, we are unable to determine if one is necessarily more cost- effective.

Safety

# Key Findings by Theme

**Sustainability**

**Safety and Outcomes**

**Costs and Cost-Effectiveness**

- Lack of sustainability is due largely to workforce shortage issues including recruiting and retaining care providers in low volume settings;
- Sustainability is also related to challenges with training and preparedness for rural practice for both GPs and rural General Surgeons;
- Perinatal surgical services are the ‘lynchpin’ in sustainable rural health care;
- Educational programs have a significant role in attracting new practitioners to rural practice; strategies include recruiting students from rural settings, although evidence of effectiveness of this strategy is mixed;
- Social drivers influencing decisions to pursue rural procedural practice include personal/family reasons and positive rural exposure;
- Effective rural training contributing to rural sustainability for GP proceduralists and rural General Surgeons should include broad procedural competencies (not limited to cesarean section);

.

Safety

# Key Findings by Theme

**Sustainability**

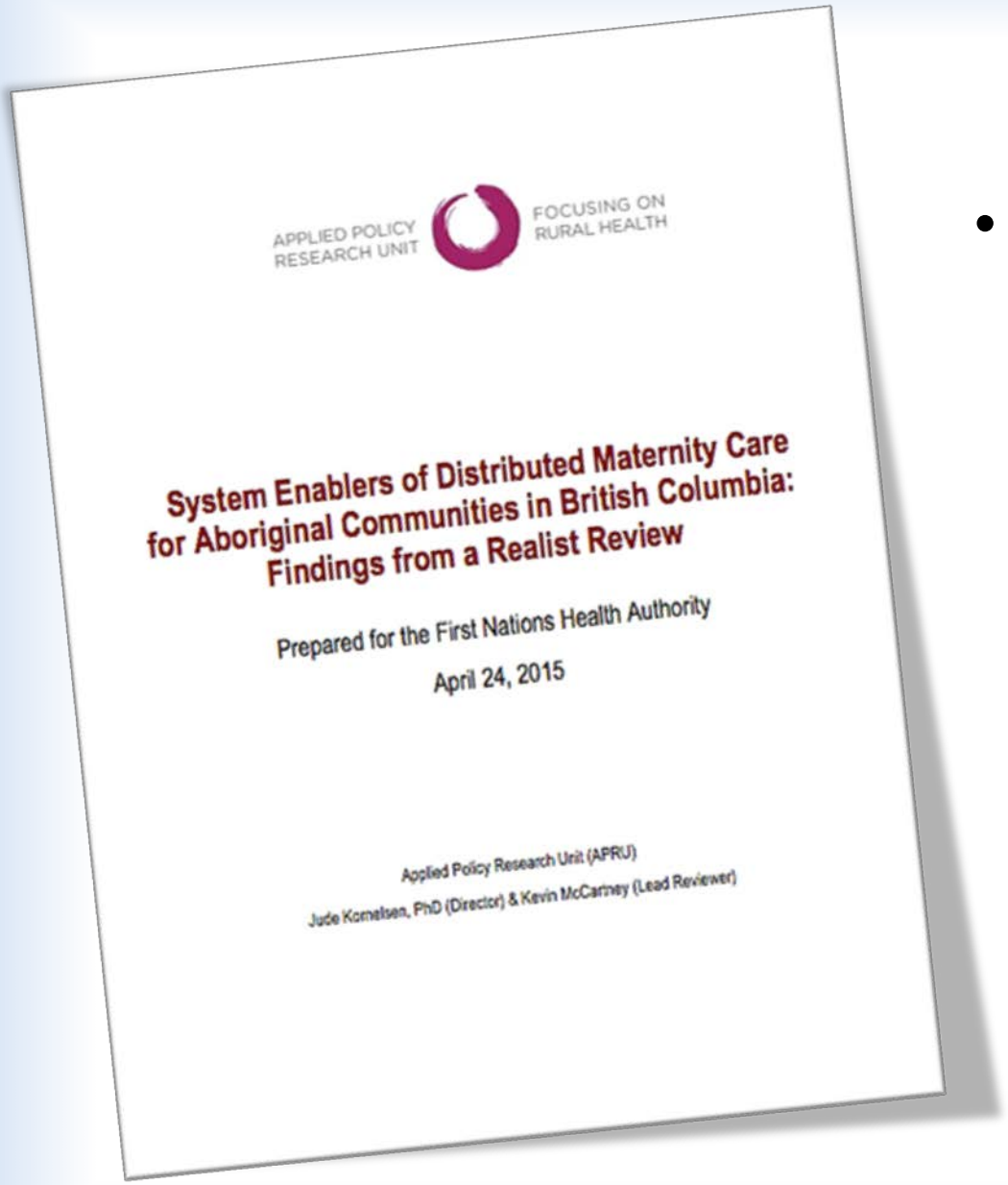
**Safety and Outcomes**

**Satisfaction**

**Costs and Cost-Effectiveness**

- In all jurisdictions covered in this review, rural perinatal surgical care providers feel extended in their roles: this limits satisfaction and leads to burn-out and attrition;
- Rural surgical providers that persist are highly motivated by ideals of equity and access to care for rural populations;
- Continuing professional development for rural providers is essential and difficult to achieve due to lack of local opportunities;
- There is equivocal data on the importance of practice thresholds in provider confidence and/or stress: overall the relationship is weak;
- Models of care that are highly integrated with specialist colleagues lead to increased practice satisfaction;

.




## REVIEW QUESTION:

- "What systemically enables the decentralization of maternity services while maintaining safe birth outcomes in rural and remote communities?"
  - Realist Review methodology (Pawson)
  - 145 articles.
  - www.crhr.ca/apru

Literature (models) organized by level of care available locally:

① pre- post-natal care (no local intrapartum)

② Primary maternity care (no local c-section)

③ Local FPESS cesarean section

# Key Findings by Theme

**Cross-cutting system enablers:**

Include the need for cultural competence among maternity care providers. Providers must understand the reverberations of colonialism, recognize the importance of place beyond geography and recognize the importance of collaborative care that respects the contribution of all members of a community.

# Key Findings by Theme

**Pre- and post-natal-only care**

**Health Human Resource Enablers**

- The importance of an expanded definition of the care team inclusive of locally-defined members contributing to the psycho-social, emotional and physical health of the birthing woman; and
- The appropriate orientation of care providers towards First Nations health and wellness.

# Key Findings by Theme

**Pre- and post-natal-only care**

**System Enablers**

- The need for health services to be owned and controlled by the community;
- Infrastructure such as maternal waiting homes or birthing centres to facilitate referral from
- remote communities;
- Acknowledgement of the importance of social resources for women leaving the community for
- birth (i.e., family); and
- An exploration of the appropriate and/or necessary skill requirements for antenatal care givers,
- escorts in referral transport, and traditional healers and health workers.

# Key Findings by Theme

**Enablers of midwifery-led primary maternity services**

- The need for an expansive definition of a care team to meet the needs of local communities;
- The need for recruiting strategies that include privileging local communities members to receive education and training;
- Innovative infrastructure models (i.e., Birth Centres);
- Recognition of the importance of allied staff;
- Appropriate attitudes of care providers;
- Recognition of the importance of multidisciplinary care planning that includes both physical and
- biological concepts of risk as well as social, cultural and personal concepts.

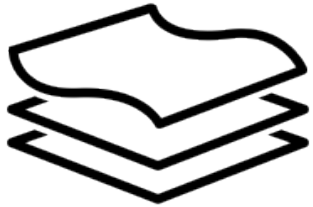
# Key Findings by Theme

**Enablers of physician-led primary maternity services**

- There is an under-representation of Aboriginal physicians in Canada despite educational and incentive programs to increase recruitment;
- Overseas trained doctors are often recruited to rural and isolated communities to meet Canadian practice requirements but are not prepared in settings where cultural competence is a priority;
- There is a lack of description of physician-based clinical competencies necessary for safe sustainable services;
- Evidence suggests that physicians would benefit from public health training to better serve First Nations communities where social health needs are prominent;
- Salary is a potential incentive for collaborative practices between physicians and community practitioners;
- Models of physician-led rural maternity care that may be conducive to Aboriginal settings include Networked models and Alternative Payment Plans.

# Implications of the (collective) evidence

- Challenges the *status quo*
- ‘Constructive disruption’
- Potential to initiate paradigm shifts



# Our mandate

- Political, social and moral mandate to provide maternity care locally
- Evidence to support local care as an appropriate health services delivery option when certain conditions are met
- Importance of using best evidence to inform models of care
- Importance of integrated CQI and real-time data analysis

# How?

1

Evidence, evidence, evidence!

2

Real partnership and collaboration with communities

3

Start in small rural communities and fix things from the ground up; (ideal setting)

4

Value innovative ideas and solutions and pilot test them

5

Build a comprehensive cost effectiveness evaluation framework