Society of Rural Physicians of Canada
26TH ANNUAL RURAL AND REMOTE MEDICINE COURSE
ST. JOHN'S NEWFOUNDLAND AND LABRADOR
APRIL 12 - 14, 2018

• 173

Dr. Jude Kornelsen & Dr. George Carson

RURAL OBSTETRICS: NUMBER NEEDED TO TRANSPORT?

Rural Obstetrics for the Society of Rural Physicians of Canada in Newfoundland

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Society of Obstetricians and Gynecologists of Canada

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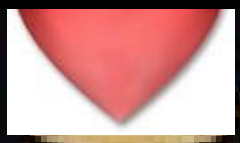
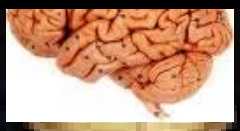
Rural Obstetrics
for the
Society of Rural Physicians of Canada in Newfoundland

CONFLICT OF INTEREST

I have no financial interests or conflicts
UNFORTUNATELY

•I believe in hospital care
•I am comfortable working in a tertiary care hospital
•It feels like home – to me.
(I have spent ~> 20 years there)
•I know I have –rarely- saved a baby and – even more rarely- saved a mother in an emergency because of resources right there with me when needed - in a hospital





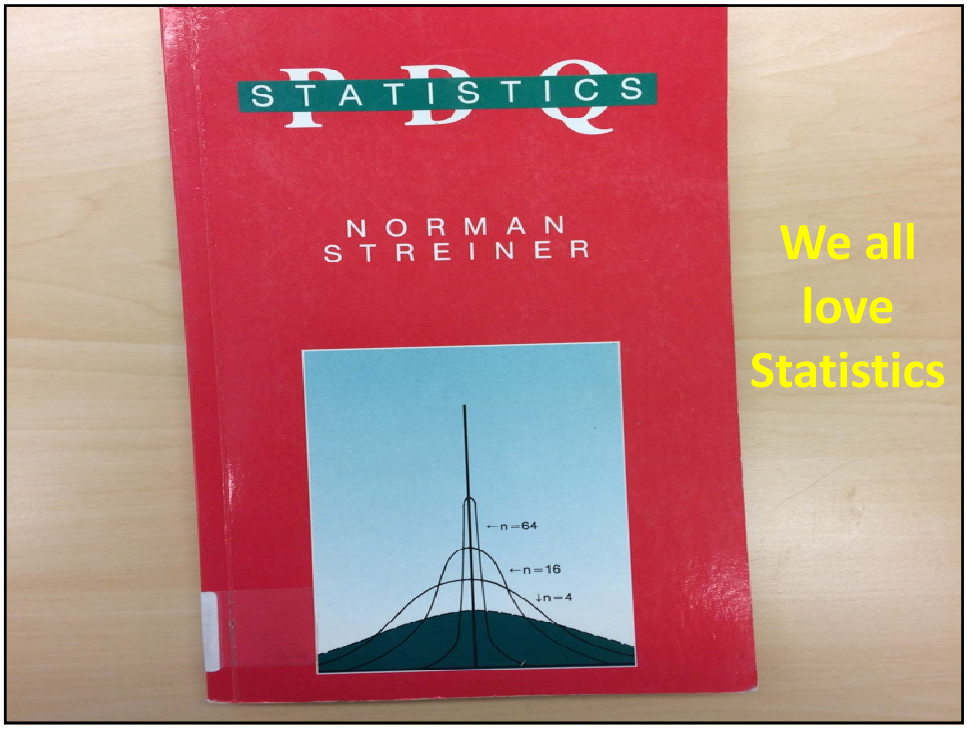
How do I feel?

What do I know?

Rural Obstetrics for the Society of Rural Physicians of Canada

OBJECTIVES

1. Appreciate the change in distribution of places of birth in Canada
2. Analyze the benefits and costs (medical, personal and community) of birth not close to home
3. Create a list pf requirements to retain or restore birth to as close to home as reasonably feasible
4. Select patient situations when birth close to home should, and should not, be offered



NNT

Number Needed to Treat

So how many are exposed to treatment to get one intended outcome

NNT

Number Needed to Treat

So how many are exposed to treatment to get one intended outcome

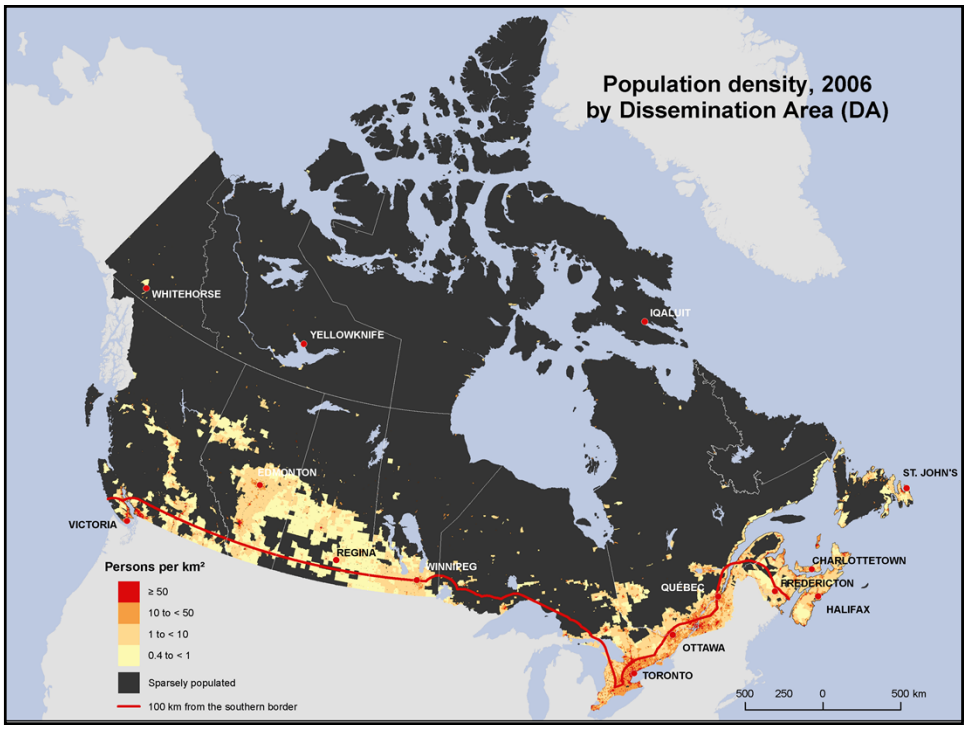
Some pregnant people even with the best possible patient selection will have severe complications from which the woman and/or fetus/neonate can be rescued. But only with the resources and experience of a large centre
So should everyone deliver there "just in case?"

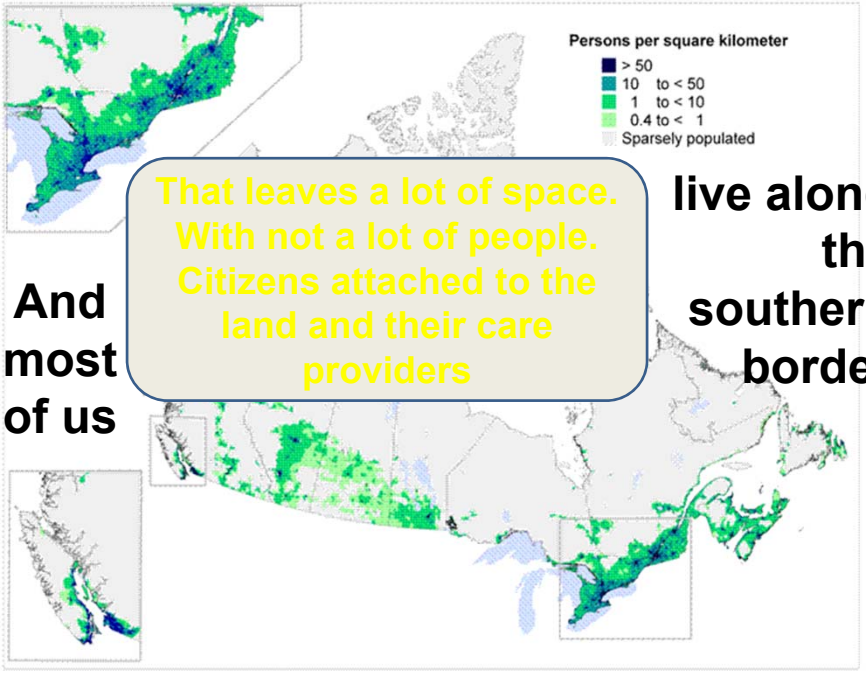
NNT

Number Needed to Transport

How many must leave their community so the one who will benefit from urban care is in the urban site


Canada
International Boundary
Province Boundary
Road
River
National Capital
Province Capital
City or Town
0 200 400 KM
0 200 400 Miles
© 2007 Geology.com
ARCTIC OCEAN
GREENLAND
U.S.A.
CANADA
NUNAVUT
NORTHWEST TERRITORIES
YUKON TERRITORY
ALBERTA
SASKATCHEWAN
MANITOBA
ONTARIO
QUEBEC
NEWFOUNDLAND & LABRADOR
PRINCE EDWARD ISLAND
NOVA SCOTIA
NEW BRUNSWICK
UNITED STATES OF AMERICA
Hudson Bay
Labrador Sea
North Atlantic Ocean
Davis Strait
Baffin Bay
Beaufort Sea
Chukchi Sea
Barrow
Prudhoe Bay
Fairbanks
Anchorage
Inuvik
Dawson
Whitehorse
Watson Lake
Juneau
Yellowknife
Fort Nelson
Hay River
Fort Smith
Prince Rupert
Prince George
Vancouver
Victoria
Seattle
Portland
Spokane
Edmonton
Calgary
Lethbridge
Saskatoon
Regina
Flin Flon
Winnipeg
Thunder Bay
Sudbury
Ottawa
Montreal
Quebec
Sherbrooke
Fredericton
Saint John
Halifax
Charlottetown
Sydney
Gander
Saint John's
Happy Valley-Goose Bay
Schefferville
Chibougamau
Chisasibi (Fort George)
Sept-Iles
Moosonee
Churchill
Rankin Inlet
Ivujivik
Iqaluit
Cambridge Bay
Resolute
Alert
Qaanaaq
Nuuk
Boise
Bismarck
Duluth
Minneapolis
Reno
Las Vegas
Kansas City
Indianapolis
Washington, D.C.
Canada is a vast country


Population density, 2006
by Dissemination Area (DA)
WHITEHORSE
YELLOWKNIFE
IQALUIT
EDMONTON
VICTORIA
REGINA
WINNIPEG
QUÉBEC
TORONTO
OTTAWA
FREDERICTON
CHARLOTTETOWN
HALIFAX
ST. JOHN'S
Persons per km²
≥ 50
10 to < 50
1 to < 10
0.4 to < 1
Sparsely populated
100 km from the southern border
500 250 0 500 km



That leaves a lot of space. With not a lot of people. Citizens attached to the land and their care providers

And most of us live along the southern border

Clinical Review & Education

JAMA | SpecialCommunication

Health Care Spending in the United States and Other High-Income Countries

Irene Papanicolas, PhD; Liana R. Woskie, MSc; Ashish K. Jha, MD, MPH

OBJECTIVE To compare potential drivers of spending, such as structural capacity and utilization, in the United States with those of 10 of the highest-income countries (United Kingdom, Canada, Germany, Australia, Japan, Sweden, France, the Netherlands, Switzerland, and Denmark) to gain insight into what the United States can learn from these nations.

What can we find documented about Canada?

***JAMA*. 2018;319(10):1024-1039.**

What can we find out about Canada?

Maternal and infant health												
Maternal mortality, deaths per 100 000 live births	US 26.4	UK 9.2	Germany 9	France 7.8	Canada 7.3	NLD 6.7	Japan 6.4	CHE 5.8	Australia 5.5	Sweden 4.4	Denmark 4.2	8.4
Infant mortality, deaths per 1000 live births	US 5.8	Canada 5.1	UK 3.9	CHE 3.9	France 3.8	Denmark 3.7	Germany 3.3	Australia 3.2	Sweden 2.5	NLD 2.5	Japan 2.1	3.6
Neonatal mortality, deaths per 1000 live births	US 4	Canada 3.2	CHE 3.1	Denmark 3	UK 2.7	France 2.6	NLD 2.5	Germany 2.3	Australia 2.3	Sweden 1.7	Japan 0.9	2.6
Neonatal mortality, deaths per 1000 live births excluding <1000 g	Denmark 2.09	NLD 1.96	UK 1.77	Canada 1.63	US 1.61	Sweden 1.56	Germany 1.49	France NA	CHE NA	Japan NA	Australia NA	1.7
Low birth weight, % of total live births	Japan 9.5	US 8.1	UK 6.9	Germany 6.6	NLD 6.5	Australia 6.4	Canada 6.3	France 6.2	Denmark 5	Sweden 4.4	CHE NA	6.6

We do not take good care of our children
We do not take good care of our future

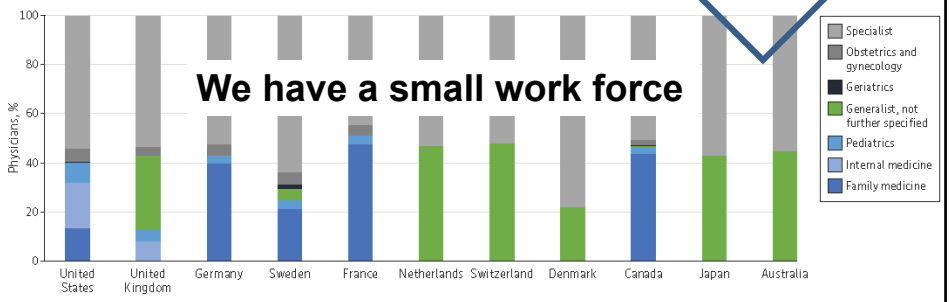
***JAMA*. 2018;319(10):1024-1039.**

What can we find out about Canada?

Figure 5. Workforce and Structural Capacity

Rank (highest to lowest)	1	2	3	4	5	6	7	8	9	10	11	Mean
Practicing workforce												
Overall physicians per 1000 population	CHE 4.3	Sweden 4.2	Germany 4.1	Denmark 3.6	NLD 3.5	Australia 3.5	France 3.1	US 2.6	Canada 2.6	Japan 2.4	UK 2.1	3.3
Primary care physicians, % of total	France 54	CHE 48	Canada 48	NLD 47	UK 45	Germany 45	Australia 45	US 43	Japan 43	Sweden 33	Denmark 32	43
Specialists, % of total	Denmark 78	Sweden 67	US 57	Japan 57	UK 55	Germany 55	Australia 55	NLD 53	CHE 52	Canada 52	France 46	57
Nurses per 1000 population	CHE 17.4	Denmark 16.3	Germany 13	NLD 12.1	Australia 11.5	Sweden 11.2	US 11.1	Japan 10.5	Canada 9.5	France 9.4	UK 8.2	12.8

Figure 6. Practicing Physicians by Primary Care Specialization



We have a small work force

***JAMA*. 2018;319(10):1024-1039.**

What can we find out about Canada?

Figure 11. Distribution and Equity

Rank (highest to lowest)	1	2	3	4	5	6	7	8	9	10	11	Mean
Equity												
Horizontal inequity index, %[a]	US 6	Canada 1.90	France 1.30	Germany 1.00	UK 0.40	Sweden NA	NLD NA	CHE NA	Denmark NA	Japan NA	Australia NA	2.10
Geographic breakdown												
Rural population, % of total population	CHE 26	France 20	US 18	Germany 18	Canada 18	UK 17	Sweden 14	Denmark 12	Australia 10	NLD 9	Japan 6	15
Population density per sq mile	NLD 505	Japan 348	UK 271	Germany 237	CHE 212	Denmark 136	France 122	US 35	Sweden 24	Canada 4	Australia 3	173
Urban physicians per 1000 population	Sweden 4.5	France 4.1	Canada 4.1	US 3.2	Japan 2.9	CHE 2.8	Australia 2.6	Germany	UK NA	NLD NA	Denmark NA	3.3
Rural physicians per 1000 population	CHE 4.4	Sweden 3.5	France 2.5	Australia 1.7	US 1.4	Japan 1.4	German 1.3	Canada 0.4	U N	NLD NA	Denmark NA	2.1

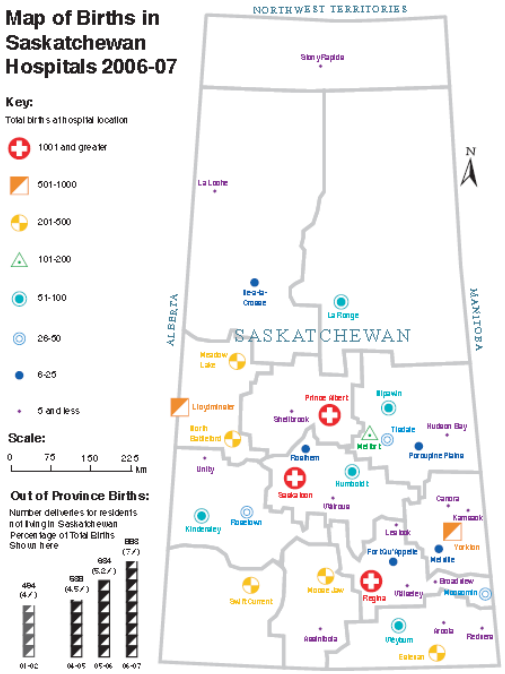
And very few of you are rural

***JAMA*. 2018;319(10):1024-1039.**

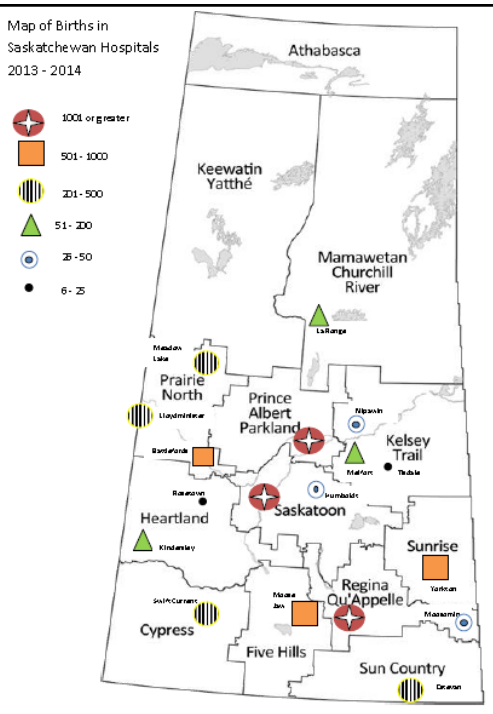
What can we find out about Canada?

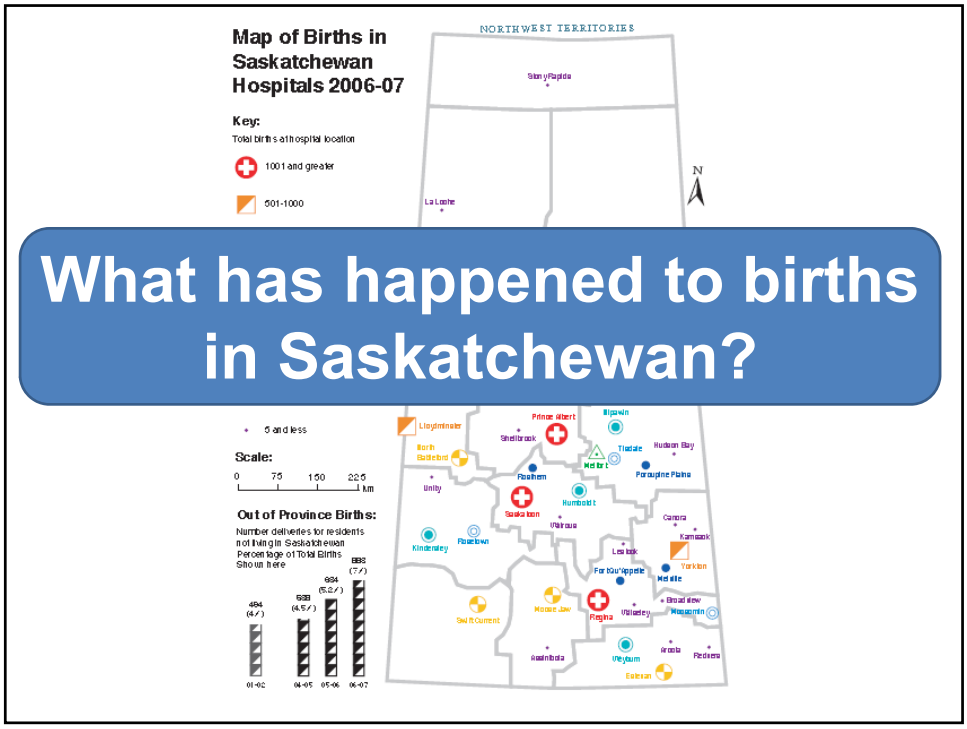
WHERE HAVE THE BIRTHS GONE?
Consider Saskatchewan

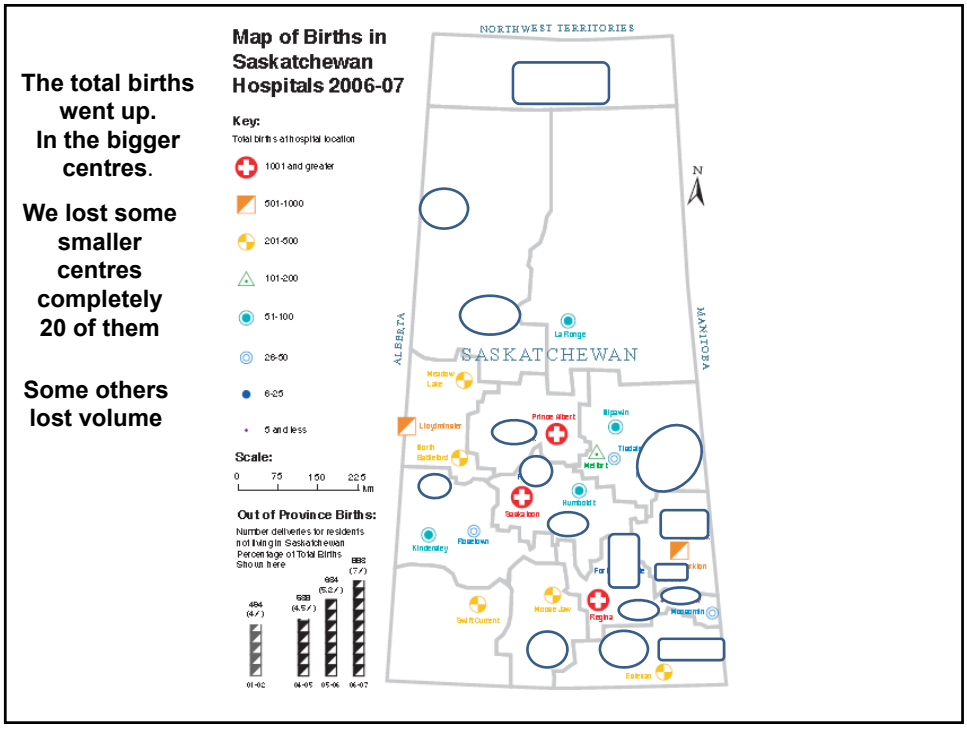
11, 588 births



14,244 births




Map of Births in Saskatchewan Hospitals 2006-07
Key:
Total births at hospital location
1001 and greater
501-1000
5 and less
Scale:
0 75 150 225 km
Out of Province Births:
Number deliveries for residents not living in Saskatchewan
Percentage of Total Births Shown here
494 (4.7)
588 (4.5)
694 (5.2)
888 (7.1)
01-02
04-05
05-06
06-07
NORTHWEST TERRITORIES
N
What has happened to births in Saskatchewan?


The total births went up. In the bigger centres.
We lost some smaller centres completely 20 of them
Some others lost volume
Map of Births in Saskatchewan Hospitals 2006-07
Key:
Total births at hospital location
1001 and greater
501-1000
201-500
101-200
51-100
26-50
6-25
5 and less
Scale:
0 75 150 225 km
Out of Province Births:
Number deliveries for residents not living in Saskatchewan
Percentage of Total Births Shown here
494 (4.7)
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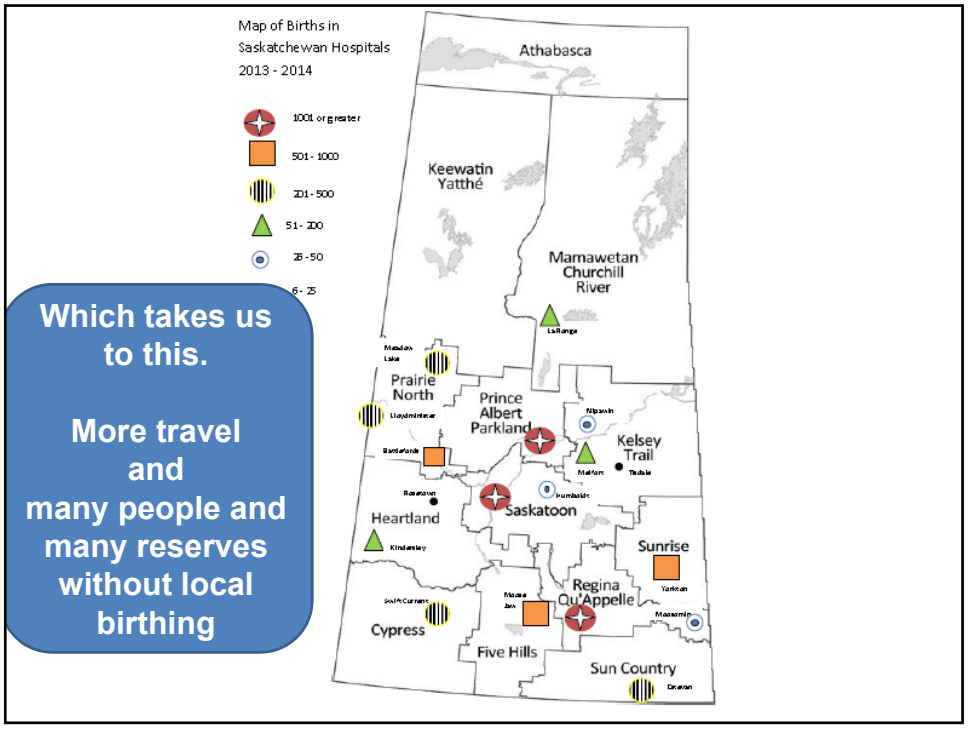
04-05
05-06
06-07
NORTHWEST TERRITORIES
N
ALBERTA
MANITOBA
SASKATCHEWAN



Which takes us to this.

More travel and many people and many reserves without local birthing

What sort of births should happen near home?

JOINT POLICY STATEMENT

No. 221, December 2008

J Obstet Gynaecol Can 2008;30(12):1163–1165

Joint Policy Statement on Normal Childbirth

Definition of Normal Birth

A normal birth is spontaneous in onset, is low-risk at the start of labour and remains so throughout labour and birth. The infant is born spontaneously in vertex position between 37 and 42+0 completed weeks of pregnancy. Normal birth includes the opportunity for skin–skin holding and breastfeeding in the first hour after the birth.

The Policy does not say where the normal birth should occur.

I suggest that normal births are all that should be local. That is most births.

Normal birth is more likely in a woman's home community

because of case selection, ambiance and the provider

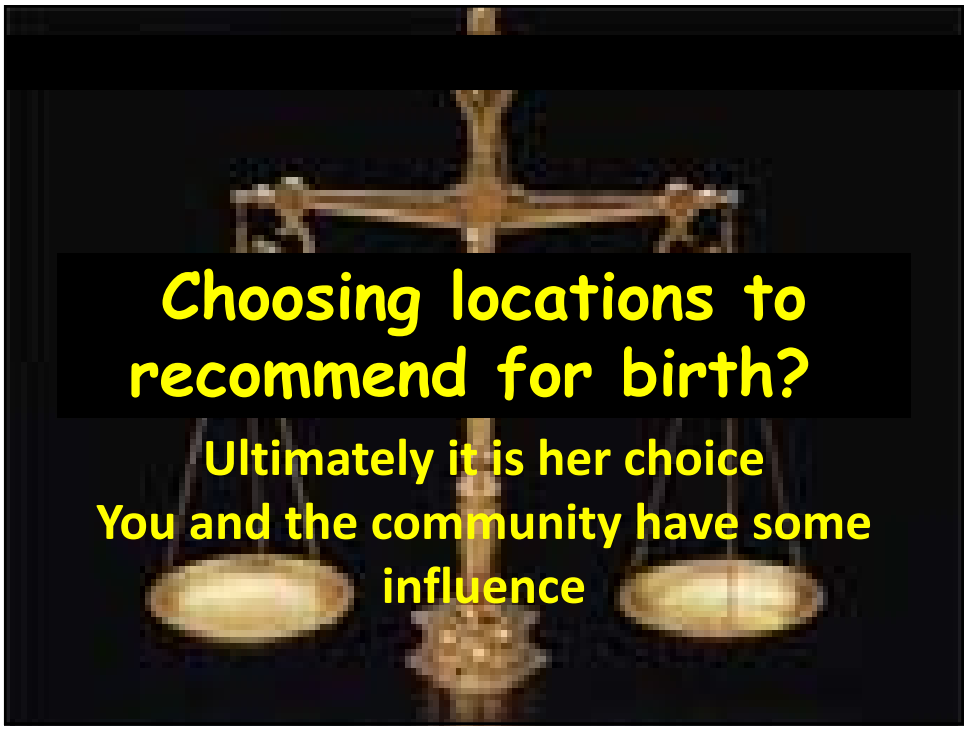
We must do better in all hospitals

Why Normal Birth Matters

The SOGC and its partners believe that

1. Birthing as a natural process should be promoted by all health care professionals who provide antenatal care.

2. Health care professionals should be committed to protecting, promoting, and supporting normal childbirth according to evidence-based practice. Normal birth should be accessible and encouraged in all hospital settings, Including as close to home as is reasonably feasible and, properly selected in an integrated system, at home.



What is the evidence:

- About not having births as close to

Over to Jude

- About the safety of rural obstetrics

The Evidence By Jude

Applying the evidence Your choices to be made

SHOULD THIS WOMAN HAVE HER BABY IN HER RURAL COMMUNITY?

This Individual	YES	MAYBE	NO
One Healthy parous			
Two Health nulliparous			
Three Hypertensive IUGR			
Four GDM; euglycemic			
Five Trial of Labour after CS			
Six Multiparous breech			

Woman One

24 year old G2 P1
Last delivery was term vaginal of a healthy 3,400 g girl (A "proven pelvis")
This was in a city; then she moved to a rural community

She is well in pregnancy
Fetal size is appropriate for gestational age

Woman Two
Now what if she is nulliparous?

24 year old G1 P0
She lived in a city; then she moved to a rural community

She is well in pregnancy
Fetal size is appropriate for gestational age

Woman Three

28 year old G1 P0
Known hypertension, on labetalol
Now 36 weeks gestation
Fetal weight 2,010 g 3rd %ile

Woman Four

27 year old G3 P2
Two prior term vaginal deliveries
This time she is a gestational diabetic, euglycemic on diet and exercise
At 34 weeks fetus is 2, 250 grams (55 %ile) and symmetric

And if I tell you:
She is a single parent. There is no one else to look after the children. Her ex-partner was abusive
She has no reliable transport

Woman Five

22 year old G3 P2
First pregnancy term vaginal 3300 g girl
Second pregnancy twins; 36 week CS for footling breech presenting twin

This pregnancy now at 24 weeks and healthy; singleton normal fetus
Wants Trial of Labour

Woman Six

31 year old G4 P3 at 37 weeks
First three pregnancies term vaginal deliveries of babies 3, 400 to 3, 600 g; all well

This pregnancy: frank breech with US weight 3,450 g, flexed head
version was attempted and not successful

This is uncommon
So simulation
ALARM or MORE OB

Woman Seven

24 year old
She is G2P1 at 39 weeks
One prior term vaginal delivery of 3, 700 g boy

She is GBS positive
She had a gush of fluid 5 hours ago. It is now 9 AM
There is confirmed Term PROM

Now what?

Labour to be induced, the evidence says

If she was in spontaneous labour would you keep her?

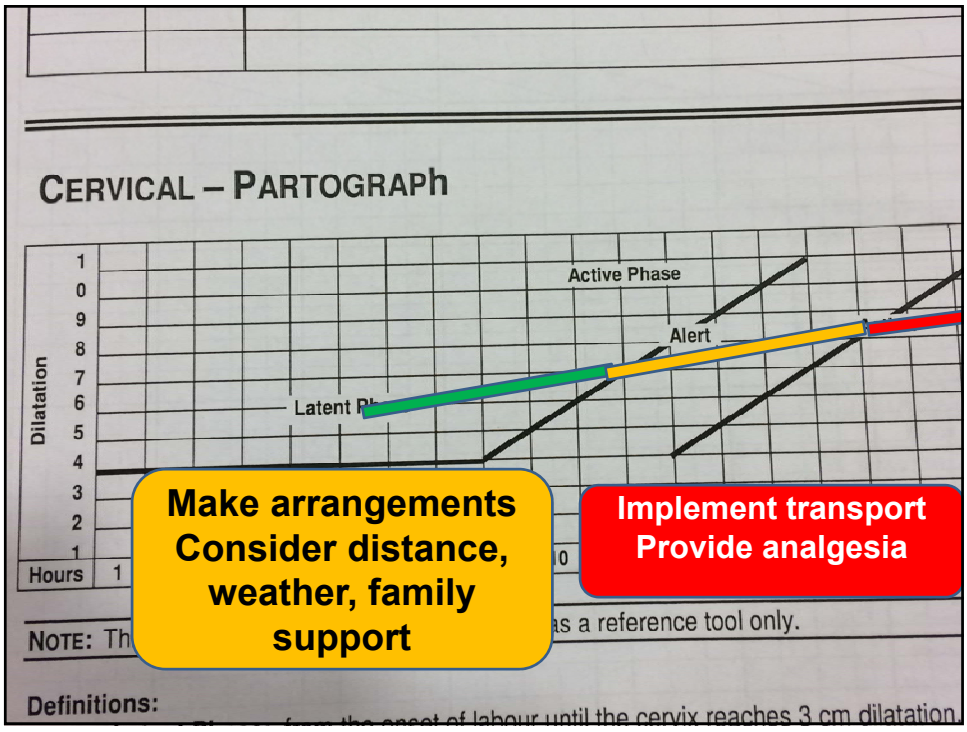
So
who needs a cesarean?

We cannot always predict, but ….

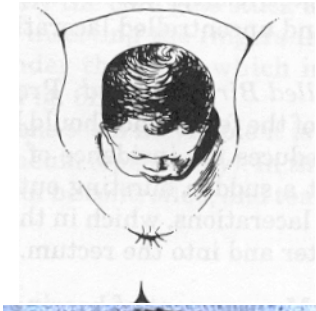
Indications include:

CPD Failure to Progress
Malpresentation
APH
Abnormal Fetal Monitoring


CERVICAL – PARTOGRAPH
Dilatation
Hours
Active Phase
Alert
Latent Ph
Let us follow labour progress
NOTE: This labour progression graph is included as a reference tool only.
Definitions:


CERVICAL – PARTOGRAPH
Dilatation
Hours
Active Phase
Alert
Latent Ph
Make arrangements
Consider distance, weather, family support
Implement transport
Provide analgesia
Definitions:

DELIVERY



WITHOUT ON-SITE CESAREANS *

* Everyone can get a cesarean
How long does it take?

"Our goal must be to do much for the patient . . . and as little as possible *to* the patient."

-- Bernard Lown, MD
Cardiologist, inventor of the cardiac defibrillator, Nobel laureate

LOWN INSTITUTE

Who should deliver a baby in her home community?

Many women by many of you

In appropriately selected circumstances

GOOD LUCK

NNT

Number Needed to Transport

This can be kept small
That is less disruptive to the woman, her community and the health care professionals there