MObile Maternity (MOM) project

Supporting women's maternal health through telemedicine

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a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA
Centre for Rural Health Research
Department of Family Practice

SPECIALIST SERVICES COMMITTEE

Interior Health
Every person matters

Disclosure

Jude Kornelsen, PhD, does not have any conflicts of interest to disclose.

Shiraz Moola, MD, does not have any conflicts of interest to disclose.

Mona Mattei, Does not have any conflicts of interest to disclose.

Objectives

1) To reflect on the context of rural maternity services in BC, including the challenge of access to specialist services;
2) To present the MObile Maternity project background, rationale and implementation;
3) To consider the efficacy of tele-obstetrical care as a decision support tool and for patient care management.

MOBILE MATERNITY


Masset
Burns Lake
Bella Coola
Bella Bella
Port Hardy
Alert Bay
100 Mile House
Clearwater
Ashcroft
Lytton
Merritt
Summerland
Arrow Lakes
Kimberly
Sparwood
Mission
Hope
Oliver
Tofino
Grand Forks
Castlegar
Saanichton

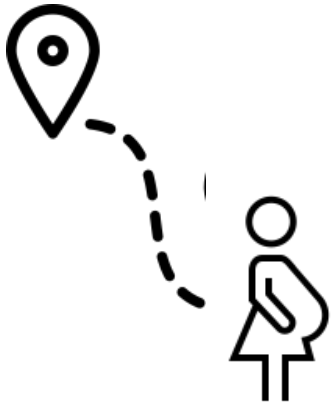
Rural Maternity Care: The Challenge of Distance

- In Canada, 18% of births occur to women who live in rural and remote areas (CIHI 2013).
- Over 40% of those women must travel more than one hour to access generalist services (compared to less than 2% of urban women traveling over an hour).
- **One in six rural women** (3% of total Canadian parturient women; 41,408 women from 2007/08-2011/12) had to travel more than two hours to reach a hospital for intrapartum care (CIHI 2013).

Rural Maternity Care: The Challenge of Distance

International data demonstrates unequivocally that greater distance to care puts mothers and their infants at greater risk of poorer outcomes

- independent of many of the other causal mechanisms known to be involved in pregnancy outcomes, including social determinants, health behaviors and prenatal care;
- has a positive gradient effect – as distance increases, so does risk of adverse outcomes.



The Challenge of Distance: Specialist Care

- Challenge of specialty practice in low-volume environments:
- less that 4% of OBGYN's practice in communities with populations less than 25,000 ;
- Higher volume practice found in larger centres allows less demanding on-call schedules and the attendant lifestyle implications (more balance between work and leisure)
- In addition, rural women also have trouble accessing specialist-based gynaecological screening (=higher risk for complications such as cervical cancer due to a lack of appropriate early screening).

Larimore and Davis, 2005

- Larimore and Davis (2005) modeled the impact of service availability: the loss of an OB-GYN would account for 9.6% increase in infant mortality.
- The model presumes a greater volume of deliveries for OB-GYN, and is derived in a context where OB-GYN's are the primary leads in delivery but only 4% of the state's providers practice rurally.
- Found that 17.6% of the variation in Florida's infant mortality rate could be attributed to service availability.

Larimore WL, Davis A: Relation of infant mortality to the availability of maternity care in rural Florida . J Am Board Fam Pract 1991, 8(5) :392– 9.

Satisfaction with Rural Practice: Importance of Specialist ‘Safety Net’

Rural providers had lower satisfaction with **access to** specialist support, access to technology, recruiting and retaining allied health professionals (Heneghan et al 2005).

Barriers to rural practice include lack of contact with colleagues, **difficulty accessing consultants and specialists in emergencies**, poor locum coverage, long on-call hours, distant Continued Medical Education (CME) (Baker 2006)

Retention of rural providers influenced by on-call arrangements, followed by **professional support** (Humphreys et al 2002).

Project Summary

Dr. Moola (OBGYN – Nelson) provides real-time obstetric consultations for elective and emergent conditions through the use of secure technology using mobile devices and facility endpoints.

These consultations range from booked, elective tele-video appointments to urgent bed-side assessments in hospital, clinic or at home.

Practically, this may involve improved shared care of high-risk pregnancies to reduce patient travel to see a specialist, and, in less common situations, support for precipitous deliveries in communities without a local maternity care program.

MOBILE MATERNITY

Nelson

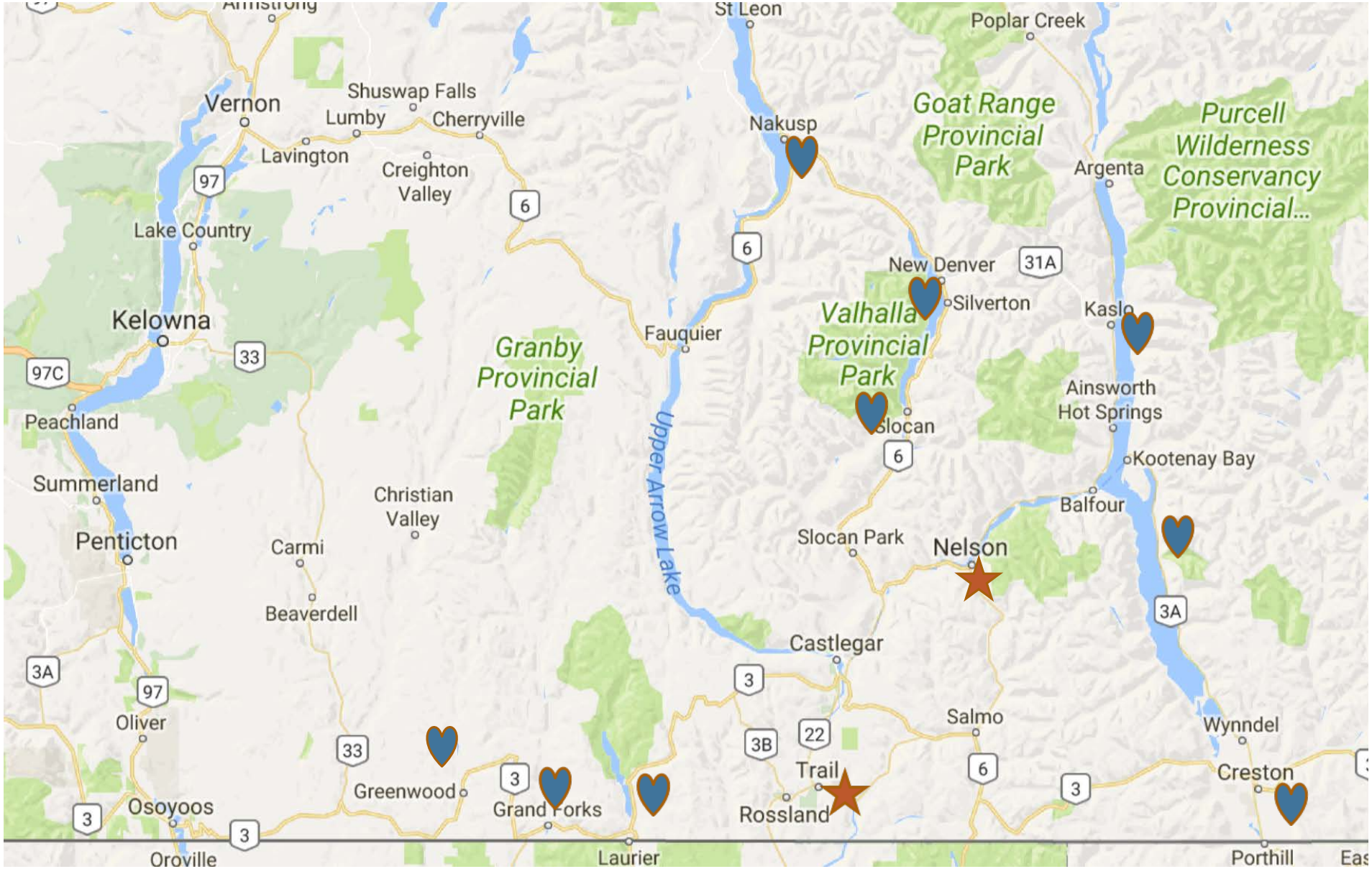
Population: ~10000

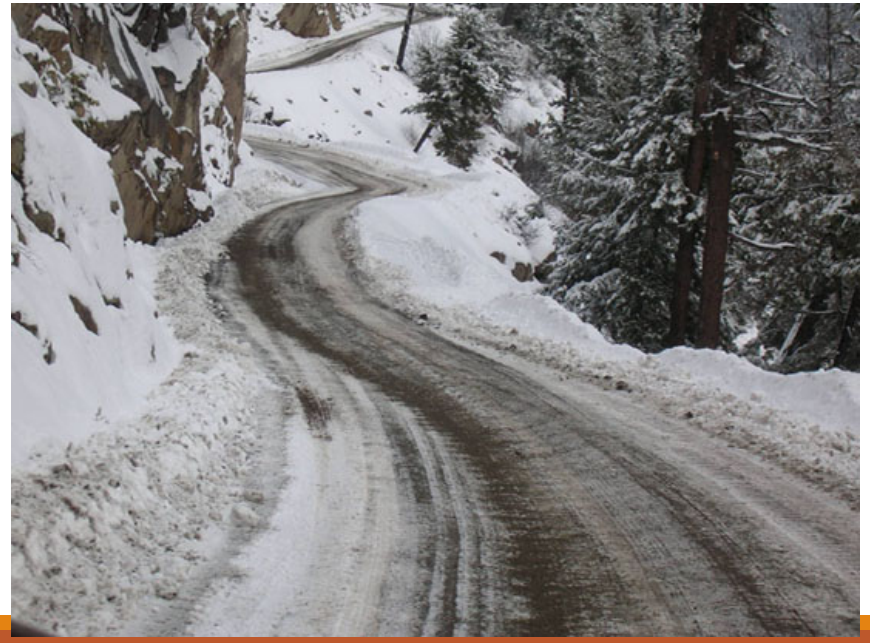
Local health area population:

25000 + ~ 15000

650 km from nearest tertiary perinatal care centre

Our referral population extends across East and West Kootenays


Armstrong
St Leon
Poplar Creek
Vernon
Shuswap Falls
Lumby
Cherryville
Lavington
Creighton Valley
Nakusp
Goat Range Provincial Park
Purcell Wilderness Conservancy Provincial...
Argenta
97
6
Lake Country
New Denver
31A
Silverton
Kaslo
Kelowna
Fauquier
Granby Provincial Park
Valhalla Provincial Park
33
97C
Ainsworth Hot Springs
Peachland
Slocan
Kootenay Bay
Summerland
Christian Valley
Balfour
Penticton
Carmi
Slocan Park
Nelson
Upper Arrow Lake
Beaverdell
3A
Castlegar
Oliver
3
Salmo
Wynndel
3B
22
Trail
Greenwood
Creston
Osoyoos
Grand Forks
Rossland
Oroville
Laurier
Porthill




HOTEL

Telemedicine uses in obstetrics

- Text messaging – to engage with patients, education, improving attendance at clinic visits
- Telecounselling
- Fetal Echocardiography
- Management of diabetes in pregnancy
- Fetal monitoring
- Postpartum care
- Tele US

A Cochrane review of video- consults and home health care or self-monitoring at home have shown no detrimental effects of this type of equipment, but neither have they shown unequivocal benefits. The authors of the Cochrane review ***caution about increased use and investment in this type of technology without further research validating benefits***.

Project Description

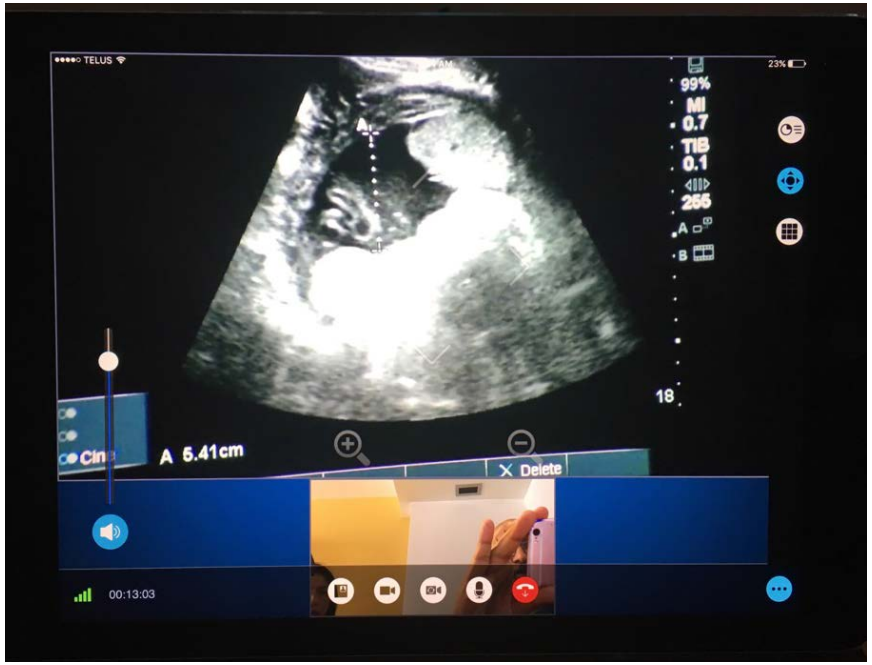
We have equipped primary maternity care providers clustered around six rural hospitals and medical clinics across Interior Health Authority with portable tablets;

The consulting OB/GYN at Kootenay Lake Hospital located in Nelson, BC is linked for virtual face-to-face communication between patients and providers using tablets or facility video systems;

This represents a change from traditional linear communication between patient and specialists, to an all-inclusive approach that involves all three stakeholders. This change enhances the conditions for optimal care to a triad model (patient, primary care provider, specialist);

Funding through Specialist Services Committee

Nov 2016 – Nov 2018



Key Activities/Outputs

- ✓ Obstetrical consultations for high-risk pregnancies/antenatal consultation and post-partum complications via video conference infrastructure.
- ✓ Didactic educational learning through joint clinical visits (between primary care provider and specialist)
- ✓ Peer support opportunities in the event of unexpected perinatal complication.
- ✓ Remote assessment of fetal surveillance (non-stress test) by specialist.
- ✓ Review of radiologic assessments; “tele-preceptor/telementor” point-of-care Ultrasound assessment

MOBILE MATERNITY

Training and Orientation to MOM

- ✓Preparation of consent forms, evaluation tools
- ✓Creation of:
  - Telehealth guidelines based on physician workflow preferences
  - Best practices tool based on IHA guidelines and COACH guidelines
  - Suggested emergent care algorithm
  - Patient handout
  - Additional promotional information for patients
  - Feedback surveys to capture immediate impressions of experience for both patients and physicians / midwives

Training and Orientation

- ✓Reference tool for use of video conferencing software
- ✓Troubleshooting guide with IH IT team for desktop softwa
- ✓Specialist visit log and comments

✓One hour orientation session with physicians and provision of toolkit

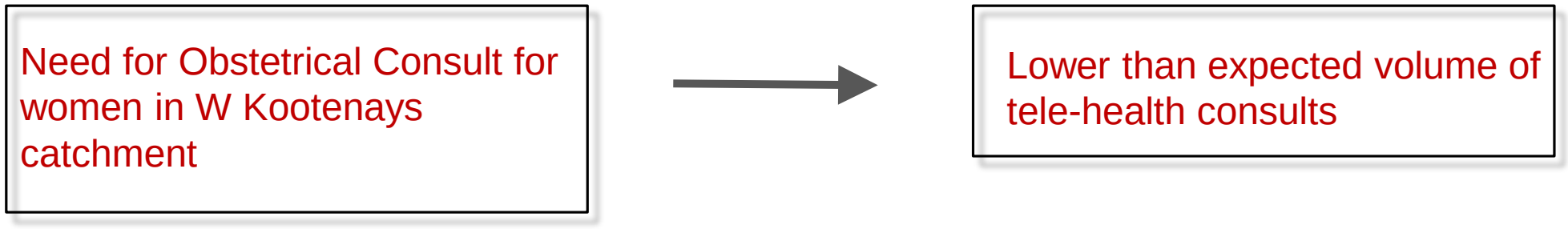
✓Optimization of tablets with IT support

✓Online evaluation surveys linked to tablets

✓Two provincial sites, two health authorities, two technologies:
- ✓Kootenay Boundary and North Island

The MObile Maternity Project (MOM)

- Have completed 22 consults to date (out of a potential 125 out of town consults: 64 maternity, 69 GYN in a 1-year period)
- Lower than anticipated uptake
- Theory-to-Practice Gap ('Why do we not have a higher rate of telehealth consults?')



Why did we have a lower than expected number of consults?

Hypotheses:

- Desire for in-person consultations
- Lack of awareness of the project
- Need for a larger ‘paradigm shift’
- Over-estimation of need
- Reorientation to shared model of care
- Need to revisit ’out reach’ visits versus telehealth

- OBGYN outreach from Nelson to Nakusp (NITAOP)
- Trail outreach → Grand Forks (NITAOP)
- Campbell River outreach → North Island (NITAOP)

Low Resource Services: 3 pathways for High Acuity

CLINICAL CHALLENGE DEALT WITH LOCALLY

PATIENT TRANSFERRED TO REFERRAL CENTRE

CLINICAL SUPPORT/REMAIN IN COMMUNITY

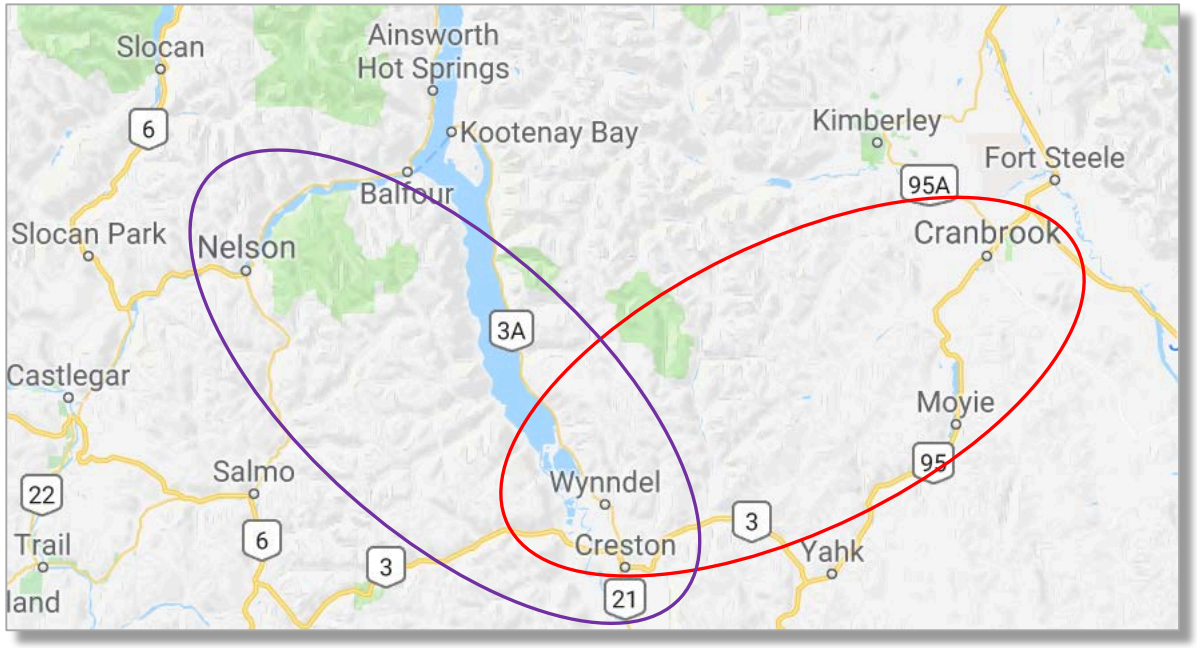
The Geography of Telehealth

Importance of Health Service Delivery Networks

(Current) importance of Geographical proximity:

- Should urgent care be necessary
- For transfer and follow up
- For system efficiency and organization

Geographic vs Virtual referral patterns



Need to resolve historical referral patterns versus patient or rural provider-initiated referral preferences.

Networks of Health Service Delivery

Underscored by robust relationships between rural site and regional referral centre;

Virtual linkages augment – not replace – the underlying relationships, BUT

May be a mechanism of maintaining relationships.

Keys to success

- To have personal contact for training and testing with physicians and midwives in remote sites
- Build close relationship with IT team to provide support
- Patient recruitment – OB/GYN needs to triage cases and approve / encourage use of system along with champions on site in rural areas
- Ease of use: the more “unconnected” the system the more challenging it will be – wifi vs. wired; Cellular vs. wifi
- Willing to use a variety of telehealth modalities to achieve g
- Championing the choice to use telehealth vs. in person

Questions to Consider

How much ’transfer avoidance’ is a result of a obstetrical telehealth safety net?

What is minimal volume to demonstrate cost-effectiveness of telehealth services?

Are there system constraints to the fulsome uptake of telehealth technologies?

“I think this is a fantastic program to provide for people in rural areas, especially for those who live on limited incomes and the cost of travelling can become a financial burden. All of my questions were answered, as well as information was given to me about the procedure that I seek to have done, and I feel that I walk away from this very well informed and comfortable.”

~ Patient