



Improving access to ultrasound imaging in northern, remote Indigenous communities

Scott Adams, MD

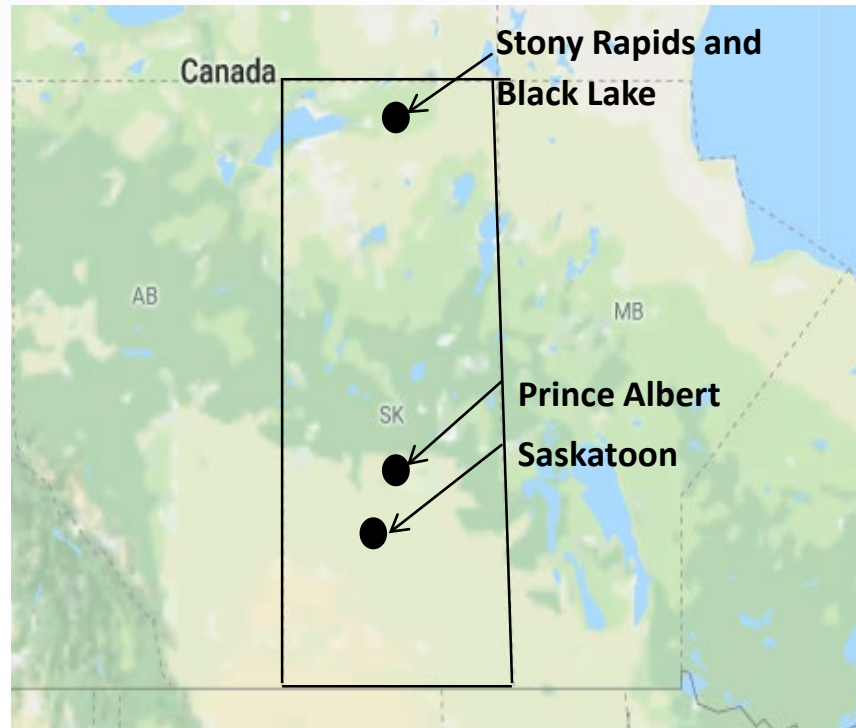
Department of Medical Imaging



Ultrasound Imaging



Ultrasound Imaging in Northern Saskatchewan



Distance to Prince Albert: 673 km

Distance to Saskatoon: 795 km

Access to Ultrasound Imaging: Qualitative Analysis

Geographic isolation

(Not) adapting in the face of remoteness from regular ultrasound services

- Fear of flying
- Isolation from family
- Unfamiliarity with the city

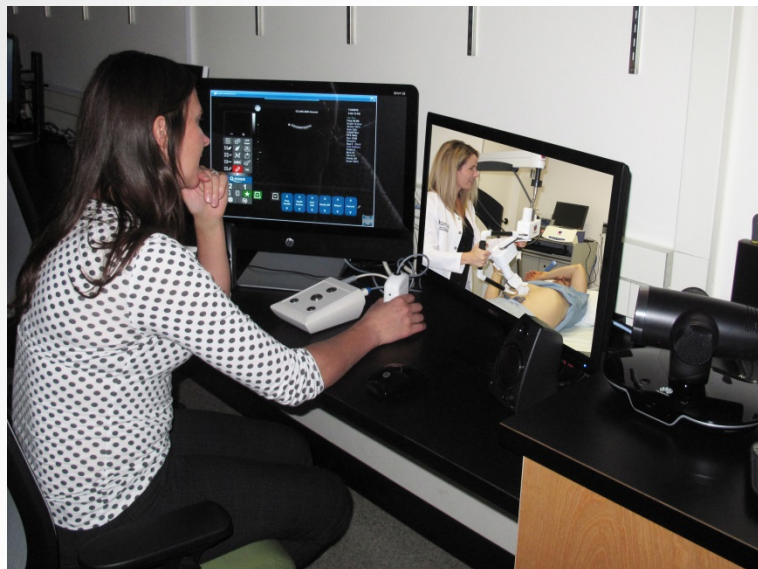
Competing family and work responsibilities

Ultrasound viewed as a tool towards securing health

Importance placed on services near one's community

Telerobotic Ultrasound

**Sonographer-site
(Central Site)**



**Video
conferencing**

**Internet
connection**


**Patient-site
(Remote Clinic)**



Feasibility Studies

ORIGINAL RESEARCH

A Crossover Comparison of Standard and Telerobotic Approaches to Prenatal Sonography

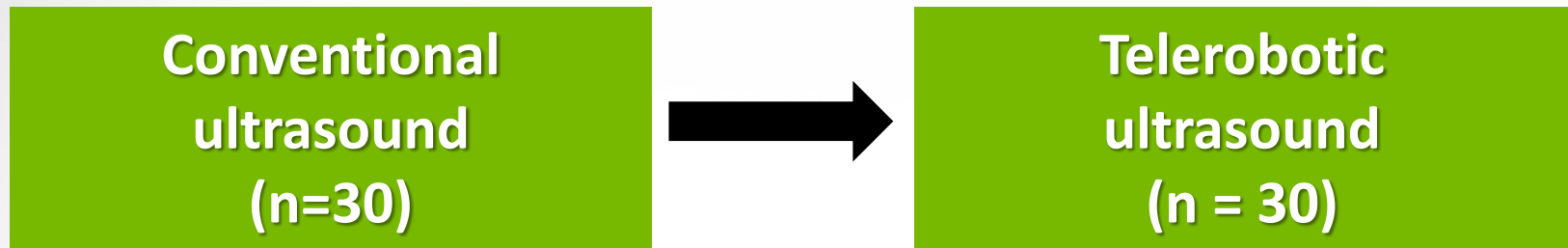
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Objectives—To determine the feasibility of a telerobotic approach to remotely perform prenatal sonographic examinations.

Methods—Thirty participants were prospectively recruited. Participants underwent a limited examination (assessing biometry, placental location, and amniotic fluid; n = 20) or a detailed examination (biometry, placental location, amniotic fluid, and fetal anatomic survey; n = 10) performed with a conventional ultrasound system. This examination was followed by an equivalent examination performed with a telerobotic ultrasound system, which enabled sonographers to remotely control all ultra-

Feasibility Studies

Study Design: Prospective crossover comparison



- Standardized imaging protocol
- Sonographers blinded to findings of the conventional study

Feasibility Studies

OBSTETRICAL EXAMINATIONS

>0.99

intraclass correlations for all four biometric parameters

All

findings identified on conventional were also identified on telerobotic examinations

80%

of all fetal anatomic structures were sufficiently visualized telerobotically

Feasibility Studies



ELSEVIER

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Ultrasonography / Échographie

Initial Experience Using a Telerobotic Ultrasound System for Adult Abdominal Sonography

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Feasibility Studies

ABDOMINAL EXAMINATIONS

92%

of organs visualized on conventional examinations were sufficiently visualized on telerobotic examinations

5

pathological findings were identified on both telerobotic and conventional examinations

All

patients willing to have another telerobotic examination in the future

Remote Ultrasound Clinic





Impact

- Continuing clinical program to better serve northern, remote, and Indigenous communities

- Evaluation for improvement and to support scale-up and spread

- Increased access to ultrasound imaging
 - Earlier diagnosis and treatment
 - Increased patient satisfaction
 - Reduced healthcare costs

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