Improving access to ultrasound imaging in northern, remote Indigenous communities

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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)

Patient-site (Remote Clinic)

Video conferencing

Internet connection
Feasibility Studies

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

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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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