

Background

Manitoba, Canada covers a very large geographic area with rural communities having practitioners of varying skill. The two tertiary care NICUs are located in Winnipeg; to improve ready access to specialised neonatal care, the Manitoba Neonatal Transport Team was established in 1981 for ground and in 1986 for air transports. Annual transports are approximately 280 patients with most having respiratory distress. Average transport time is 4 hours.

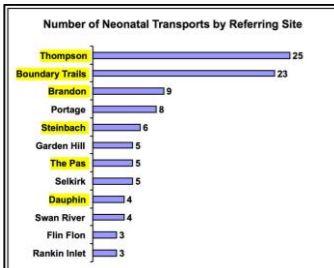
In 2002 the MBTelehealth network was established; a direct link via telehealth was established with the Nursery in a rural community situated 525 miles north of Winnipeg (Thompson) and the NICU at Health Sciences Centre. Two rural sites were linked to the NICU (2010). Despite simplicity of use and full interoperability of the systems, utilisation was sporadic.

Increased use of telehealth to improve ready access to specialised care for sick newborns, support to rural health care providers and reduction in the number of newborn transports were the goals of the government funded Manitoba Health Maternal and Child Health Task Force (2011).

Methods

Employing a collaborative model, the project team consisted of members from MB Telehealth, a Clinical Nurse Specialist and two MD co-chairs.

The first step was to determine the areas of greatest need in the Province based on past history of Neonatal Transports (highlighted sites).



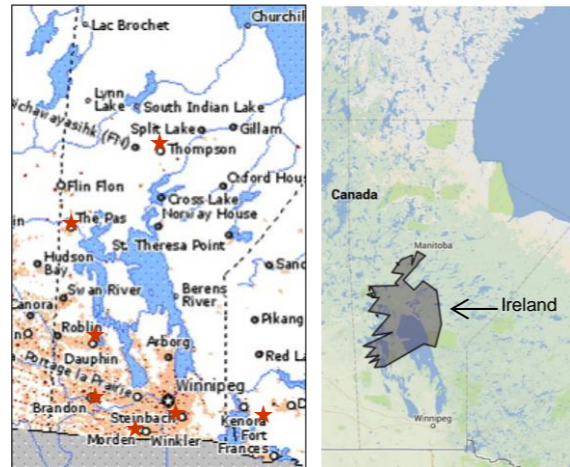
Data from July 2010 – June 2011

Site visits were then carried out to present the project, and to obtain consent to receive equipment and determine timing of training. Surveys were completed by each site to determine levels of experience and needs. Site visits allowed the best determination of type and location of equipment to be installed. Essential to the success of the project was inclusion of high definition video to allow viewing of the small



"Virtual" NICU viewing of "remote" baby

Geographic Perspectives



Sample Distances

Thompson General Hospital	Distance 525 miles
Dauphin Regional Health Centre	Distance 128 miles
Boundary Trails Health Centre (Morden/Winkler)	Distance 63 miles

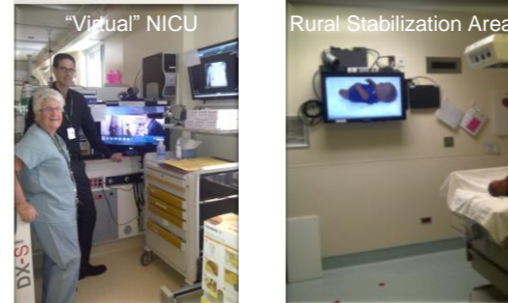
ACoRN Course

Outreach education was delivered at each site as an ACoRN course. The goal of this offering was to both enhance the understanding of common approaches to Neonatal problems and develop relationships with the rural sites to improve familiarity with our team.

- NICU physicians, nurses and respiratory technologists travelled to participating sites to instruct the full day course
- 75 participants have received an ACoRN certificate



Equipment Installed Spring of 2012

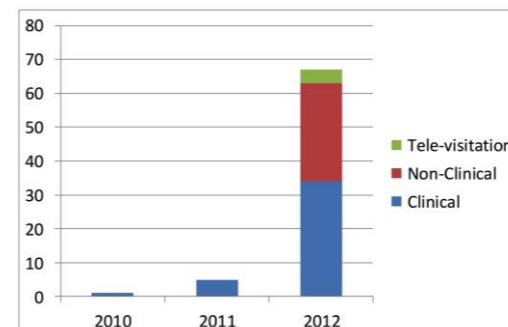


- Integration with work flow patterns
- Fixed videoconferencing equipment
- Headphones for private communication with privacy screens
- Establishment of a digital address book at all sites
- Tertiary care centre capability of establishing remote camera control to view details of interest independently

Results

Deliverable	Description	Outcome
Telehealth Equipment	10 pieces of new equipment in 8 facilities	Completed March 2013
ACoRN Course	Course offered at each rural site	5 of 6 completed by March 2013
Radiographic view station (PACS) for NICU	1 new PACS view station able to display radiographic images immediately from rural sites	Completed March 2013

When comparing the use of telemedicine prior to this initiative we saw a 12 fold increase in usage from 2010 to 2012.



Economic Impact

In the year following May 2012 implementation an estimated 4 air and 12 ground transports have been averted. Using an average cost of \$10000 per air and \$5000 per ground transport it is estimated that the total health care savings is \$100000

Post implementation Evaluation

After sufficient time for each centre to become accustomed to the equipment a follow-up survey was distributed to each centre.

- 100% felt the tele-neonatology service was very important to the care of sick newborns at the rural facility
- 100% felt that the videoconferencing equipment was easy to use
- 75% felt tele-neonatology had improved the relationship between their staff and the NICU

Conclusions

- A solid business case with clear goals and timelines was instrumental to success of the project. Coordination between stakeholders from MB Telehealth, Medicine, our nurse telemedicine coordinator and transport nurses enabled smooth collaboration.
- A reduction in Neonatal transports has occurred since the introduction of telehealth services in our targeted sites. This reduction translates into a significant cost savings from averted air and ground transports.
- Each averted transport has the additional benefit of keeping infants with their families and support networks, thereby reducing stress on the family unit.
- Site surveys suggest enhancement of support and improved communication between tertiary and rural sites.
- By bundling educational outreach with equipment implementation and training we believe an increase in care provider confidence may have contributed to a reduction in Neonatal transports.
- A change in society's acceptance of video enhanced communication since 2002 may have contributed to the acceptance of telehealth with this project.

The Future

- We anticipate expansion of this service to other centres based on the demonstrated cost savings to the health care system. Nearly half of the total cost of the program has been recouped from cost savings in the first year of use.
- A permanent Telehealth coordinator is being hired to maintain the quality of the service and ensure that outreach education is both relevant and provided on a frequent basis to our rural sites.