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# Improving prenatal diagnosis and management in Cumbria by telemedicine

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# Background to project

- Women referred by sonographer to local specialist or Fetal Medicine Centre when problem identified during scan.
- Specialised fetal medicine services concentrated in Fetal Medicine Centre at Newcastle.
- Women from North Cumbria have significant journeys to make, often at own expense.
- Telemedicine has the potential to provide specialist obstetric ultrasound and consultation to women within their own unit.

# Project aims

- To establish a videoconferencing infrastructure between the obstetric ultrasound unit at West Cumberland Hospital and the Fetal Medicine Unit in Newcastle.
- To determine the technical success of the service.
- To evaluate the success of utilising the telemedicine technology for training sonographers
- To assess women's views of using a telemedicine ultrasound service, including family costs.
- To assess the benefits and barriers to adoption of the service across Cumbria.

# Potential impact of project

- Reduction in the number of women required to travel to Newcastle for specialist fetal ultrasound.
- Reduction in associated family costs.
- Enhanced standard of local obstetric ultrasound by developing local sonographers through telemedicine training.

# Challenges

- Initial difficulty in establishing effective IT link.
- Directorate approval from Obstetrics AND Radiology.
- Senior level clinical approval was gained early in project. Managerial approval had to be escalated to Executive level.
- Anxiety over sonographer workload, staffing levels and pressure on other ultrasound services.

# Progress

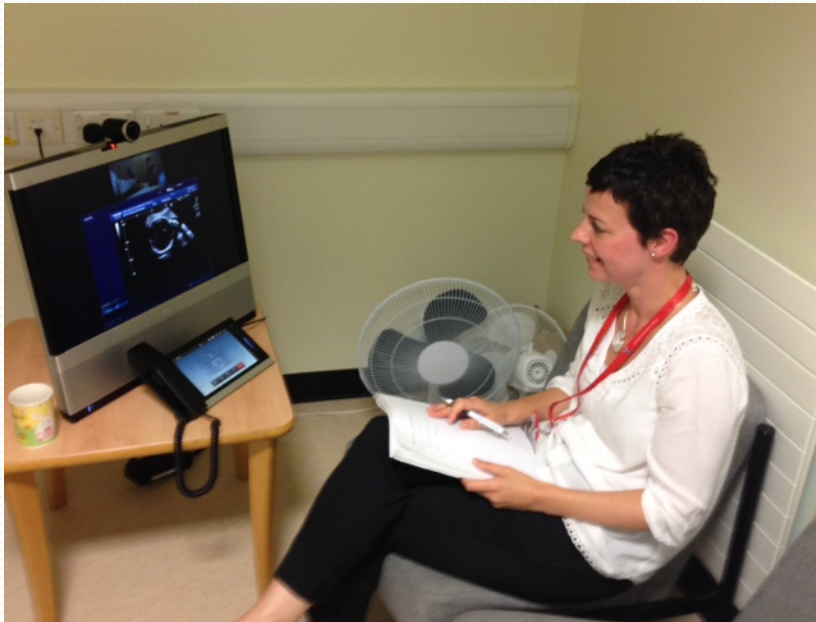
- Videoconferencing link established and functioning.
- Telemedicine service is functioning effectively within the clinical ultrasound service at WCH and Fetal medicine Unit at NuTH.
- One sonographer has completed advanced Doppler training and further two will be signed off by end March 2016.

# Ultrasound scan using telemedicine



- Videoconferencing equipment (Cisco EX90) set up and connection established.
- Sonographer undertakes ultrasound scan in usual way.
- Real-time images and audio are transmitted to NuTH.
- Guidance given to WCH sonographer via link.
- Viewed by Fetal Medicine Consultant and/or sonographer via videoconferencing unit at NuTH.

# Sonographer training



- Sonographers based at WCH provided with training in uterine artery and middle cerebral artery Doppler.
- After an initial tutorial (via videoconference) and assessment of baseline skills, supervised training is undertaken.
- Sonographers are deemed competent when five successful Objective Structured Assessments of Training (OSATs) are completed for each technique.
- Results in upskilled workforce, improved care for women and reduction in number of women who need to travel for ultrasound scans.

# Evaluation of telemedicine service

- Number of telemedicine consultations (together with indications) as a proportion of all fetal medicine cases/ consultations referred from WCH.
- Technical success of every new consultation - success is defined as an ultrasound image quality sufficient to make a definitive prenatal diagnosis.
- Cost impact - cost components for the NHS including consultation times and staff utilisation.

# Patient Evaluation

- All women who have had a telemedicine scan are asked to complete a questionnaire to assess their views, acceptability and family costs.
- Telephone interviews are being undertaken with a sub-sample of women (n=10-15) to gain greater insight of their experience.

# Results

- 19 fetal medicine cases have been referred for telemedicine ultrasound and consultation (15 new and 4 return).
- 5 point Likert scale used to evaluate image and audio quality.
- Audio was scored 5 (excellent) for all cases (n=19).
- Image score ranged 3-5 (adequate, good, excellent) with majority rated 'good' (n=9).
- In all cases it has been possible to complete the consultation via the teleconferencing link.

# Women's views

- Nine questions to explore women's views of acceptability of a fetal medicine telemedicine consultation.
- Likert scale scored 1- 5 (1- strongly disagree, 5- strongly agree). Maximum score 45.
- Majority of women (n=12) had a score of 44-45.
- Most women (n=12) were satisfied with the quality of the care received.
- Most women (n=12) would be willing to have a telemedicine consultation in the future.

# Quotes and comments from women

*I would have had to take probably a whole day off work again and driving there and everything else that would have been a lot more stressful whereas as it seemed more relaxed because it was in a familiar area.*

*Excellent service, all staff involved really friendly and helpful, explained everything, saved time, money, stress. Much easier than having to travel and worry about money and public transport.*

# Quotes and comments from women

*This is a wonderful service. Not only saves time & resources for the patient but makes you feel more comfortable & confident in your care.*

*I mean these days we Skype or FaceTime, you know, within your personal life so why shouldn't it be used for like you know, something medical.*

*Fully support the telemedicine consultation. Very beneficial, time saving & cost saving.*

# The Stakeholder Empowered Adoption Model University of Cumbria

- The model provides a process for stakeholder values, benefits and goals to be incorporated into an evaluative pilot so that appropriate evidence is collected to enable adoption to take place.



# Qualitative adoption study

## University of Cumbria

- Information on the benefits and barriers to adoption of the service has been collected using the Stakeholder Empowered Adoption Model (StEAM)
- Face-to-face interviews have been undertaken with a range of economic and users stakeholders:
  - Commissioners
  - Service managers
  - Consultants
  - Sonographers
  - IT support
- Analysis is ongoing

# Early Findings

- **Initial barriers**

- The operating context at WCH
- IT - Connectivity

- **Challenges**

- Delivering a shared consultation when used to working alone –  
*“it’s being watched”*
- Communication – knowing when an image has been satisfactorily acquired; knowing when to move on
- The need to resist scanning intuitively:

Instead of thinking right, the baby’s lying in that position, I need to go in this position to get what I need, we maybe shouldn’t be doing that until they ask us but it’s hard when you’ve done it for so long, automatically gone to that position, to stop yourself doing it.

# Early Findings

- **Benefits To West Cumberland Hospital**

- Sonographers are upskilled; more involved in women's journeys and have greater access to specialist knowledge
- Health Professionals feeling less isolated
- Kudos to both hospital and trust from being involved in the innovation:

Because we've had so much negative press I would hope that this would show ladies that there is things coming back to us and this is a pioneering project that started here.

# Early Findings

- Amongst stakeholders there was widespread acceptance that the innovation provides **improved services and convenience for women**
- This was backed up with anecdotal evidence from informants that women are very accepting of the telemedicine
- As a result, key stakeholders were keen to see the innovation continue and expand.

If they can come to West Cumberland; have their scan, and as long as they feel that their service has been done well and that they've had as good a scan as they could get at Newcastle well then it's worth it.

# National Maternity Review

Remote and rural areas can introduce innovative working practices such as:

- Making use of technology e.g. consultations by video link between the centre and smaller unit.

# Thank you for listening

Project funded by:  
AHSN North East and  
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