Enabling Ultrasound in Remote Maternal & Child Health

Remote Maternal & Child Health

- World-wide about 80% of maternal deaths are due to pregnancy-related complications (0.5M deaths per year)
- 99% of these are in developing countries
- Remote areas have particularly high incident rates
- Nepal has one of the highest mortality rates at 740 per 100,000 births
- In Nepal 4,500 mothers die annually
- In remote areas maternal death has huge social and economic consequences since mothers are the backbone of rural societies

Ultrasound to Monitor Pregnancy

- Well established in the developed world and most hospital settings
- Effective in diagnosing potential complications during birth (e.g. obstructed labour caused by malpresentation, cephalo-pelvic disproportion)

- Requirements are:
  - Low cost, easy to use, high tech equipment
  - Trained ultrasound technologists and access to radiologists
  - These are absent in remote settings

Ultrasound in Remote Maternal & Child Health

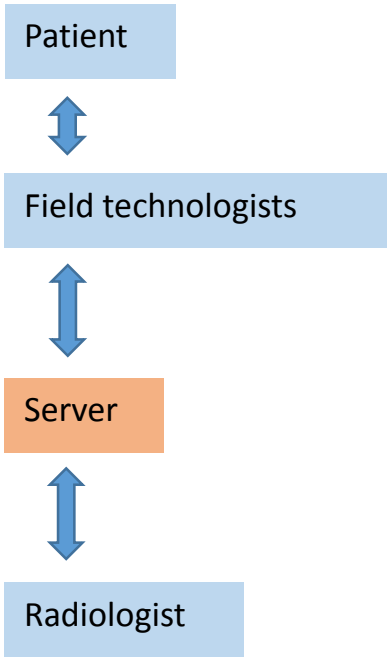
- Portable ultrasound equipment is commercially available at a cost of $5,000 - $7,000 per unit

Ultrasound in Remote Maternal & Child Health

- Portable ultrasound ✓
- Train field technologists by partnering with local NGO “Himalayan Health Care”
  - constructed and funds a community hospital in Ilam, serving a region of 300k people
  - treks to remote villages with volunteer doctors

Ultrasound in Remote Maternal & Child Health

- Portable ultrasound ✓
- Train field technologists ✓
- Communication between field workers/technologists and hospital setting
  - Capture and transfer of images via smart-phone ✓
  - Management of images (✓)
  - User and workflow management (✓)



Wireless station in Nangi, Nepal

Project Status

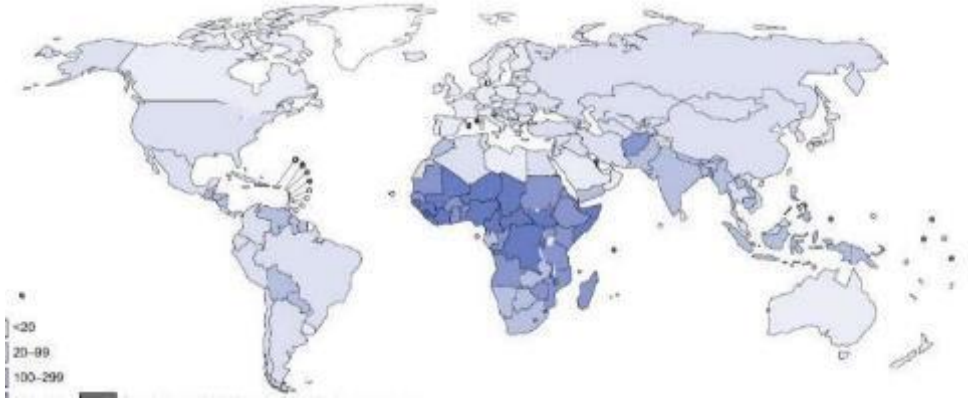
- October 2011: Established link to NGO in Nepal
- June 2012: Built Android App to capture image and transmit to server – this project won 1st place at June 2012 Toronto Random Hacks of Kindness (RHoK)
- June 2012: Presented project to SickKids International & SickKids Foundation
- Oct – Dec 2013: Two computer science student teams from University of Toronto worked on Android app and server system

2012 RHoK Nepal Ultrasound Team

Next Steps

- Exploring remote communities in Africa, India, Nunavut, and other resource-poor regions
- Project Fundraising:
  - Manufacturer donations for ultrasound hardware
  - Finalize and refine IT solution
  - Funding for pilot hands-on training mission in remote communities

Project Needs



- Study of cellular network coverage in developing world – intersection of (1) data coverage that allows transmission of images, (2) high maternal mortality, and (3) travel/operational security
  - Look at individual countries (e.g. India (17%), Nigeria (14%), Sub-Saharan Africa (62%), Afghanistan, Nepal, Haiti, *)
  - Look at key regions within (developed) countries (e.g. Nunavut)
- Scan of NGOs as partners in emerging countries
- Scan of funding sources

* WHO – Trends in maternal mortality 2013

Contact

- Klaus Fiebig, PhD – entrepreneur with extensive biotech and fundraising experience
  klausfiebig@gmail.com
  www.kmfbio.ca

- Leanne Tran, JD, MD – expert working at the interface of law, medicine, community advocacy, and research
  leanne.e.tran@gmail.com