Why Telemedicine is the Future of Healthcare?

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WORKSHOP

- Introduction – Yogi
- Chronic Disease Monitoring (AEHRC) – Mohan
- Emergency Telehealth Services (WACHS) – Andrew
- Tele-Stroke (WACHS) – Stephanie
- Telemedicine Platforms - Jana
I think the biggest innovations of the 21st century will be at the intersection of biology and technology. A new era is beginning.
• 70 Staff from Brisbane, Perth, Sydney, Melbourne

• Committed to high quality, applied research that aims to improve the quality and safety of health care for individuals and communities

• 12 Staff in WA funded by WA Health, CSIRO and Industry

• Telemedicine and Mobile Health, Ophthalmic/ Eye related research
WA AEHRC
Funded by WA Health and CSIRO
Translational Research

• Remote Delivery of Clinical Services
• Chronic Disease Management
• Disease Screening and Diagnostic Technologies
Trends in Healthcare

- Increasing chronic disease – patients with many chronic diseases – **Frequent Visitors** to hospitals
Increasing Ageing population

Independent Living

80% of healthcare cost spent last 2 years of our life
Trends ...

- Individualized healthcare delivery based on collected data and decision support tools
- Personalization of food, diet, nutrition including smart watches & phones.
Empowerment of patients or disease self-management
Wearable Health Monitoring

Chip on a Patch

Chip on a Tattoo
Prevention

- Smart Wearables
- Data Analytics
- IoT

Diagnosis/Treatment

- Data Analytics & EMR
- Genetics
- Point-of-care testing

Telemedicine

- Robotic surgery
- Smart implantable devices

Treatment/Surgery
Goals of Telemedicine

1. Collect Data
2. Transmit Data
3. Analyse Data
4. Automatically Respond to Data
5. Discuss Data

Store and Forward / Video Conference / Home telehealth
Telemedicine examples
1. Tele-Eye care in Australia and China
For Remote, Rural and Metro areas
Trial Locations

Goldfields & Great Southern
Laverton, Leonora
Norseman, Ravensthorpe

Torres Strait Islands

Indicative map

Legend:
- Grey: Wireless coverage
- Red: Fibre towns
- Blue: Transit network
- Green: Satellite coverage

*These maps show the estimated likely coverage areas based on our rollout schedule, which may change.
Award Winning REMOTE-I System: Video Conferencing/Store & Forward / Mobile Platform

- Metropolitan Hospitals
- Remote Locations
- Universities
- Local Clinics
- Schools
Outcome – Tele-EyeCare

- In WA – 800 patients screened
- In QLD – 288 patients screened

- 344 of them are Aboriginal people

- 82 cases with diabetic retinopathy (10%) and 8 of them with severe or sight threatening DR

- If this kind of service is not available some of them would have gone blind

- Huge cost savings
Tele-Eyecare in China (REMOTE-I)
Remote-I at ZOC Guangdong China
Supported by World Diabetes Foundation

1 - Jiayang People’s Hospital
2 - Chenghai District People’s Hospital
3 - Yangjiang Guangming Ophthalmic Hospital
4 - Huidong People’s Hospital
5 - Wuchuan People’s Hospital
6 - Sihui Hospital of Traditional Chinese Medicine
7 - Yunan Hospital of Traditional Chinese Medicine
8 - Luoding People’s Hospital
9 - Shaoguan Railway Hospital
10 - YingDe People’s Hospital
• 10,000 patients gone through Remote-I in 1 year
• 660 patients needed lasers
NHMRC Funded - Automated Diabetic Retinopathy Grading

1. Automatic DR features detection
   - Detected MAs (green contours)
   - Detected HMs (green contours)
   - Detected EDs (green contours)

2. Automatic summary report generation
   - Information of MAs, HMs, and EDs in 4 quadrants and 3 macular regions.

3. Evaluate the report according to DR severity scales
   - Less MAs (4 MAs)
   - Less HMs (19 HMs; in each quadrant, the number of HMs < 20)

3. Generate DR grading report
   - DR level: Moderate NPDR
   - DME level: Severe DME

American Academy of Ophthalmology (AAO)
- International clinical diabetic retinopathy disease severity scale
- International clinical diabetic macular edema disease severity scale
2. Emergency Telemedicine Services
Electronic Dash board + Video Link + Vital Sign Monitoring
Thank you

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