ROBOTIC TECHNOLOGY AND PALLIATIVE CARE EDUCATION: THE DEVELOPMENT OF A ‘NAO ROBOT’ COMPUTER PROGRAM
FRIDAY 31ST MARCH 2017

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CLINICAL LECTURER
# PROJECT TEAM

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Bethany unfortunately is unable to attend today
Please see her poster number 7
TECHNOLOGY AND HEALTH
WORLD ECONOMIC FORUM

- Healthcare is increasing challenge
- Large GDP of most economies
- Key issue in Brexit vote
- Affordable Care Act repeal

- Technology is at the heart of societal and business disruption
- Digital technology offers potential of new ways to provide healthcare
- Important in developing world with little or no access to specialised services
‘How are robots currently used in healthcare?’
SURGICAL PRECISION

daVinci
- Improve surgical precision
- Enable surgeons to do specialised procedures in remote locations
REHABILITATION

- Cyber kinetic exoskeleton
- Improved rehabilitation potential
- Spinal and stroke patients
- Enable paralyzed patients to walk again
ACCESS TO SPECIALISTS

MEDICATION DELIVERY PROCESS

- Telemedicine to provide remote access to specialists e.g. Thrombolysis services
- Developing countries

- Automated medication dispensers
- Pharmacy management solutions
MEDICAL CLEANING
COMPANION ROBOTS

• Uses ultra-violet light to eradicate bateria

• ‘Paro the Robotic Seal’ is used in Japan for companionship in dementia patients.
COGNITIVE TECHNOLOGIES IN SOCIETY
ROBOTICS & COGNITIVE TECHNOLOGIES IN PALLIATIVE CARE?

- Not evaluated in advanced disease
- Technology may provide healthcare professionals with new opportunities to support education.

- In future, important to consider the potential of cognitive technologies to palliative care to:
  - Establish ‘use cases’ for appropriate use
  - Identify limitations
  - Establish governance
• Collaborative project with computer science – University of Liverpool.
• Exploratory study
• Can robotic technology assist palliative care education delivery?

‘Is it possible to program a robot to convey emotions through its posture, movement and speech, in order to facilitate human-computer interaction for palliative care issues?’
NAO ROBOT

- Semi autonomous robot
- Programmable
- HD cameras for facial recognition
- Voice recognition
- Text to speech synthesis
- Previous work available about emotional responses with Nao

Programmed by Beth to convey:
- Anger
- Sadness
- Relaxed
- Crying
- Scared
- Tired
- Laughing
Anger
Happy
Sitting
Crying
Withdrawn
“We programmed a robot to convey emotional responses to posed questions”

- Future work will:
  - Further validation of emotional responses in palliative care scenarios.
  - Automation of responses.
  - Incorporation with simulation-based education training.
  - Qualitative work
  - Use case development for cognitive technologies in palliative care education.
THANK YOU FOR INFORMATION

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