

# ***Virtual Worlds in Healthcare***

## ***- impact on safety and wellbeing***

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**[thevirtualworldconference.org](http://thevirtualworldconference.org)**  
15 September 2010

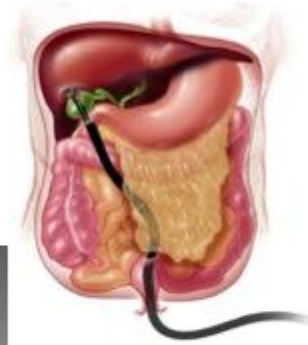
Email: [dave\(dot\)taylor\(at\)imperial.ac.uk](mailto:dave(dot)taylor(at)imperial.ac.uk)  
Web: [medmedia.wordpress.com](http://medmedia.wordpress.com)  
Blog: [www.nanodave.com](http://www.nanodave.com)

## *Clinical Diagnostics*



## *Care Closer to Home*

## *Future technologies*



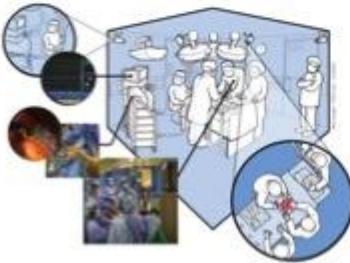
## *Engagement & collaboration*



## *Sensing & Imaging*



## *Patient Safety*



## *Skills assessment, Simulation & Training*

# Imperial College is in the SciLands

- an open-ended *Interdisciplinary* Collaborative Research Community (2010: 68 islands)

## Members

UK Government: BIS & Technology  
Strategy Board)  
Princeton Institute of Advanced Research  
San Francisco Exploratorium  
San Jose Tech Museum of Innovation  
University of Denver  
Science Friday (US National Radio)  
Naked Scientists (Cambridge Podcast)  
National Institutes of Health  
Imperial College London  
Memorial Sloan Kettering Cancer Center  
University of Texas – Medical Faculty  
North Michigan University  
NASA, JPL  
National Space Society  
Mars Institute  
Space Studies Institute  
Classroom of the Future  
ACM Supercomputing  
UK National Physical Laboratory  
Navy Research Laboratories  
NOAA, CSIRO  
Elon University  
Texas Wesleyan University  
Caltech, EPA, DOE  
Japan Agency for Marine-Earth  
Science and Technology  
Westchester University



**NHS patients, clinicians and researchers work together on new services, training and quality improvement .....**

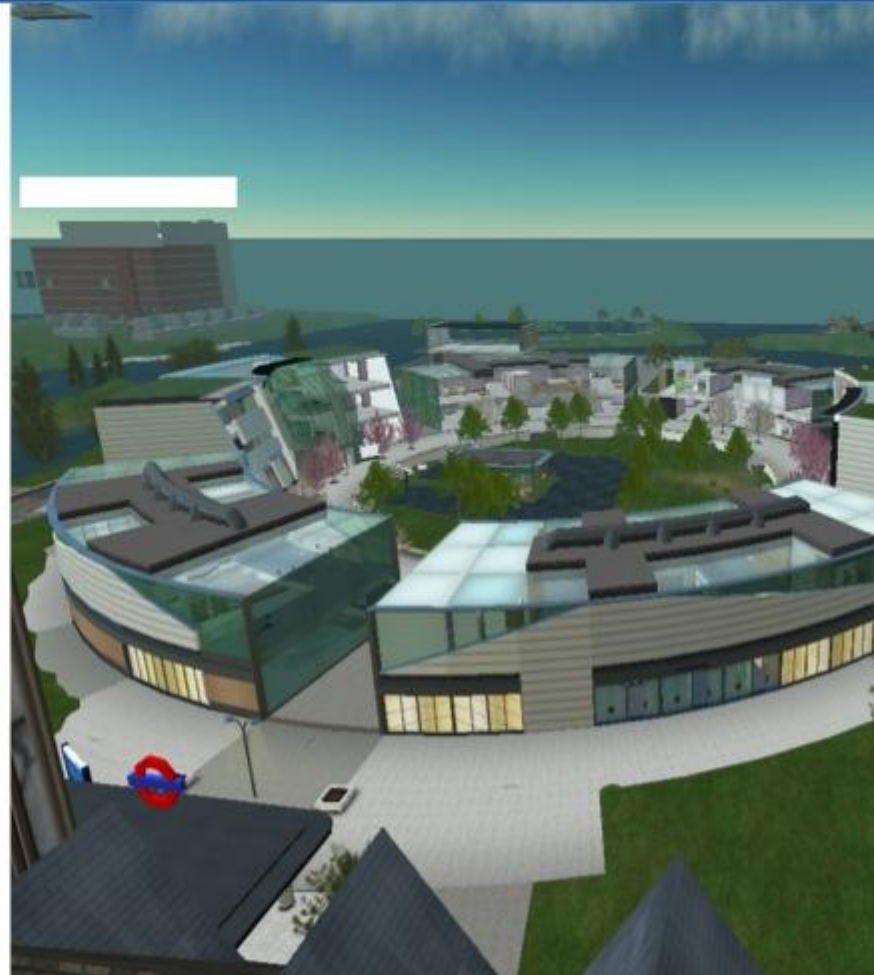
- Visualisation of future healthcare systems
- Virtual Patients and Immersive Clinical Scenarios
- Virtual but Real Hospitals
- Real Patients (in Virtual Hospitals)
- Training – extending access to real operations
- Supporting Collaborative Research Networks

# Second Health – Visualising the future of healthcare

- Future of health care provision in London
- Need for visualisation of strategy



*Department of Surgery and Cancer – Medical Media and Design Lab*





<b>N</b>		<b>August 2007/August 2008</b>
<b>459</b>		<b>Respondents</b>
459	25%	Health or social care professionals
459	52%	Members of the public
337	83%	Would recommend to a friend or colleague
390	72%	Easy to use
390	68%	Informative
390	93%	Worth the effort
109	76%	Of those who found it difficult still thought it worthwhile
342	62%	Toured alone
131	40%	Of those who saw others interacted with them
52	52%	Of those interactions were helpful

# Virtual Patients and Immersive Clinical Scenarios

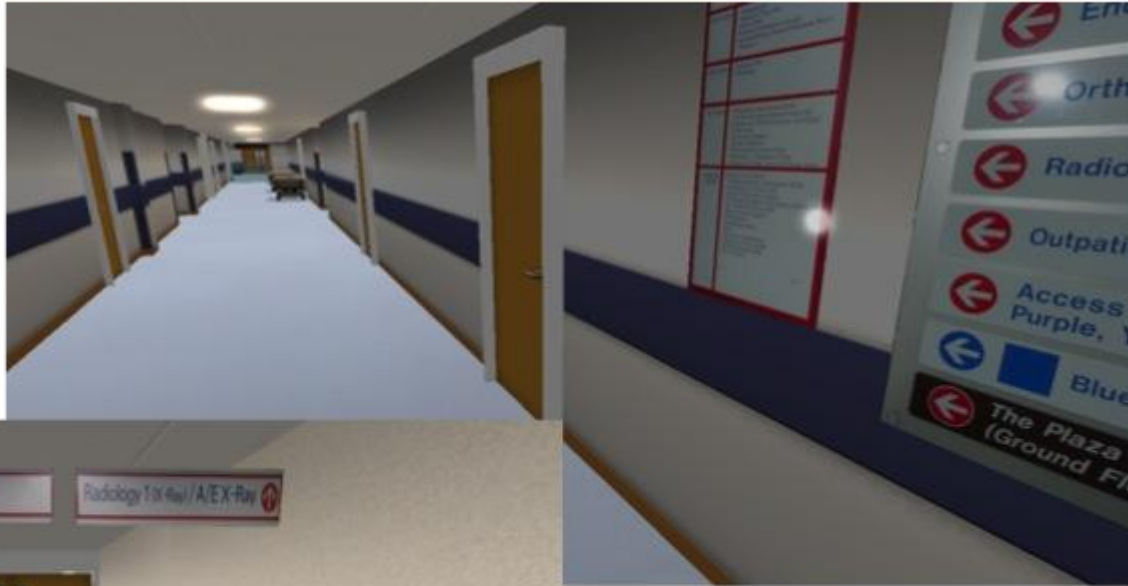


## Mk1 Virtual Patient



Acknowledgements: Raj Aggarwal, Vishal Patel, Imperial College London

## Wayfinding in real and virtual hospitals



*Project for: Salford Centre for Research and Innovation and the Health and Care Infrastructure Research and Innovation Centre (HaCIRIC)*

## Virtual Hospital

### Memorial Sloan-Kettering Brooklyn Infusion Clinic



*Courtesy: Irish Malig, Memorial Sloan-Kettering Cancer Center*

## Real Patients - Adults with Learning Disability

- People with learning disability learn best from multimodal experiences
- Immersive VR has been shown to support learning
- Use a virtual hospital experience to discover if we can enhance recall and understanding
- After exposure test understanding by using Cognitive Interview (CI) technique



**Imperial College  
London**

**grace eyre**  
shared lives · active lives



**University of Brighton**

**Sussex Partnership NHS**  
NHS Foundation Trust

*Funded by: NIHR Invention for Innovation (i4i) Programme*

# The Study

## Background

- Mental Capacity Act 2005
- People with learning disabilities recall up to 32% more witness information with the CI compared with a structured interview (SI)
- People with learning disabilities have poorest access to health care and receive least comprehensive service



Dr Suzanne Conboy-Hill: Sussex Partnership NHS  
Foundation Trust

# Acknowledgements

- Prof. Val Hall (University of Brighton)
- Dave Taylor (Programme Lead, Virtual Worlds and Medical Media, Imperial College)
- Eva Jarvis, Chris Bland, David Matthews and users of the Grace Eyre Foundation service

*Funded by: NIHR Invention for Innovation (i4i) Programme*

Dr Suzanne Conboy-Hill: Sussex Partnership NHS  
Foundation Trust

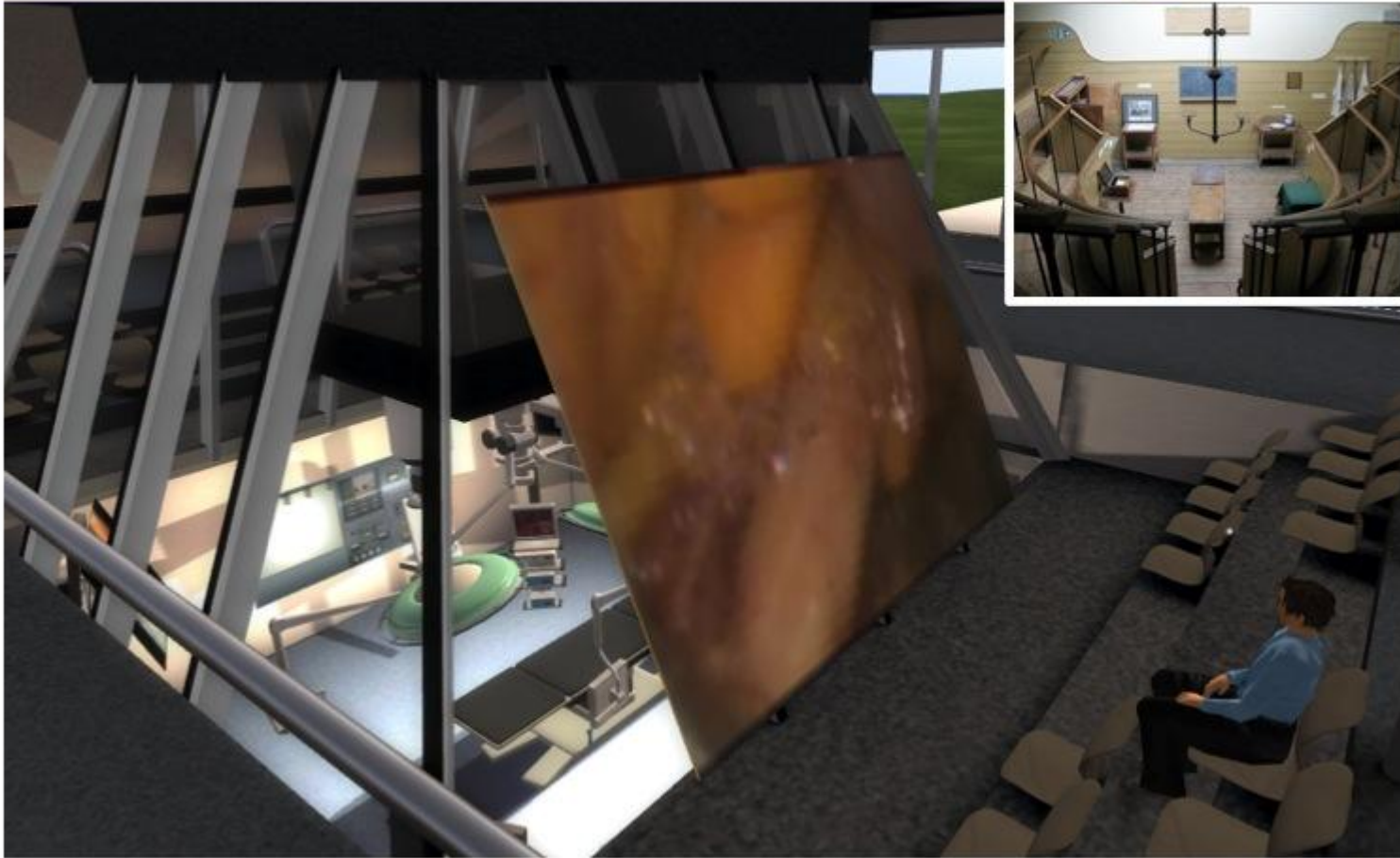
# Collaboration for Leadership in Applied Health Research and Care

**NIHR CLAHRC for Northwest London**  
Accelerating research into better care

**NHS**  
National Institute for  
Health Research



# Surgical Training



National training programme in laporoscopic colorectal surgery

## Questions: VW impact on safety and wellbeing

- Methods: Feasibility, Validation and Assessment, Random Control Trials, Support for Collaborative working
- Techniques: Realistic environments for teams to practise, Machinima, Software development to support simulations and collaboration
- NHS patients, clinicians and researchers work together on new services, training and quality improvement
- Infusion Clinic (real and virtual)
- Virtual Patients – Surgical Scenarios for training and assessment of Junior Doctors (Postgraduate level and beyond)
- Major Trauma
- Training surgeons – laparoscopic surgery
- Wayfinding in hospitals
- Collaborative research across NW London and Nationwide between clinicians, patients, academics for healthcare quality improvement
- Obtaining valid consent from adult patients with learning disability