

High Definition 3D Telemedicine: the next frontier?

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HD3D Telemedicine: the next frontier?

HD3D overview

Quality of Use: more than face to face

HD3D installations



3D Stereoscropy



Retinal disparity

- Glasses
 - Anaglyph red/green
 - Activeshutter system
- No glasses
 - Autostereoscropy



Quality of use

LeRogue et al 2007 *Use quality* critical success factors for full organizational, clinical and social context of telemedicine

- Technological - useability
- Orchestration – workflow, co-ordination of medical team
- Communication
 - Telepresence – immersion, being there
 - Access to records
- Professionalism



HD3D in Tele-medicine

- Radiology
- Surgical :
 - 3D endoscopy
 - 3D laparoscopic
- Surgical training
 - Virtual 3D liver
- Wound
 - 3D wound reconstruction



HD3D Telemedicine: the next frontier?

12 Sites in Victoria
 State govt funded.
 tele dentistry,
 tele-psychiatry,
 tele-oncology,
 tele-wound,
 tele-geriatrics



Tele-wound



- **Description:** Nurses in the home, Nhill, Bundoora, Ballarat transmit images to scarce wound specialists. Store and forward solution. HD3D screen for wound specialist.
- **Business case:** Low cost. Easily recovered by saving wound specialist travel and hospital admissions

Use quality

- **Technological:** S&F Low tech, Color calibration, Automated Depth – wound reconstruction
- **Orchestration:** Same equipment. Schedule and hold a video conference not so practical
- **Communication:** Telepresence, Realism. Records, Professionalisms



Tele-psychiatry



- **Description:** Psychiatrist at Uni Melb HD3D video conference with patients at Ballarat.
- **Business case:** Prompt, accurate assessment - keep patients in community.

Use quality

- **Technological:** Synchronous video conference. AARNET. Glasses ok
- **Orchestration:** Short consultations between monthly face to face
- **Communication:** Telepresence, Realism. Records - no. Professionalism



Tele-psychiatry



- Description:** Psychiatrist/patients at Ballarat Hospital HD3D video conference with patients/psychs at Horsham.

- Business case:** Prompt, accurate assessment - earlier hospital discharge.

Use quality

- Technological:** Synchronous video conference. Network latency. Glasses ok
- Orchestration:** Consultations easy to schedule
- Communication:** Telepresence, Realism.



Tele-oncology



- Description:** Private oncologist in Ballarat visits Horsham patients once a week.

- Business case:** Short consultation day after chemotherapy instead of waiting a week.

Use quality

- Technological:** Glasses not ok. HD3D videos by nurse practitioner uploaded to S&F
- Orchestration:** Short consultations readily fits into nurse practitioner and oncologist schedule
- Communication:** Telepresence, Realism. DVD recording of consultation for patient take home



Tele-dentistry



- Description:** Attendants in aged care perform oral scans for S&F to Uni Melb Dentists for treatment plans

- Business case:** Treatment plans enable effective triage.

Use quality

- Technological:** S&F with 2D video. 3D camera under development
- Orchestration:** Largely asynchronous. Tele-dental kit costs. New role for attendants
- Communication:** Treatment plans without interaction. Ergonomics



Tele-geriatrics

- Description:** Patient in aged care facility, geriatrician in Bundoora

- Business case:** Saves geriatrician travel time. Patient seen promptly saves escalation

Use quality

- Technological:** S&F with HD3D video. Vernet/NBN network
- Orchestration:** S&F preparation. Synchronous consultation
- Communication:** Telepresence.



Conclusion: Is HD3D the next frontier?

- **Enables Automated analysis:** Wound depth, automated assessment
- **Promises realism:** Wow factor.
- **User expectation:** As HD3D TV/movies become the norm, expectations rise for tele-medicine
- **Trial status:** Installations designed and IBES test bed tested. Field trials commence 2013
- **Short answer:** Probably yes, if Use Quality can be secure



Questions

- January 15 2013. Amman Jordan. Telehealth symposium. Funded by Council Arab Australia Relations – DFAT. All welcome.

