Telehealthcare: Current Role and Future Challenges

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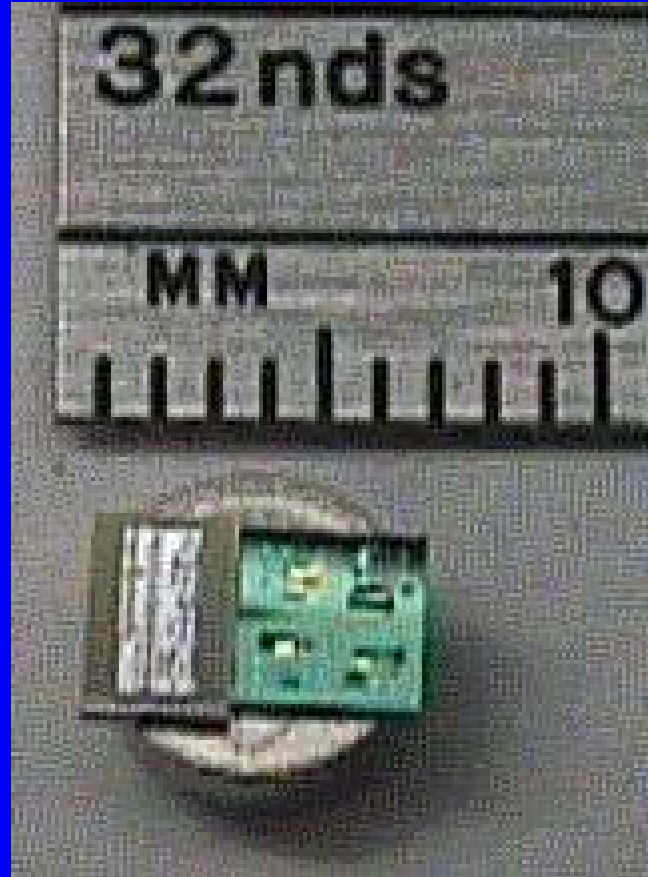fm46c@clinmed.gla.ac.uk

Defining Telehealthcare

- Synchronous and asynchronous information and communications systems used for clinical information sharing.
- Web can have a role in both types of systems.

Personal monitoring

Synchronous Telecare

- **R**eal-time systems used to monitor specific aspects (location, vital signs, syncope, movement) using sensors/videophone systems that communicate with a remote base or call centre. Response to signal may be an automated alarm or telephone call to a carer or family member, or an alert to emergency services.
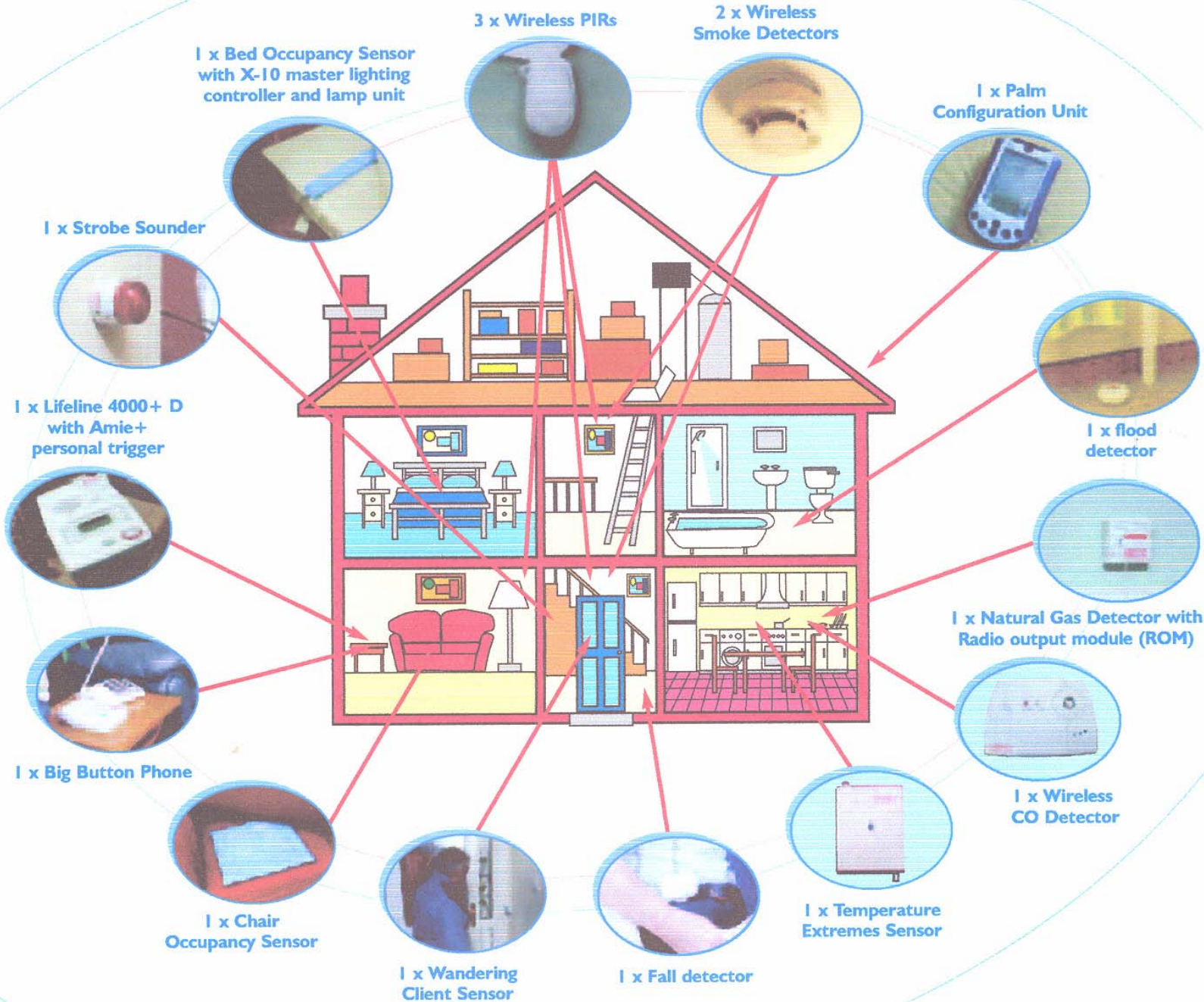
Asynchronous Telecare

- **Promoting self-care**: localized and personalized systems mounted in mobile phones, PDAs, personal computers. May be wireless or hard wired. Perform personal record keeping and calculations of test results (e.g. glucose) or vital signs (e.g. BP). Can communicate with remote call centres or home base-stations. Can provide data for professional review and/or direct feedback to users.

3 x Wireless PIRs

2 x Wireless Smoke Detectors

1 x Bed Occupancy Sensor with X-10 master lighting controller and lamp unit

1 x Palm Configuration Unit

1 x Strobe Sounder

1 x Lifeline 4000+ D with Amie+ personal trigger

1 x flood detector

1 x Big Button Phone

1 x Natural Gas Detector with Radio output module (ROM)

1 x Wireless CO Detector

1 x Chair Occupancy Sensor

1 x Temperature Extremes Sensor

1 x Wandering Client Sensor

1 x Fall detector

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VIA VERITAS VITA

What do patients need to remain independent?

- Education & Information
  - Validated, targeted:
- Instructions
  - Care plans
- Managing Compliance / Concordance with drug regimes
- Monitoring Clinical Status
- Giving feedback to the Patient
- Ready access to Care Team

The Policy Context

- NHS Plan

- Delivering for Health

- 'Supporting People with LTCs'

- Our health, our care, our say: a new direction for community services

- Crossing the Quality Chasm

- e-Health is an eEurope 2005 policy priority, setting targets for both the European Commission and Member States .

The Potential of Telehealthcare

To promote:

- Greater patient/carer control

- More choice

- More patient/carer influence

- More information

- Enabling self care

- Equitable services

Promoting Equitable Services

- Providing dermatology services for remote and rural areas is challenging.

- Dermatology is a busy OP specialty: 1-2% of the Scottish popn. are referred to dermatologists each yr.

- Dermatology in Raigmore Hospital, Inverness has a catchment popn of about 350,000, spread over 18,000 sq. miles. Services provided by only 2 consultants + a part-time associate specialist.

Teledermatology in Scotland

- Highlands and Islands use a "store and forward" system.

- Previously long waiting lists

- Now pts can attend a telederm clinic within 2-3 wks.

- Data encrypted to ensure confidentiality, opinion and advice for initial tx/FU returned to GP electronically within 5 days.

- Most patients with mild conditions are satisfactorily managed by their GP with the advice given.
- Those with severe skin problems can have investigations/admission arranged without delay and inconvenience
- Emergency opinions available quickly
- No emergency transfers to Raigmore for assessment have been reqd since the service started.

Cancer Services

- VideoConferencing Networks increasingly common across the UK
- MDT's ensure seamless delivery of care for patients throughout their treatment across the boundaries of primary/secondary/tertiary care.
- 'Virtual' MDT's use video conferencing technology to bring together knowledge and expertise that may not be available locally, delivering equitable access to healthcare

Conference camera

Analog screen

Digital screen

Videoconference PathSight MDT
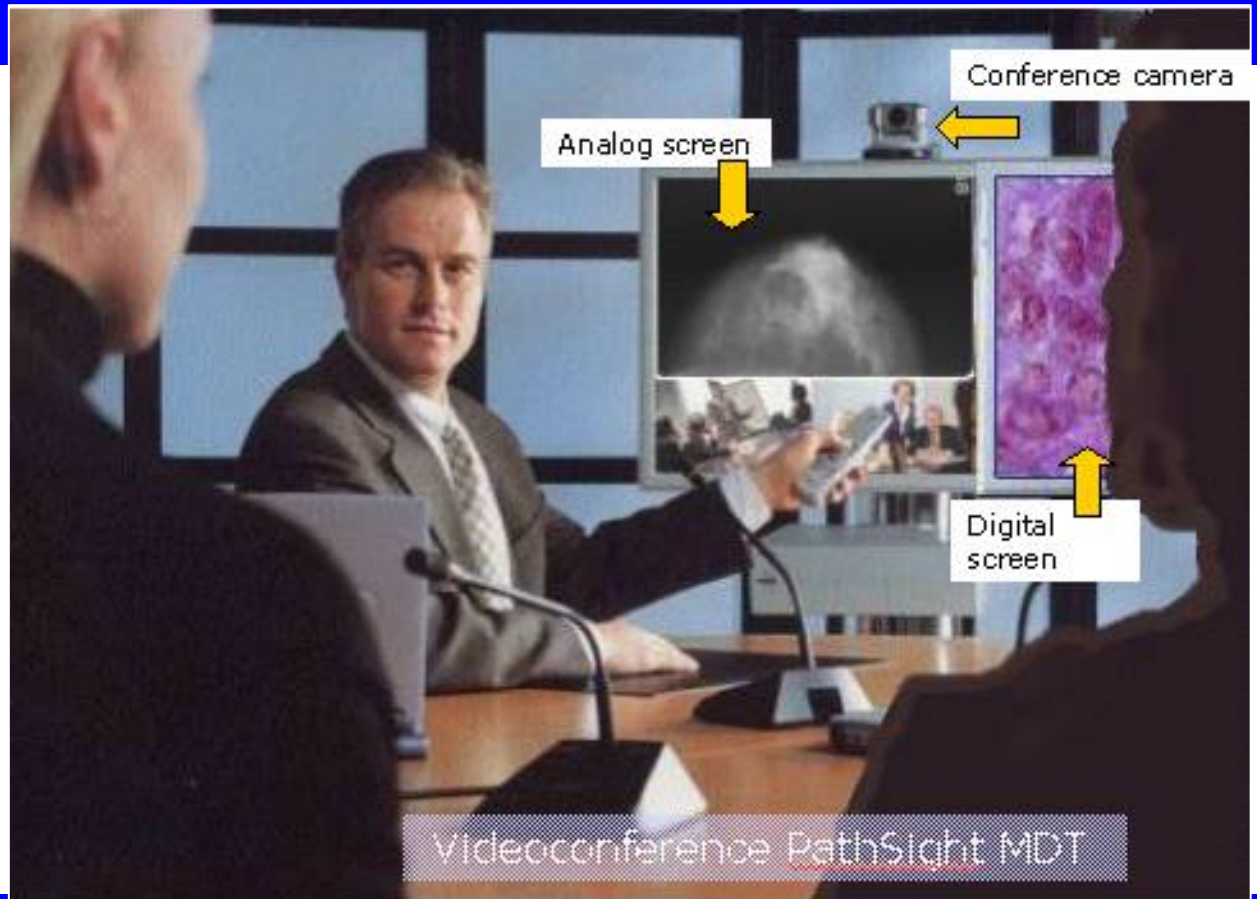
What the Politicians say

- "Technology will allow services to be provided more locally and will give people the chance to monitor their own health. I hope to see more use of such technology in the future."

Patricia Hewitt (Health Secretary)

Transforming the Model of Care.

- Proactive Care

- Care delivered by a health care team integrated across time, place and conditions

- Care delivered via nurse clinics, telephone, internet, e-mail, Telecare

- Self-management support an integral part of the delivery system

Examples of Currently Available Systems

- Personal emergency response systems
- Vital sign monitoring
- Video monitoring
- Medication reminders
- Voice activated computer aides
- High tech devices to control IV pumps etc.

What Kind of Patient Might Benefit?

1. Those needing frequent monitoring
- Early hospital discharge
- Medically fragile

2. Individuals with adherence issues
- Medication/diet/lifestyle

3. Individuals with chronic illness or disability

National Recognition for West Lothian's Award-Winning Care Scheme

- West Lothian Council awarded 1st prize for the best use of IT in primary and community care at the 2005 Healthcare IT Effectiveness Awards.

- Judges praised the service for successfully integrating telecare solutions with existing service provision to promote independent living as a real, cost-effective alternative to institutional care.

- Recognised as one of the most advanced social healthcare projects in Europe,

- The Home Safety Service has helped West Lothian to achieve the lowest proportion of older people blocking beds in Scotland.

- Mean duration of length of stay in hospital by a patient assessed as being ready to move is 9 days as opposed to the Scottish average of 57 days.

TheTelecare Solution

- Includes a Lifeline home unit and a range of sensors to detect inactivity, intruders, falls, smoke, flooding or extremes in temperature - allow users to remain independent, safe in the knowledge that should an incident occur help will be available.

What it does

- Upon detection of a dangerous situation or a press of the alarm button, the home unit immediately raises a call to Careline, West Lothian Council's response centre, where trained operators know instantly what the problem is and can speak to the user through the home unit to ascertain the most appropriate action whether it be calling a family member or arranging for a member of the mobile response team to visit

NHS Direct & Telecare

- Birmingham
  - 2000 patients (DM,CCF, COPD)
  - 6000 patients - Health Forecasting (Met.Office)
- Wakefield
  - 25,000+ Asthma Clinic management
- Numerous pilots

Remote Monitoring for Heart Patients

- Newham Newham University Hospital NHS Trust has officially launched a telehealth service that allows patients to self-monitor their conditions from their homes.

- The Service Transformation Redesign and Innovation Project (STRIP) consists of a touch-screen connected to a web server on the NHS site, and allows staff to monitor the vital signs of a patient remotely.

- The statistics are sent to the Newham Response Centre, and should any abnormalities occur they can be acted upon.

- It is thought that this will help patients achieve a better quality of life in the community.

- The service is aimed at those with chronic obstructive pulmonary disease and chronic heart disease.

Conclusions

- Policy drivers.
- Real Services Are Happening
- Adjunct to Existing Services
- Not a Magic Bullet but a useful tool.
- Potential of telehealthcare increasingly noted.
- Increasing utilisation

Challenges Exist

- Technological Issues

- Organisational Issues -the introduction of telehealthcare services may complicate, rather than simplify, the delivery of care particularly in the short to medium term.

- *Hibbert, Mair, May et al. JTT 2004;10(4):226-30.*

Challenges 2

- Telehealthcare has great potential but the evidence base remains poor.

- Evaluation of such services are complex and require flexibility.

1. *May C, Finch T, Mair FS, Mort M. Soc Sci Med 2005;Oct;61(7):1485-94.*

2. *Finch, May, Mair et al. BMJ 2003;327:1205-1209.*

3. *1.Mair FS, Whitten P. BMJ 2000;320: 1517-1520.*

4. *2.Whitten PS, Mair F. Telemedicine Journal 2001;6(4):417-423*

5. *3. Whitten, Mair, Haycox, May et al. BMJ. 2002;324(7351):1434-7.*

To Conclude

- Challenges are not insurmountable
- We need to learn from our mistakes
- Evaluation of services essential
- Clinical pull not technology push