Digital health equity for older people

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Plymouth is the biggest city in the SW peninsula of England (Devon and Cornwall).

Rural and coastal region.
Digital Health
Equity/Equality
The problem – is well known
A quick reminder
The age-gap in internet use is getting smaller but is still substantial.

And ‘using the internet’ is a very blunt measure – ranging from people who occasionally email to those who are permanently online.

Source: UK Office of National Statistics (ONS)
Geographical variation with rural areas having slower broadband speeds
Internationally big differences in cost vs income

How Many Hours of Work Pay the Internet Bill?

Monthly work hours* needed to pay for the cheapest broadband connection in selected countries (in hh:mm)

- Nigeria: 35h 33m
- Indonesia: 11h 18m
- Colombia: 10h 27m
- Spain: 2h 43m
- India: 2h 33m
- U.S.: 1h 28m
- China: 39m
- Israel: 19m

Source: Statista.com (2021)
Source: Graham, De Sabbata, Zook (2015)
Internet use in England depends on age and wealth (independently)

Understanding digital engagement in later life
Katey Matthews and James Nazroo
University of Manchester May 2015

Based on English Longitudinal Study of Ageing (ELSA) people aged 50+

See eg https://digitalinclusion.blog.gov.uk/2016/02/01/digital-engagement-in-later-life/
Digital design barriers

Look at W3C web accessibility initiative
Many disabilities come with age

In the UK...

• Hearing loss: 40% of people 50+, >70% of people 70+

• Sight loss: 20% of people 75+, 50% of people aged 90+

• Dementia: 17% 85-89, 28% 90-94, 38% 95+

• Dexterity decreases with age (both cognitive and ‘healthy’)

- Survey 2019, frequency of use and ability to use common interfaces
- Technology experience and competence decline with age
- Older users may really struggle with interfaces

- They recommend
  “that designers avoid the use of interaction patterns that have no real-world analogue equivalents. If using them is unavoidable, then we encourage designers to provide clear guidance on how to use them.”
At home I have cable TV, an external speaker, and connected Facebook portal
(Poll)
If you had to choose just one, which do you think is the biggest problem for digital equity of older people where you are?

- Physical access
- Cost
- Lack of personal IT skills
- Lack of support
- Poor design
Physical access
• Cost
• Lack of personal IT skills
• Lack of support
• Poor design
Addressing the problems
We know the problem
What can be done to address it?

Draw on my own work and that of colleagues including....

Dr Hannah Bradwell
Dr Toni Page
Dr Sonam Zamir
Prof Katharine Willis
Physical Access
Glasgow: late 1980s/early 90s

Pre-Internet: The problem was physical access

- Public access touch screen kiosk – Healthpoint
- Worth watching for the hairstyles alone...
Kiosk used by older people
Example from Greater Glasgow Health Board (Clydebank 1994)
Recent review on kiosks

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The Role of Health Kiosks: Scoping Review

Inocencio Daniel Mamba 1; Ray Jones 1; Daniela Austin 1; Katie Edwards 1; Edward Meinert 1; Arunangsu Chatterjee 1
Working with partners Nudge in Stonehouse (a deprived part of Plymouth) and with broadband supplier Wildanet in rural villages in Cornwall.
Care homes in UK have been particularly left behind in digital access

- 17,000 care homes, half a million residents
- UK total population 67 million
- So about 4% of UK population live in care homes
Giving access to ‘digital’ to care home residents

• Ageing well for a resident with dementia may mean use of devices such as companion robots

• Others may be able to make good use of videocalls to family, friends, or digital befrienders
Monday 7th August 2017
at 10.00 am
Weston Mill Crematorium,
Plumstead
Testimonial of use of Facetime (90 year old) – here remaining connected while in hospital
How can we ensure that care home residents have access to videocalls?

- Physical access
- Technical/social support
- Digital befrienders
And for residents who maybe won’t manage videocalls?

Digital equity for people with dementia may come via robotics
Various care homes and other sites now buying their own cats and dogs, including Derriford Hospital Plymouth Care of Elderly ward
Importance of design
User-centred design or (better) co-design
Is Paro’s fate sealed?

Roboticists like the £5000 Paro but older people prefer an £80 cat, says Plymouth researcher.
Younger roboticists preferred Paro and ‘mythical’ robots with more sophisticated features. Older people liked the familiar cats and dogs.
Voice and multimodal Interfaces
People over 65 were more like people under 21 than those aged 22–64 in preferring speech over tablet for robot–human interaction.

Differences may come from a more home based lifestyle and difficulties with vision, hearing, or dexterity rather than lack of interest in technology.
Echo Spot into care homes project

• Aim: to develop a **large user-base** for companies working in **voice or multi-modal applications** for assistive care

• Echo Spot – potential for video calls as well as usual Alexa functions.

• We installed Echo Spots (Alexa devices with small screen) in 150/225 (67%) Cornish care homes

• Here’s a care home manager to tell you what they are using it for........
Use of Echo Spot by care homes
(Haley Blake, Trevern Care Home, Falmouth)
Working with Sentai

- Alexa+ motion sensor + easy on/off
- Communicate older person plus family carer
- Family carer gets confirmation that older person out of bed
- Older person can turn Sentai on/off
- Use to audio message/communicate
- Plymouth (Leonie) running a trial with 30 pairs of older person/younger relative living independently
Genie connect – desktop robot

• Trial with 10 people aged 80-92 living independently (pre-market)
• Five positive, three negative (2 of which withdrew), two neutral.
• Positive comments included ‘feeling not alone’; ‘having someone to talk to’; and enjoying being asked ‘how are you feeling’.
• Negative comments were mainly not liking the eyes.
• Design adaptations continued with user-centred design
But reminder, that in the UK...

- **Hearing loss**: 40% of people 50+, >70% of people 70+
- **Sight loss**: 20% of people 75+, 50% of people aged 90+
- **Dementia**: 17% 85-89, 28% 90-94, 38% 95+
- **Dexterity decreases with age** (both cognitive and ‘healthy’)}
Digital Health Scheme

Supporting local communities in learning about and using digital health

GOLD
SILVER
BRONZE

University of Plymouth

Toni Page
To support local persons with their health needs via digital media.

To show at least two people (family member, friend, neighbour) who are inexperienced in using digital health how to access a digital health website or app.

**How to achieve bronze?**
Research and introduce one of the following:
- Care Opinion
- Their GP website
- NHS App
- NHS Apps Library
- Skype
- Facetime
- Healthtalk Online
- NHS Choices
Supporting the local community

Focus on supporting one person/family/organisation to use digital health. This could be through:

- placement – speak to your placement mentor and tutor
- local organisations – contact a local organisation
- local projects – contact a project
- support groups – contact a support group
- local library
Gold

To support local persons with their health needs via digital media.
To demonstrate digital skills and analyse knowledge and technology.
To co-design digital media and utilise digital information and devices innovatively with patients and public.

Supporting the local community

Build your links:
• Networks with forums and national groups
• Using all of your Bronze and Silver resources
• Working with health and social care organizations
• Charity and local health or illness interest groups.
Undergraduates as Digital Health Champions

• Helping care homes make use of ‘smart speakers’ (Alexa)

• Helping patients use apps such as
  – myCOPD for people with breathing problems
  – NHSapp or GP websites
Nursing students demonstrating apps and robopets at a GP practice in Cornwall
Toni Page @ToniPage9 - Nov 6
Thank you to Nadine and Emma who supported Oaktree Surgery patients in becoming aware of online gp services and supporting women to use the kiosk for their contraceptive check. Great #WPE, @EPIC_eHealth @PuncnadineS #digitalhealthchampion @ElephantKiosks
Certificate of Achievement

Congratulations

Hillcrest House Nursing Home

you have been shortlisted as a finalist in the category of

Best use of Technology in Care

at the

CARE AND SUPPORT AWARDS 2019

Signed

Roger Judge
Chair of CAHSC

Occupational Therapy student acting as Digital Health Champion for care home helped that care home become a finalist in ‘Care and Support Awards’
Helping patients use apps and websites

• For example, Joy O’Gorman, while 2nd year nursing student, on placement. (Now registered nurse and part time PhD student).

• Started showing patients in pre-op waiting how to use myCOPD

• Developed a project with the company (myMhealth) to implement in practices across Cornwall
Improved design and ‘joined up’ systems

Older people are more likely to be put off using a poor interface
A long time ago in a galaxy far far away.....

1979
When medical records looked like
<< this
and I looked like this (:<)

Name: Mr. Raymond B. Jones
Signature: [Image of signature]
Using the technology of 1980
Data collected on questionnaires and forms, data entered, computer printed records and forms
Nottingham Diabetes System 1980
Patients issued with a copy of their own medical summary
Donald Smith: Prostate Cancer

According to your record, you are being treated for this problem.

Your **prostate cancer** is described in medical words as being a **grade 2+3, localised, adenocarcinoma**.

The cancer was sited in the left lobe of your prostate gland and had affected the capsule surrounding it. One of your **seminal vesicles** may also be affected by the cancer.

Your cancer was **staged** according to the **TNM System** as **T3**.
Filtering and tailoring health information using the medical record would help older people by avoiding information overload and the distraction of all the ‘noise’ on the internet.
Some countries are making better use of medical record access

Charlotte Blease, USA
Cait Des Roches, USA
Maria Hagglund, Sweden
Spain – good access to records allowing patients to be able to share. Example my Spanish wife able to see, share, advise a family member with that shared access. (Illustrates the importance of social support in addressing digital inequalities)
Hemoglobina * 17.2 g/dl (13 - 17)
Hematocrito * 50.5 % (39 - 50)
Volumen corpuscular medio
Hemoglobina corpuscular media 30.8 pg (27 - 32)
CHCM 34.1 g/dl (31.5 - 34.5)
RDW 13.0 % (11.2 - 15.2)
Plaquetas 318 x 10^3 μl (150 - 450)
Volumen plaquetario medio 9.5 fl (9 - 13)
Fórmula
% linfocitos 23.9 % (20 - 45)
% monocitos 8.2 % (2 - 10)
% segmentados 64.8 % (40 - 75)
% eosinófilos 2.7 % (1 - 5)
% basófilos 0.4 % (0 - 2)
Linfocitos (V. Absoluto) 2.8 x 10^3 μl (1.2 - 5.0)
Monocitos (V. Absoluto) 1.0 x 10^3 μl (0.1 - 1.0)
Neutrófilos (V. Absoluto) 7.5 x 10^3 μl (1.7 - 8.0)
Eosinófilos (V. Absoluto) 0.3 x 10^3 μl (0.0 - 0.5)
Basófilos (V. Absoluto) 0.1 x 10^3 μl (0.0 - 0.3)
Perfiles y pruebas básicas
Dímero DD 222 μg/ml (68 - 494)
Bioquímica
Glucosa * 142 mg/dl (74 - 109)

RESUMEN DE SITUACIÓN
Analítica sanguínea dentro de la normalidad.
No impresiona de
Le remito a consultas de

JUICIO DIAGNÓSTICO
Dolor en

TRATAMIENTO
- Solicitar cita preferente en consultas de
Abandono tabaquico

Continuar con mismo tratamiento de momento

RECOMENDACIONES
Poll
Do you have, have you used, access to your medical record online?

• I do NOT have access to my medical record online
• I have the possibility of access to my medical record online but have not used it yet
• I have accessed my medical record online
UK GP online access systems need improved design – older people are more likely to be put off using a poor interface.

• ‘For a second consultation in the future do you need to know if I smoke etc, You should have this on record’,

• ‘If the consultants need to see what meds you are on and your family history then they should look up your records, the amount of info I have to give each time is ridiculous’,
GOALD project

Universities of Stirling and Plymouth

20 Inter-generational co-production groups

What technologies can help people remain active in older life?

Funded by UKRI/ESRC
Connecting people to ‘heritage’ sites
Using digital to address ‘access inequality’
(Older people who can no longer physically access heritage sites)
Virtual reality birthday party for 103-year-old

GOALD working with ROVR who provide a VR treadmill experience, to walk through a VR environment. Joyce from retirement apartments in Falmouth Cornwall.
ICONIC

Intergenerational COdesign of Novel technologies In Coastal communities

• Starts November 2022

• Intergenerational groups will co-design novel technologies
  – enhanced virtual reality to move around heritage sites
  – social games connecting older people based on local history
  – underwater telepresence to explore underwater environment
  – telephone access by AI to online resources such as museums
Underlying GOALD and ICONIC projects is the EPIC project in Cornwall

- Running since 2017
- Helping > 100 small businesses in Cornwall and Isles of Scilly
- Developing the eHealth ecosystem
- Older rural population
- Focus on care homes, primary care
- @epic_ehealth
- epic@plymouth.ac.uk
(Poll)

If you had to choose just one, which do you think is likely to lead to the best improvement in digital equity of older people where you are?

• Improving physical access
• Reducing cost
• Improving personal IT skills
• Providing more support
• Improving design
Questions and comments

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