

Digital Inclusion in Health and Care in Wales

The potential for digital inclusion to improve the health and well-being of older people and people with a limiting long-standing illness, disability or infirmity in Wales.



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November 2018



Wales Co-operative Centre
Canolfan Cydweithredol Cymru

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Foreword

When the Scottish-American philanthropist Andrew Carnegie established the Carnegie UK Trust more than 100 years ago, he set the organisation the mandate to work to “improve the well-being of the people of the UK and Ireland”. Importantly, he gave the foundation’s trustees the power to determine how that mandate should be interpreted and the ability to vary the focus of their work in order to tackle the most pressing social issues of the day, whatever those may be.

In 2018, the significant and growing impact that digital technology has on our lives becomes more apparent on an almost daily basis. Technological advances have brought a remarkable array of benefits to many people – cheaper and more plentiful goods and products; an abundance of new connections with family, friends and those with common interests; access to a dizzying selection of audio, visual and text-based content; new opportunities to build skills and knowledge; faster and more responsive access to public services; new employment opportunities and routes to work; and improved health information and access.

The digital world also presents risks, many of which we don't yet fully understand. These include risks in terms of privacy, security, the veracity of information, mental health and personal fulfilment. There are risks for those who don't engage with digital technology too. Many research studies have identified that those who are digitally excluded are, predominantly, the very same people who are disadvantaged according to almost every other measure of social or economic inclusion. There is a danger that digital technology – which is often seen as a great equalising, democratising advancement – deepens and entrenches the existing divides in our society.



The Wales Co-operative Centre has been at the forefront of digital inclusion work in Wales since 2006, when it delivered the Welsh Government's first digital inclusion programme. Since then the Centre has delivered support, training and consultancy to organisations across Wales to enable them to embed digital inclusion into their service delivery.

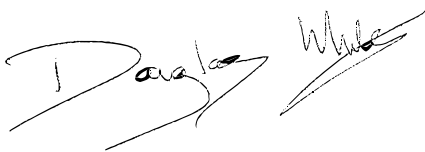
The Centre now seeks to utilise the evidence base that has evolved from its 12 years' experience of delivering digital inclusion programmes across Wales to inform planning and policy discussion at a wider, more strategic level.

The Carnegie UK Trust and the Wales Co-operative Centre identify digital as one of the major public policy issues that require focus and attention. The challenge ahead is how to maximise the benefits of digital, while mitigating the risks.

Over the past year, the two organisations have worked together on a highly significant aspect of the digital agenda - its application in health and care - where the focus on maximising benefit while minimising risk is particularly urgent. The provision of health and care services has already seen important gains achieved through the deployment of digital technology – with many more to come. But service providers face a dilemma. Many citizens with the greatest need for health and care provision are also those with the lowest level of digital skills. This limits the gains that can be made for providers in improving service efficiency and reduces the benefits of speed, time, convenience and agency that could be realised by citizens.

We are therefore delighted to support this important and comprehensive independent report by Bob Gann, a leading expert in the field, which sets a clear roadmap for how digital inclusion can improve the health and well-being of many people in Wales. We hope that the robust evidence base set out in the study, and the practical recommendations it identifies, can support action to advance this vital agenda.

We look forward to working with stakeholders across Wales to help achieve this goal.



Douglas White
Head of Advocacy
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Karen Lewis
Director of Communities and Inclusion
Wales Co-operative Centre

About this report

This independent report has been commissioned by the Wales Co-operative Centre with support from Carnegie UK Trust.

The aim of the research is to provide key stakeholders with a robust evidence base on the potential for digital inclusion to improve the health and well-being of older people and people with a limiting long term condition, disability or infirmity in Wales.

The study will support progressive action within NHS Wales, Welsh Government and wider stakeholders. The Wales Co-operative Centre is working in partnership with Carnegie UK Trust to move forward this important agenda in Wales, with the involvement of a wider group of stakeholders, specifically from Welsh Government and NHS Wales.

It is intended to:

- Place digital inclusion within the specific context of health and social care in Wales.
- Give an overview of current relevant activity across Wales, highlighting examples of good practice.
- Highlight any examples of excellent practice in other jurisdictions that can be learned from.
- Highlight areas of need on which to focus future effort and activity with recommendations as to how to approach this.
- Identify potential cost savings and improved value to encourage service providers to take up digital inclusion activity.
- Begin to support local Health Boards and other stakeholders to work co-operatively and learn from each other in this important area.

About the author

Bob Gann is Director of Junction Digital Consulting, and an independent consultant in digital health and inclusion. Prior to becoming an independent consultant, he was programme director of Widening Digital Participation, the national digital inclusion programme for the NHS in England. Earlier in his career Bob has been Director of Strategy and Engagement for the NHS Choices website, and New Media Director for NHS Direct. He is a Specialist Advisor in Digital Health for the Care Quality Commission, Visiting Professor in Health Informatics at Plymouth University, and a member of the World Health Organization e-Health Technical Advisory Group.

Executive summary

The NHS was born in Wales. In its 70th year, health and social care is embracing the digital revolution. The rapid growth in digital technologies brings transformative opportunities for people to become more active partners in their own care, interacting with services with the convenience they have come to expect in other areas of their lives.

The recent *Parliamentary Review of Health and Social Care in Wales*, and the response *A Healthier Wales*, look to digital technology and innovation to deliver more efficient and effective care. There are established programmes of public facing digital health services within the Informed Health and Care strategy – online access to records, appointment bookings and prescription requests, healthcare apps, wearables, online self-management, video consultations.

But with these exciting opportunities comes a serious risk. As more and more vital public services are delivered online, digitally excluded people are in danger of being left behind. Those that are most in need of health and care (including older people and those with long term conditions and disabilities) are the least likely to be online. Fewer people in Wales use the internet to manage their own health than in the rest of the UK.

In Wales today, 85% of people use the internet but this still means that 15% do not. Stubborn levels of digital exclusion remain. After several years of steady improvement, the percentage of people online seems to be reaching a plateau. There are barriers to digital inclusion including lack of digital skills and lack of access (including affordability and broadband connectivity). As both skills and access improve, lack of interest, motivation and trust are increasingly the reasons that the remaining 15% do not go online.

Wales has an impressive record in tackling digital exclusion, both in policy and practical action. The Welsh Government's Digital Inclusion Strategic Framework has an ambitious 15-point delivery plan, and a Digital Inclusion Charter. A dedicated national digital inclusion programme, Digital Communities Wales, is delivered by the Wales Co-operative Centre. A new Digital Competence Framework is in place in all schools, equipping pupils with the skills they need to be digital citizens in the modern world. Superfast Cymru is bringing broadband access to rural communities which would otherwise miss out.

There are many examples of digital inclusion good practice and innovation in health and care settings, particularly through Digital Communities Wales. Through the Digital Heroes initiative, young people befriend older people and introduce them to digital technology, often with inspiring and transformative results. People who would otherwise be lonely and isolated are supported to get online so that they can keep in touch with friends and family. Digital technologies (including VR headsets) are being used to enable people with dementia to connect with positive memories). Fitbits have provided motivation for people to improve both their digital skills and their physical activity.

Health and care staff are being trained as digital champions so that they can engage patients with digital health services including My Health Online and Patients Know Best. Digital inclusion support has created the right conditions for frail older people to use virtual consultations in rural areas.

Despite this excellent work, there is much still to be done. In contrast to local authorities, Health Boards in Wales have been slow to recognise digital inclusion as a crucial enabler for digital transformation. While 15% of the population (including the heaviest users of health and care services) remain offline, the benefits of the digital health revolution will not be realised. Even so, the majority of Health Boards make no reference to digital inclusion in their digital strategies or Integrated Medium Term Plans. However, Abertawe Bro Morgannwg University Health Board is leading the way in the attention given to digital inclusion, with the Board recently signing up to the Digital Inclusion Charter and committing to practical action.

Looking forward, there are several levers and enablers which could be used in Wales to bring digital inclusion up the agenda, and to embed it in health and care commissioning and provision. The NHS Wales Planning Framework includes digital health as a key enabler but, unlike in England, does not ask Health Boards to address digital exclusion as a limiting factor. It could do so in future. Public health organisations have not seen, and mapped, digital exclusion as a social determinant of health, but could do so in the future. Funding for innovation through the Transformation Programme and other grant schemes could be made dependent on proposals to tackle digital exclusion. There is scope for supporting more work for community referral to digital inclusion support through social prescribing. Developing the digital capability of staff, at frontline and leadership level, would significantly improve take-up of digital health by patients and service users.

Health and care services in Wales are underpinned by the principles of prudent healthcare. Improving digital inclusion is entirely consistent with this approach – enabling co-production, reaching those with the greatest needs, doing only what is needed, including encouraging self-care, and reducing the inappropriate variation of the digital divide.

The business case for digital inclusion in health and care is encouraging. Evaluations have shown that interventions, including digital skills training, improve people's confidence in using digital health tools, boost take-up of digital health services such as appointment bookings, increase self-care for minor ailments, reduce loneliness and isolation, and save time and money. A return on investment of £6.40 for every £1 spent on digital inclusion in health and social care has been calculated in England.

The time is ripe for the NHS and social care in Wales to embrace digital inclusion as central to the Healthier Wales vision of transformational change. We need digital inclusion to be in the health and care mainstream, sustainably and at scale, not just a nice-to-have. Without action we risk a new inverse care law, where services delivered digitally are unavailable to those who would most benefit from them - digital have-nots in an increasingly digital world.

Recommendations

Mainstream digital inclusion

1. Digital inclusion needs to move from the margins to the mainstream of health and social care planning and delivery in Wales, and be seen as a key enabler of prudent healthcare.
2. Digital inclusion should be recognised as a social determinant of health, alongside other inequalities, and in future included in public health mapping.
3. Local authorities generally have a much more detailed and robust strategic approach to digital inclusion than do health organisations. As health and social care organisations move towards the Healthier Wales vision of integrated care, a more joined up approach should also be taken to digital inclusion.

Use levers and enablers

4. The NHS Wales Planning Framework should require Health Boards and Trusts to take digital inclusion explicitly into account when developing local health plans, including Integrated Medium Term Plans (IMTPs).
5. Funding for digital initiatives through the Transformation Fund and other grant programmes should be conditional on applications specifically addressing digital inclusion.
6. Wi-Fi is a key enabler for ensuring that people can get online when they most need it. Free public Wi-Fi should be rolled out comprehensively across NHS and care settings throughout Wales.
7. Digital health literacy of health and care staff is essential for digital adoption by patients and service users. Digital health leaders in Wales should be encouraged to participate in the NHS Digital Academy, while frontline staff should be supported to become digital champions for their patients.

Scale up

8. All Health Boards and Trusts in Wales should follow the example of Abertawe Bro Morgannwg, signing up to the Digital Inclusion Charter and taking practical steps to implement digital inclusion support locally.
9. Without digital inclusion, the benefits of Workstream One of the Informed Health and Care strategy will not be fully realised. Initiatives such as Digital Communities Wales support for adoption of public facing digital services should be implemented at scale across the NHS in Wales.
10. Digital Communities Wales is leading the way in ensuring that the most vulnerable people are not excluded from the benefits of digital. Digital Heroes is a particularly inspirational example of intergenerational befriending which should be widely adopted, not just in Wales but elsewhere.

11. The use of social prescribing of digital inclusion support is at an early stage in Wales and the approach should be accelerated.

Improve our knowledge

12. The business case for digital inclusion so far is encouraging, but needs to be developed more rigorously, with evaluation against outcomes which matter to health and social care organisations.
13. Awareness of public facing digital health services in Wales is not high. There is a need for communication activity to increase not only awareness but also the benefits of signing up.
14. Even with digital skills and access to technology, people will not use digital health tools if they are not accessible and meaningful to them. There should be user-centred design of all digital health products with the involvement of people who are less experienced digital users.
15. A practical guide to make it easier for local health and care organisations to commission and deliver digital inclusion support should be produced, similar to the Digital Inclusion Guide for Health and Social Care in England.
16. Wales can learn from other countries, and other countries can learn from Wales, about approaches to digital inclusion in health and care. Relationships should be developed with digital inclusion colleagues in comparable small, innovative countries.
17. Sharing of what works in Wales and elsewhere should be actively communicated to ensure that digital inclusion is rolled out and embedded safely and successfully.
18. The approaches to digital inclusion which have worked in the past may not be where the focus should be in the future. Health and care organisations in Wales should support co-production projects which build a better understanding of the barriers to digital inclusion and best solutions.

1. Digital inclusion in Wales



1. Digital inclusion in Wales

What do we mean by digital inclusion?

The rapid growth in digital technologies brings transformative opportunities, but also threatens to deepen the digital divide between the active users capable of exploiting ever improving technologies, and those who struggle to overcome the barriers to getting online. These digitally excluded people are in danger of being left behind in society, as more and more services, including vital public services, go online.¹

Digital Inclusion is about working with communities to address issues of opportunity, access, knowledge and skill in relation to using technology, and in particular, the internet.²

Many different terms are used interchangeably – digital inclusion, basic digital skills, digital participation, digital competence, digital capability, digital engagement, digital literacy, information literacy. Essentially, digital inclusion is about people being able to use digital technologies, particularly the internet, in ways that enhance their lives and contribute to helping them overcome other disadvantages which they might face.

What are the barriers to digital inclusion?

The three main barriers to digital inclusion are:

- Lack of skills
- Lack of access (including broadband connectivity, affordability and accessibility)
- Lack of motivation (including interest and trust)

Today, many more people are using digital technologies, helped by cheaper equipment, easier to use touch-screen interfaces and faster broadband speeds. However, barriers still exist for significant numbers of people, preventing them from participating with the digital world. Lack of confidence can also be a significant factor preventing a person moving from a reluctant, single-purpose user to someone who truly reaps the benefits of being online. Research suggests motivation is still the main reason people do not go online, while the need for people to use digital technologies will increase as more services are delivered through online channels.³

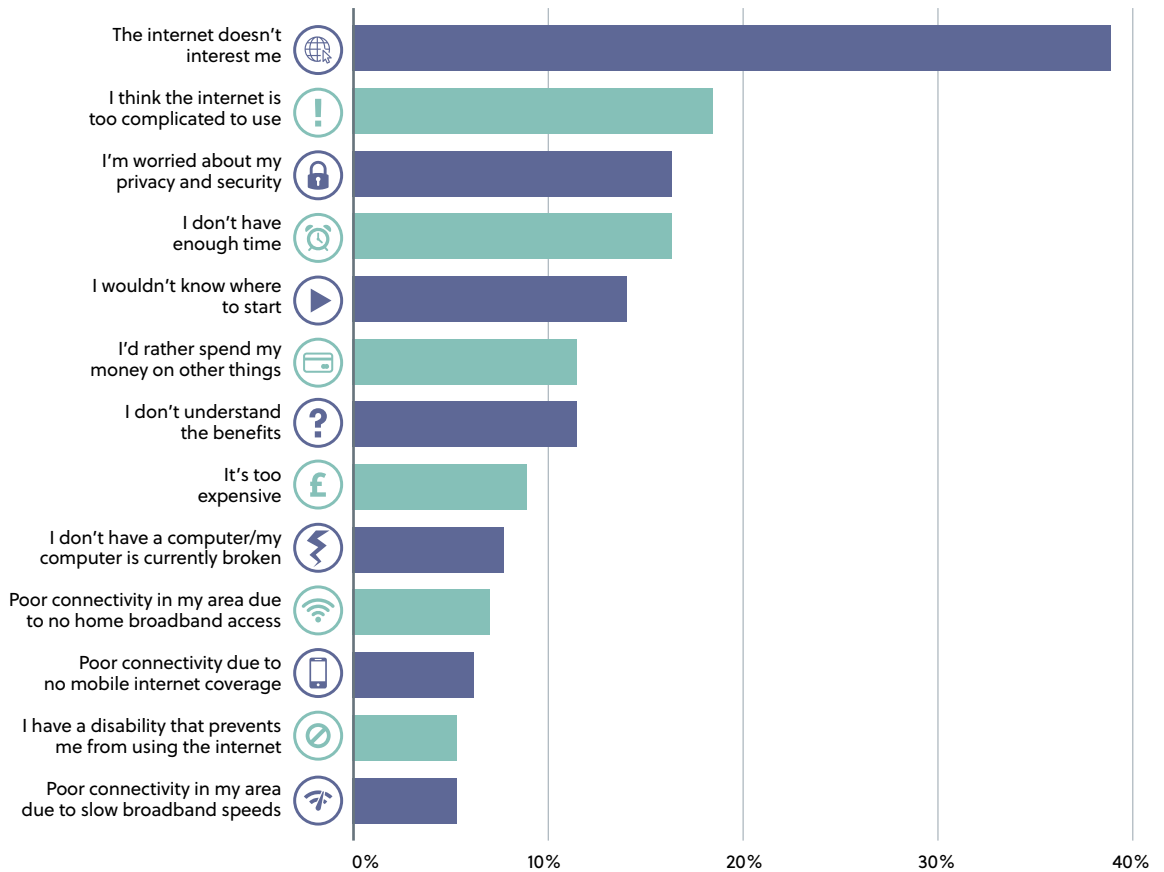
A re-contact survey⁴ of non-internet users from the 2013-14 National Survey for Wales (published in May 2015) revealed the extent of the multiple barriers that prevent people from going online:

- 91% identified a lack of interest or need as a factor in not using the internet for nine in ten non-users
- 'Soft' constraints affect three quarters (75%) of non-users, e.g. lack of skills, privacy or security concerns, or a lack of help
- 'Hard' constraints prevent over half (56%) of non-users from using the Internet, e.g. cost, health difficulties, or literacy barriers
- Cost was a contributing barrier for one third, but upfront costs were seen as more of a constraint than monthly connection fees

As digital skills and access to technology improve, lack of interest and motivation is increasingly the main reason people do not go online.

- Fewer than one in three feel confident setting up home broadband connection or new devices. This suggests that most people rely on others to ensure they can get online.

Data from the Lloyds Bank Consumer Digital Index⁵ reinforces the emerging finding that for the remaining core of those who are not online, lack of interest in what the internet can do for them is now the major barrier. It seems that too often digital services are not sufficiently compelling and meaningful for them to overcome concerns including privacy and security.

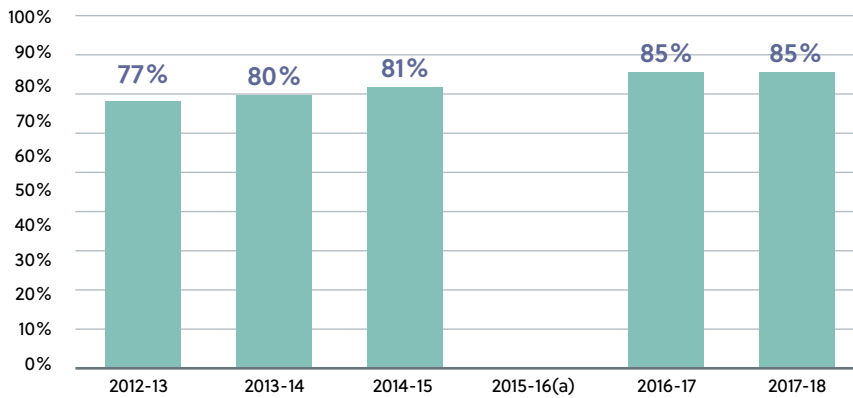


Who is digitally excluded in Wales?

The National Survey for Wales⁶ included a set of questions on internet Access and Public Services. These provide a detailed picture of digital exclusion in Wales. The headline figure is that 85% of adults in Wales use the internet.

However this still means that 15% do not - with older and disabled people, those with limited qualifications and those on lower incomes still the least likely to use digital technologies.

Stubborn levels of digital exclusion remain in Wales. The 2017-18 National Survey⁷ shows that after several years of steady improvement the percentage of people online has plateaued at 85%.

Chart 7: Personal use of the internet, 2012 to 2018

(a) The National Survey did not take place in 2015-16.

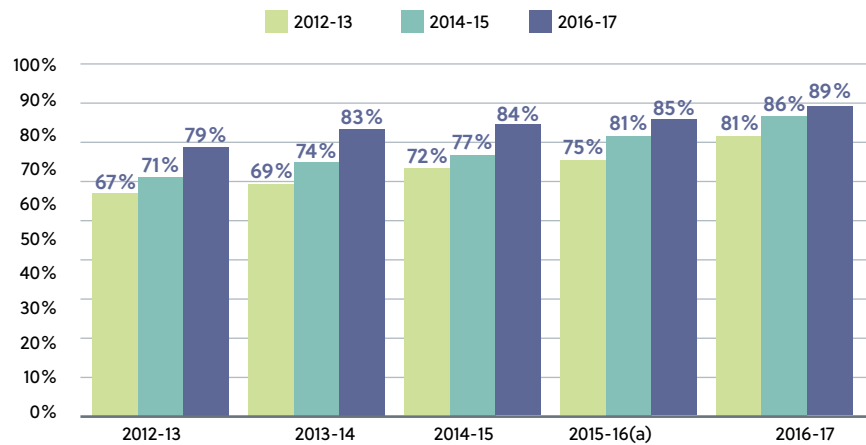
There is a real danger that the people who most need health and care services (older people, people with long term conditions and disabilities, people living in poverty and social deprivation) are exactly those who are least likely to be able to use digital health services. Without action to tackle digital exclusion, we risk digital transformation widening health inequalities rather than narrowing them:

- *74% of people in Wales with a limiting long-standing illness, disability, or infirmity use the internet, compared with 90% of those without such a condition.*
- *75% of men and 68% of women aged 65 to 74 use the internet, compared with 97% of 16 to 49-year olds*

Although significant digital inclusion challenges remain, some encouragement can be taken from the fact that there has been a greater percentage increase in internet use in the most digitally excluded groups (both by deprivation and age) – because there is more scope to do so.⁹

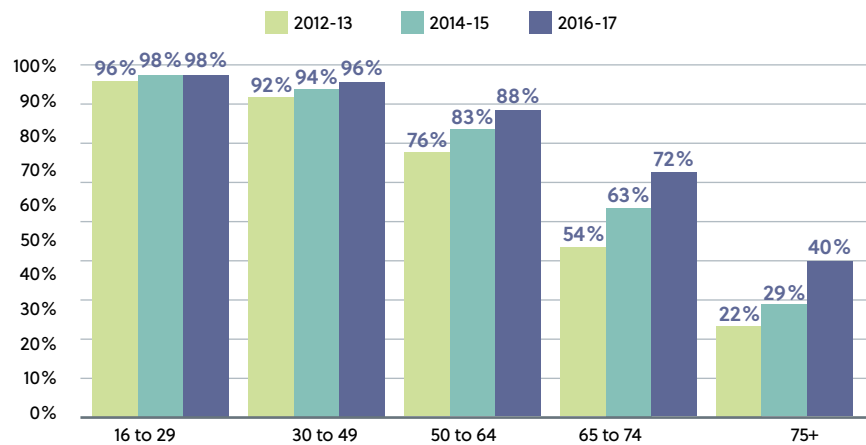
Internet access in the most deprived households in Wales has increased 12% from 67% in 2012-13 to 79% in 2016-17, compared with an 8% increase in the least deprived households.

Chart 1: Household internet access by deprivation quintile and year



And internet access in the 75+ population in Wales has increased 18% from 22% in 2012-13 to 40% in 2016-17, compared with a 2% increase in 16 to 29-year olds.

Chart 6: Personal Internet use by age group and year



Mapping digital exclusion in Wales

As well as variation in internet access due to age, deprivation etc across Wales, there is also stark variation in access in different parts of the country. The Digital Inclusion Heatmap¹⁰ provides a snapshot picture (2017) of digital inclusion based on a number of metrics including infrastructure, number of people online, and level of basic digital skills.

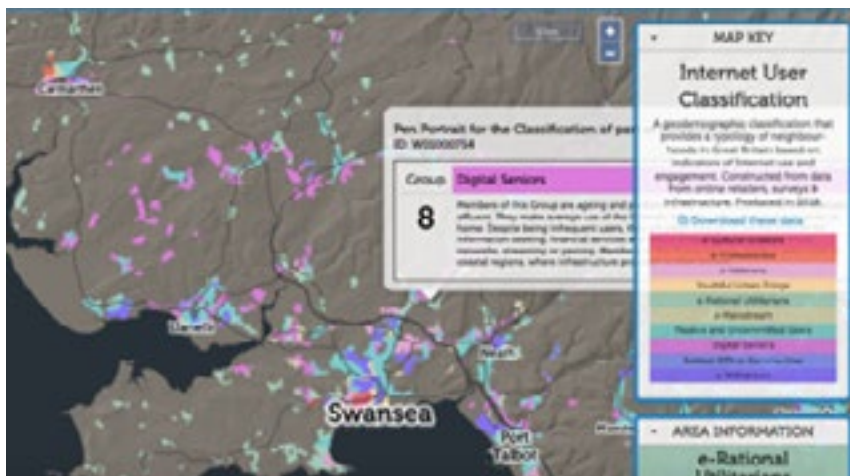
Data sources¹¹ for the Heatmap are:

- Office of Communications: data for household broadband speeds and 4G mobile data
- Office for National Statistics: internet access quarterly update
- Lloyds Bank UK Consumer Digital Index: basic digital skills
- Office for National Statistics: age, education and health status

The Heatmap shows graphically how Wales has some of the worst levels of digital exclusion in the UK, and also how within Wales some areas (in the North and West) are particularly digitally excluded.

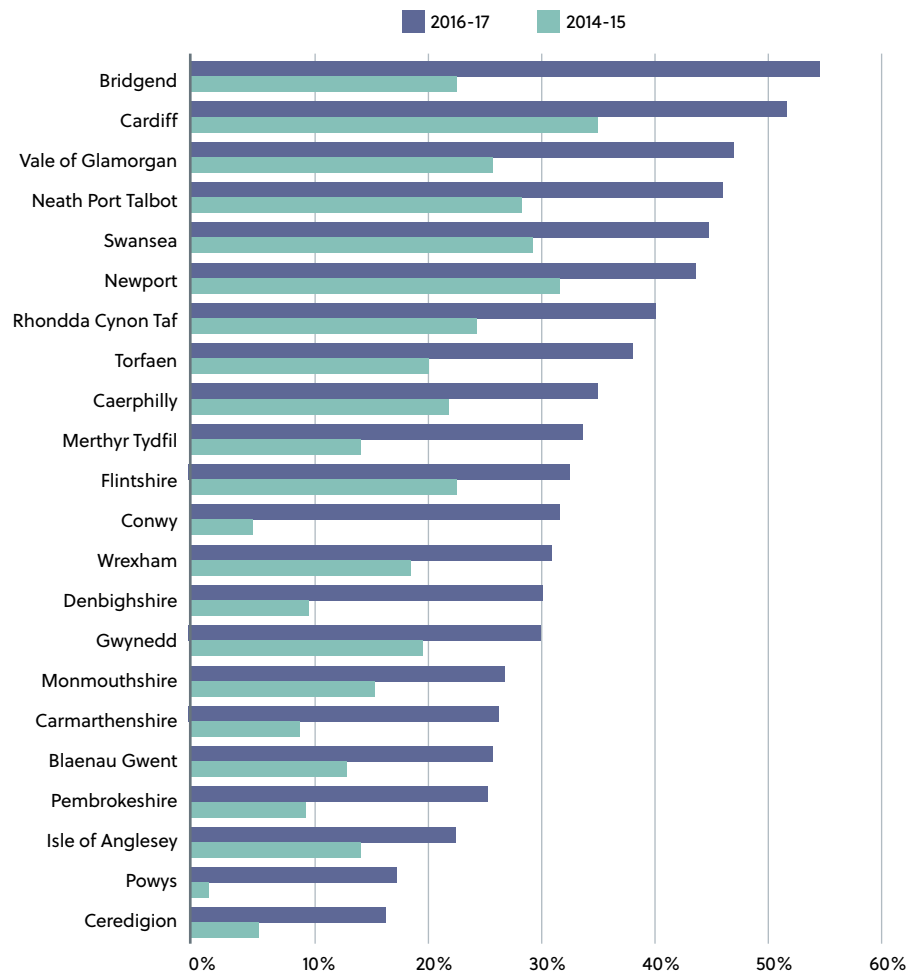
More sophisticated and in-depth data on local digital take-up is available from the Consumer Data Research Centre – a collaboration of researchers from the University of Leeds, University College London, University of Liverpool and the University of Oxford.¹² CDRC developed the Internet User Classification (IUC) in 2014-15 by combining a number of measures from lifestyle and census survey, classifying every neighbourhood in the UK according to a variety of characteristics that might influence use of the internet for consumer purposes.¹³

For example, Internet User Classification for the Swansea¹⁴ area suggests that the area is characterised by passive and uncommitted users (green), the e-withdrawn (blue), and digital seniors (purple) with a pocket of e-professionals (orange) and e-cultural creators (red) in the waterfront district.



The National Survey for Wales shows a notable difference between local authorities in broadband connectivity. This is a major factor in the variation in digital exclusion across Wales. Bridgend has the greatest proportion of residents connecting to the internet using superfast broadband at 55%, with only 17% of homes in Powys connecting in this way. All local authorities have shown increases in superfast broadband uptake, with Bridgend up from 23% and Powys up from 2%.

Chart 4: Superfast broadband connection, by local authority and year



Lloyds Bank produces an annual Consumer Digital Index¹⁵ which aims to be the largest measure of financial and digital capability of people in the UK. Now in its third year of publication, the Index combines consumers' actual behavioural data with survey research to understand the attitudes behind their behaviour.

Data sources for the Consumer Digital Index were:

- UK representative sample of one million consumers aged 18+. The data comprises 12 months of transactional behaviour. It also provides a longitudinal view to understand if or how people have shifted their financial or digital capability over the past year.
- Quantitative surveys conducted by Ipsos MORI of 4,073 people for Basic Digital Skills, 1,121 people for Tech Tracker, and 1,006 people for Spotlight on young people.
- From the one million data sample above, more than 2,700 adults were selected and interviewed via telephone, allowing responses to be combined and compared with transactional behaviour. The research was undertaken to understand the digital and financial attitudes and capabilities across the UK.

The Index suggests (although the sample for Wales is low at just under 200) that significantly fewer people in Wales have basic digital skills than in the UK as a whole (66% of people in Wales with full basic digital skills, compared with 79% UK average). Wales lags behind the rest of the UK

on several other indicators of digital exclusion – including health (45% of people in Wales say they use the internet to manage their health, compared with 47% UK average) and age (64% of people over 64 are online in Wales, compared with 72% UK average).

Digital inclusion strategy in Wales

Wales has responded to this significant challenge through an impressive record in digital inclusion, both in policy and practical action.

The Welsh Government produced a Digital Inclusion Strategic Framework in 2010 which was refreshed in 2016.¹⁶ The Strategic Framework sets out a vision of positive digital developments throughout society, matched by the need for action to ensure no-one is left behind:

“Having access to the internet, and the motivation and skills to use it effectively, is more important than ever with most now regarding the internet as the fourth utility. We are living in a ‘digital society’ with the pace of technological developments continuing to accelerate. Improvements in internet speeds, through Welsh Government significant investment in Superfast Cymru, cheaper and more user-friendly devices like smartphones and tablets, and continued improvements in the quality of online services, are all making the digital experience for users better than ever. However, for those still excluded from the digital world, this represents a real disadvantage with people increasingly feeling left behind, as more and more services, including vital public services, go online”. (Ministerial Foreword)

The Strategic Framework:

- Defines digital inclusion, using the UK Government’s Digital Inclusion Scale¹⁷
- Describes current picture of the extent of digital exclusion in Wales
- Highlights priority groups, in particular older people and those in social housing
- Sets out the benefits to individuals and society of being online
- Identifies key stakeholders
- Locates digital inclusion in the context of related policy areas
- Maps out key activities in a detailed delivery plan

Fewer people in Wales use the internet to manage their health than in the rest of the UK.

The 2016 delivery plan has 15 ambitious objectives:

Objective 1	Reduce levels of digital exclusion amongst adults to 13% by 2017, and everyone who wants to be is online by 2020.
Objective 2	Reduce digital exclusion amongst people aged 50 and older to 30% by 2017, and everyone who wants to be is online by 2020.
Objective 3	Reduce digital exclusion amongst residents of social housing to 22% by 2017, and everyone who wants to be is online by 2020.
Objective 4	Reduce levels of digital exclusion amongst the employed, unemployed and working age economically inactive.
Objective 5	Reduce levels of digital exclusion amongst people with disabilities (long term limiting illness) from 38% in June 2015 to 30% by 2017.
Objective 6	Provide free inclusive access to ICT and the internet to all four priority groups above.
Objective 7	Develop ICT skills through informal and formal learning including information literacy (the ability to analyse and evaluate online materials) to all four priority groups above.
Objective 8	Build alliances of stakeholders across the private, public and third sectors.
Objective 9	Align policy areas across the Welsh Government and Welsh public sector.
Objective 10	Build relationships with private sector organisations to support the digital inclusion agenda.
Objective 11	Build third sector alliances to support the digital inclusion agenda.
Objective 12	Build a volunteering base to support digital inclusion activities.
Objective 13	Develop bilingual content to promote engagement with ICT.
Objective 14	Maintain a close and collaborative relationship with UK Government and UK-wide initiatives in support of the delivery of the digital inclusion agenda in Wales.
Objective 15	Obtain robust data and research on digital exclusion in Wales for policy formation, benchmarking and evaluation.

A Digital Inclusion Progress Report and Forward Look¹⁸ was published in 2018. The Progress Report emphasized the continuing need for digital inclusion support and highlighted practical action delivered through Digital Communities Wales (DCW). DCW is the Welsh Government's dedicated digital inclusion programme, managed by the Wales Co-operative Centre. A successor programme to the six year Communities 2.0 initiative¹⁹ and prior to that the Communities@One programme,²⁰ it focuses on supporting those individuals who have very

limited or no digital skills, working through partner organisations and co-ordinating activities. DCW commenced in April 2015 and runs until June 2019 with a Wales-wide remit and a focus on the most deprived areas. See Section 3 for practical examples of digital inclusion support in Wales.



The Forward Look identifies opportunities for progress within health and social care:

- Through Digital Communities Wales, look to share lessons learnt from initial work with Health Boards and explore the potential of replicating activities across Wales.
- Look to engage with NHS Wales to encourage more digital inclusion activities to take place across a range of health settings.
- Continue to explore ways to raise awareness of digital inclusion within the Health sector, including, but not limited to, promoting digital inclusion at Health conferences.
- Encourage the Health and Social Care sector to invest in basic digital skills training for all staff in order to support citizens in the continued move towards digital services. This could include training administration staff with General Practices across Wales to support customers to register and manage their appointments online.

Infrastructure

There is an ambitious programme (Superfast Cymru²¹) to deliver the required infrastructure to those households that are not commercially attractive to broadband providers. Through Superfast Cymru, access to high speed broadband has been provided to the majority of homes and businesses in Wales that cannot get it through the private sector's own commercial programmes. Funding has come from Welsh Government,

the UK Government, European Union through the European Regional Development Fund and BT.

Superfast Cymru has provided superfast broadband to areas without commercial rollouts. These are areas that telecoms companies have not found economic to provide broadband - over half of all premises in Wales. Since the project began in 2013, the availability of superfast broadband across Wales has more than doubled. At September 2017 more than 661,000 premises had been given access to superfast broadband as a result of the rollout.

In addition, there are regional infrastructure plans including a digital vision for the Valleys²² and the Swansea Bay City Deal.²³ Life sciences and well-being are key themes of the Swansea Bay City Deal, including development of a “well-being village” in Delta Lakes, Llanelli. The village development, with high levels of digital infrastructure, led by Carmarthenshire Council, in partnership with Swansea University, the Hywel Dda University Health Board and the Abertawe Bro Morgannwg University Health Board.²⁴

In 2017, the National Assembly for Wales carried out an inquiry into Digital Infrastructure in Wales.²⁵ The report made recommendations to the Welsh Government to help Wales develop a digital infrastructure which is as fast and reliable as anywhere in the UK. The recommendations include:

- Engage with communities in hardest to reach areas so that solutions are found to connecting the final 4%.
- Provide a toolkit with clear business and grant application advice to communities to use to access public funding to create their own solutions.

This is what has happened in the well-reported case of Michaelston-y-Fedw where residents set up a community interest company to secure grants from Welsh Government and dug 15 miles of trenches themselves to lay superfast cable.²⁶ And in Merthyr,²⁷ Nominet Trust funding enabled the community to prototype the design, installation and development of their own community-led network – moving from a Local Area Network to enabling access to broadband. A team of Digital Champions made up of residents, local social enterprises, and Merthyr Valley Homes staff, with support from tech partners and key public sector stakeholders, co-designed and planned the digital infrastructure development for the community.²⁸

Education

In education, the 21st Century Schools programme²⁹ represents the largest infrastructure investment programme in Welsh schools and colleges since the 1960s. 21st Century Schools places a strong emphasis on schools making assets available for community use to optimise infrastructure (including broadband and Wi-Fi) for community use.

As part of the “Curriculum for Wales” reforms, a new Digital Competence Framework was made available to all schools from September 2016.³⁰ The new approach means more than just using computers and aims to equip pupils with the cross-curricular digital skills they need and can apply in the real world in the years to come. The Digital Competence Framework sets out the digital skills to be attained by learners aged between 3 and 16 across four strands:

- Citizenship (the positive and negative aspects of being a digital citizen, including in health and well-being, equipping learners to become responsible, independent consumers and producers of digital products in the rapidly changing digital world)
- Interacting and collaborating (methods of electronic communication and which are the most effective for a given situation, storing data appropriately and use collaboration techniques successfully)
- Producing (searching for and sourcing information, creating, evaluating and improving digital content)
- Data and computational thinking (the importance of data and information literacy by exploring aspects of collection, representation and analysis)

Aligning digital inclusion with other policy areas

Digital transformation

Tackling digital exclusion is key to achievement of the wider strategy for digital transformation in Wales. The Welsh Government's Digital Action Plan³¹ building on the earlier Digital First plan³²) sets out a vision for:

- A more connected Wales
- A more equal Wales

The Digital Action Plan recognises that not everybody will want to, or be able to, use our digital channels in every case, each time. There are a variety of reasons for this – confidence, access, need and skills are among these. Making services more accessible and usable, and engaging third sector support for digital inclusion are highlighted as ways of reducing exclusion.

Strategy for older people

The Welsh Government published its Strategy for Older People³³ in 2013. Although digital inclusion is not specifically addressed in the Strategy, access to technology, and the skills and confidence to use it, is increasingly key to achievement of each of the Strategy's outcomes:

- Access to information
- Social participation
- Healthy ageing
- Learning and activities
- Diversity and lack of discrimination

Initiatives³⁴ which support the ambitions of the Strategy for Older People include:

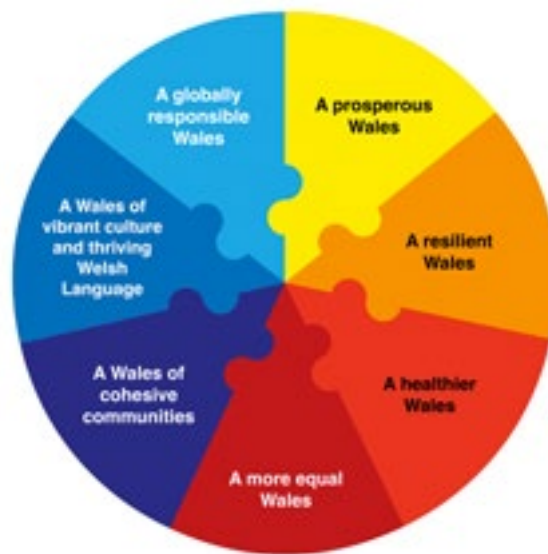
- Older People's Commissioner for Wales,³⁵ an independent voice and champion for older people across Wales.
- Ageing Well in Wales³⁶ programme, led by the Older People's Commissioner for Wales. This is a five year partnership of national and local government, major public and third sector agencies in Wales. It is hosted by and chaired by the Older People's Commissioner for Wales.

- Development of a Health Checks³⁷ programme for people aged over 50, led by Public Health Wales, to support and empower people to have greater control of their health and well-being (Age Cymru provided training for volunteers to help older people get online and carry out the Add to Your Life test).^{38 39}

Well-being of Future Generations

The Well-being of Future Generations (Wales) Act 2015⁴⁰ has the ambitious aim of improving the social, economic, environmental and cultural well-being of Wales for future generations.

The Act establishes a statutory Future Generations Commissioner for Wales⁴¹ whose role is to act as a guardian for the interests of future generations in Wales, and to support the public bodies listed in the Act to work towards achieving the well-being goals.



The Act also establishes Public Services Boards⁴² (PSBs) for each local authority area in Wales. Each PSB must improve the economic, social, environmental and cultural well-being of its area by working to achieve the well-being goals.

The Future Generations Commissioner has now produced a Framework for Service Design to help people working in public services apply the Well-being of Future Generations Act ways of working.⁴³

In launching the Digital Inclusion Strategic Framework in 2016, Lesley Griffiths, Minister for Communities and Tackling Poverty, made the link with Future Generations:

“Creating a more digitally inclusive society can make a significant contribution to achieving the seven goals of our ground-breaking Well-being of Future Generations (Wales) Act”.

2. Digital health in Wales



2. Digital health in Wales

Parliamentary Review of Health and Social Care in Wales

The NHS was born in Wales, taking inspiration from the Workmen's Medical Aid Society in Tredegar.⁴⁴ On its 70th birthday this year the NHS in Wales, in common with all developed countries, faces an increasingly challenging agenda – meeting demand for health and social care from an ageing population within severely constrained resources.

The recent Parliamentary *Review of Health and Social Care in Wales*⁴⁵ concluded that in order to meet these challenges Wales needs a different system of care, based on “the Quadruple Aim”:

- improve population health and well-being through a focus on prevention
- improve the experience and quality of care for individuals and families
- enrich the well-being, capability and engagement of the health and social care workforce
- increase the value achieved from funding of health and care through improvement, innovation, use of best practice, and eliminating waste

Wales is a small country but it has tremendous assets in its people, especially those who use, support and work in the health and care system. There are many examples of innovation, and a positive a forward looking legislative framework for sustainable development in the Well-being of Future Generations (Wales) Act⁴⁶ and the Social Services and Well-being (Wales) Act 2014.⁴⁷

The Parliamentary Review produced 10 Recommendations, three of which are particularly relevant to digital inclusion:

Recommendation 4: Put the people in control

Strengthen individual and community involvement, through voice and control in health and care, and ensuring all ages and communities have equal involvement. The public rightly want a modern service in which they have much better information about health and care, shared decision making in treatment, choice of care and setting, and peer support.

Recommendation 5: A great place to work

Urgently align the workforce with new service models. Staff should be well trained, supported and engaged to deliver and continually improve a quality service consistent with the vision and Quadruple Aim. Wales should aim to be a great place to train and work.

Recommendation 7: Harness innovation, and accelerate technology and infrastructure developments

Maximise the benefits of technology and innovation to pursue the Quadruple Aim and deliver more effective and efficient care. This needs the right culture, behaviours and leadership to embrace innovation, embed collaboration and support prudent risk-taking.

Digital inclusion is a key enabler for:

- putting people in control
- making Wales a great place to work
- harnessing innovation

And the Parliamentary Review looks to digital transformation as one of the keys to delivering an affordable, high quality, modern health and care system:

We believe that there is a revolution occurring due to the digitisation, accessibility and analysis of information about people's health and care which will fundamentally change the relationship between professionals providing care and users. Wales must respond to this 'customer/user revolution' very actively or risk lagging behind other nations.

There needs to be more and clearer information available to the public on care, the outcomes of local services and the choices available not just of treatment and setting but also the location of care. There also need to be more opportunities and support for the public and users to take part meaningfully in decisions affecting them as individuals, for example, making choices about care and for their communities.

The Welsh Government should fully review and assess the opportunities to deliver improved access to health and care information, and align this with existing work in this area. This should cover: service users' and citizens' needs and preferences, to what extent these are currently being met, and new digitally-enabled opportunities, particularly for remote areas; how health and care organisations are currently providing public access to integrated information regarding advice, support and care, including to support choices; and how new apps that help promote independence are identified, assessed, implemented and scaled up.

A Healthier Wales

In June 2018, the Welsh Government published *A Healthier Wales*,⁴⁸ its response to the Parliamentary Review. The Parliamentary Review set out the stark challenges that health and social care faces, as a result of demographic and other societal trends, set within the context of ongoing austerity not only in Wales but across the UK. The Healthier Wales plan has now set out actions along the long term journey towards achieving the vision, including:

- New models of seamless local health and social care, working through Regional Partnership Boards (RPBs)⁴⁹ and Primary Care Clusters⁵⁰
- A National Transformation Programme⁵¹, led by the Director General Health and Social Services, supported by a cross-sector Transformation Board and with local governance through RPBs
- A new £100m Transformation Fund⁵² to drive integrated care and care closer to home
- Promotion of principles of prudent health⁵³ and good Design Principles for innovative whole system care

A Healthier Wales recognises digital as a "key enabler of transformational change":

Our ambition is also to provide an online digital platform for citizens, to give people greater control and enable them to become more active participants in their own health and well-being. This will help people to make informed choices about their own treatment, care and support: finding the most appropriate service for their needs, contributing to and sharing information about their health and care, managing appointments and communications with professionals, and working with others to co-ordinate the care and treatment they need, so that it is delivered seamlessly.

But A Healthier Wales also recognizes that digital information and services will not be accessible to all:

New technologies and digital approaches will be an important part of our future whole system approach to health and social care, but they will only be a part. Some people will be unable to access digital services, others will choose not to. Face-to-face and hands-on human contact is an extremely valuable and absolutely essential part of care and treatment. There are many things which cannot be delivered digitally or through technology. People will always be the foundation of high quality health and social care services.

Informed Health and Care

The NHS in Wales has had a long-standing vision for delivering digital health, initially described in the 2003 Informing Healthcare⁵⁴ strategy.

The current Wales strategy for digital health was set out in 2015 in Informed Health and Care: A Digital Health and Care Strategy for Wales.⁵⁵ There are four pillars to the vision, as set out in this infographic:



Citizen-facing digital opportunities within Information for You are exciting: online access to records, online appointment bookings and prescription requests, digital apps, wearables, online self-management tools, video consultations.

But, at the same time, Informed Health and Care recognises the risk of digital exclusion:

"People in Wales, in line with the rest of Europe, are embracing the benefits of digital and online services. Forecasts indicate that connected digital devices will become ever more pervasive, driven by global trends such as wearable technology and the 'internet of things'.

However, it is essential that the health and social care system and its staff also recognise the needs of people who are digitally excluded and those citizens are equally supported and enabled to access services and support".

In common with other health care systems, the scale of the digital health challenge in Wales is complex. The recent Wales Audit Office Review of Informatics⁵⁶ paints the picture:

NHS Wales is a large complex system, spread across multiple organisations, with staff operating out of hospitals, GP practices and in the community. To provide a sense of scale: NHS Wales has some 90,000 individual users working off 60,000 devices. There are 7 million emails

sent into and out of NHS Wales each month and a further 70 million internal emails. The Welsh Laboratory Information Management System (WLIMS), which manages test results such as blood tests, generates 2.4 million results each month.

Information for You: Workstream One

Information for You comprises Workstream One of the Informed Health and Care delivery programme. It is a five year programme with cost estimated at £50m. The strategic objective is:

Enabling the people of Wales to look after their own health and well-being supported by online access to information and their records, undertaking a variety of health transactions using technology, and using digital tools and apps to support self-care and health monitoring to maintain independent living.

Key projects within the workstream are:

Online platform for health and well-being

A common access point for NHS information and services. A website design consultancy, Box UK,⁵⁷ has been engaged to work with stakeholders and end-users, and to develop a prototype NHS.Wales site. ABMU Health Board and Public Health Wales will be acting as early adopters.

My Health Online

Order repeat prescriptions and book GP appointments. Available in 100% of all GP practices in Wales

My Health Text

Appointment reminder service by SMS. Reduction in number of Did Not Attends is being reported.

Patient Recorded Outcomes Measures (PROMS) and Patient Recorded Experience Measures (PREMS)

Development of platform for in-clinic and at-home feedback including using SMS. Clinical focus is on orthopaedics, cataract, heart failure and lung cancer.

In addition to these national Wales-wide programmes there are also local Health Board/ Trust citizen facing projects:

Health Board/Trust	Project
Public Health Wales	SMS reminders for breast screening appointments
ABMU	Patients Know Best citizen held record
ABMU	Public free wi-fi
ABMU	SMS appointment reminders for outpatients, radiology and community
Cardiff and Vale	Online cognitive behaviour therapy (Slivercloud)
Cardiff and Vale	Florence Telehealth
Cardiff and Vale	Patients Know Best in ENT
Velindre	Patients Know Best citizen portal
Velindre	SMS appointment reminders for outpatients

Local digital health strategies

Following the publication of Informed Health and Care in 2015, local Health Boards have developed their own digital strategies, which are then reflected in their Integrated Medium Term Plans (IMTPs).

As part of this report, we analysed Health Boards' digital health strategies and Integrated Medium Term Plans to see how far digital exclusion is recognised as a barrier, and whether there is any commitment to action to address the challenge. Results varied considerably across Wales.

Abertawe Bro Morgannwg and Powys are the only Health Boards to explicitly recognise digital inclusion in their strategies.

In practice, other Health Boards are carrying out excellent digital inclusion activities – but this is not always recognised in their strategies.

Abertawe Bro Morgannwg University Health Board

ABMU has made a strong commitment in its Digital Strategy⁵⁸ to becoming a digitally enabled organisation, drawing on the opportunities of the Swansea Bay Region City Deal. One of the key visions is:

Increased participation by citizens in their health and well-being; more types of virtual (remote) care; reduced non-attendance.

Unusually for a Health Board Digital/IM&T Strategy, ABMU's Digital Strategy does recognise the need to overcome the barrier of digital exclusion:

Mitigating or resolving digital exclusion

Becoming digitally-enabled requires system users to have access (available internet and the skills to use it), and system providers, e.g. our Public Service Board member organisations, to encourage ever-increasing digital participation by all citizens.

In this context, digital participation may be accelerated by:

- i) increasing and enhancing multi-agency collaboration in consistent user-centred design,*
- ii) expanding and augmenting current approaches to achieving participation,*
- iii) mobilising more partner organisation staff in support.*

ABMU has for some time been in the forefront of citizen facing digital initiatives in Wales:

Case study: Digital health in ABMU

ABMU was the first Health Board to offer free public Wi-Fi in a hospital and since April 2018 has provided it in every acute and community hospital in the Health Board. There are up to 12,000 concurrent users at peak times. They were the first Health Board to offer our patients a patient-controlled record (Patient's Know Best) with integration into the national data architecture. For the first time in Wales, patients will have access to their secondary care information and be able to share that securely with whoever they wish as well as being able to message their clinical team for advice. ABMU is working with Digital Communities Wales to provide support to patients to use Patient Knows Best and other online applications. Digitally excluded staff have been supported through their online training, broadening their basic digital skills capability which will improve their life opportunities.

On 26 July 2018, ABMU went further with the approval by the Board⁵⁹ of a new set of intentions, including:

- ABMU becoming signatories to the Digital Inclusion Charter
- Exploring opportunities to secure a digital inclusion coordinator on a trial basis
- Developing Digital Champions in all ABMU units and amongst larger staff groups
- Commissioning support for digital inclusion from partners with the requisite skills to support us in supporting our patients and staff
- Advocating for a Digital Inclusion Guide to be commissioned for all of NHS Wales to use

The ABMU Health Board's intentions have set a standard for the rest of Wales, and are a testimony to what can be achieved by committed leadership, supported by a track record of, and a good evidence base on, the benefits of digital inclusion.

“There is a moral and a business case for digital inclusion in the NHS in Wales. Let’s make it happen”.

(Prof Hamish Laing, Medical Director and Chief Information Officer, ABMU Health Board).

Aneurin Bevan University Health Board

Aneurin Bevan University Health Board produced an Informatics Strategic Outline Plan in 2016-17, and digital health is a key enabler in its Integrated Medium Term Plan (IMTP).⁶⁰

Information for you: Empowering people to look after their own well-being and connect with health and social care more efficiently and effectively, with online access to information and their own records; undertaking a variety of health transactions directly, using technology, and using digital tools and apps to support self-care, health monitoring and maintain independent living.

The IMTP emphasizes the Health Board's Digital by Default approach, in particular to engagement with patients through Patient Recorded Outcome Measures (PROMS) and Patient Recorded Experience Measures (PREMS).

However, there is no reference to digital exclusion as a barrier to achievement of the local digital strategy or IMTP.

Betsi Cadwaladr University Health Board

Betsi Cadwaladr University Health Board's strategic planning has been impacted by being in special measures since 2015, with an Improvement Framework running to 2019.⁶¹ Neither a Digital Strategy nor an Intermediate Medium Term Plan has yet been published.

Cardiff and Vale University Health Board

Cardiff and Vale University Health Board produced an Informatics Strategic Outline Plan in October 2016, and Digital Health Informatics is a key stream in the Integrated Medium Term Plan.⁶²

The IMTP has a stronger focus on infrastructure and systems than it does on citizen facing services, although there is reference to digital engagement with patients and the public:

The communications platforms are increasingly digitally focussed and in the past year there has been a significant rise in the use of social and digital media by patients and the public, which has shaped the way in which they want to communicate with us. In 2018/19 we will be looking at further developing the digital communication platforms through the free Wi-Fi and social networking channels.

However, there is no reference to digital exclusion as a barrier to achievement of the local digital strategy or IMTP.

Cwm Taf University Health Board

Cwm Taf University Health Board published its Digital Strategy⁶³ in May 2017. The strategy has the vision:

CTUHB will aim to become a digital exemplar within NHS Wales, as an innovator and early adopter of digital technologies and approaches, to enhance care quality, better engage with patients and deliver sustainable services.

This is set in the context of public expectation in wider society:

Digital proliferation is driving patient and employee expectations. Expectations are influenced by increasing adjacent sector digital maturity. For example, in the travel sector, passengers can now check-in online and receive digital queue and travel updates. This has led to a completely paperless journey and improved customer satisfaction. Adjacent sectors have tested and proved a number of emerging technologies for the health sector to consider.

However, citizen facing services do not feature strongly in the Digital Strategy. There is no reference to digital exclusion as a barrier to achievement of the local digital strategy or IMTP.

Hywel Dda University Health Board

Hywel Dda University Health Board published its digital strategy (IM&T Strategy⁶⁴) in 2016. The strategy identifies a set of challenges for which digital services could provide solutions:

- A large and growing ageing population
- An increasing incidence of chronic disease
- Increasing consumer demand for more costly, complex and technologically advanced procedures
- Significant differences in health outcomes between the advantaged and disadvantaged
- The supply and deployment of skilled health and social care staff
- The challenge of ensuring service delivery across a highly rural geography

The vision is that patients within Hywel Dda will be able to:

Connect online with health and care services in the same way that they can with other aspects of their life. They will be able to book appointments online, order repeat prescriptions and expect to be able to use the internet, email and video conferencing to connect with clinicians and care professionals in a way that suits them, reducing cost and potential delays.

The strategy looks forward to making better use of the power of people:

- Social innovation is the key to a revolution in how people are involved in their own care and that of others, improving the quality of care.
- New insights into human behaviour will improve clinical quality and make it easier for people to lead healthy lifestyles.

However, there is no reference to digital exclusion as a barrier to achievement of the local digital strategy or IMTP.

Powys Teaching Health Board

Probably because it is a joint strategy between Powys Teaching Health Board Powys County Council, the Powys ICT Strategy⁶⁵ has a particularly good analysis of the digital inclusion challenge, including the reasons people may not be online – poor rural mobile and broadband connections, age and disability, usability, affordability, and motivation:

Digital Inclusion in Powys

It is important to ensure new service models are fit for purpose and are inclusive. Outside of urban centres around 63% of rural communities in Powys have a poor mobile phone signal or none at all. The central and northern parts of the county are particularly affected. Through the fixed line network, around 40% of rural communities have poor broadband connectivity. The main urban centres across the county are generally well served through the fixed line network and mobile networks. These issues contribute to rural isolation.

Solving access problems is also not simply about infrastructure. In 2014-15 the Wales National Survey reported that 63% of 65 to 74-year olds and only 29% of people aged 75 and over were using the internet (this compares to 99% of 18 to 24-year olds and 96% of 25 to 44-year olds) Overall, digital exclusion, based on regular internet use, has fallen from 34% in 2010 to 19% in the latest National Survey for Wales figures from June 2015. However it should be noted digital exclusion amongst disabled people (38%) is double the figure for all adults (19%).

Whilst providing support is critical, usability and affordability are significant barriers. A survey of non-internet users from the 2013-14 National Survey for Wales, highlights the multiple barriers that prevent people from going online including that 91% identified a lack of interest or need as a factor. Cost was a contributing barrier for one third and upfront costs were seen as more of a constraint than monthly connection fees.

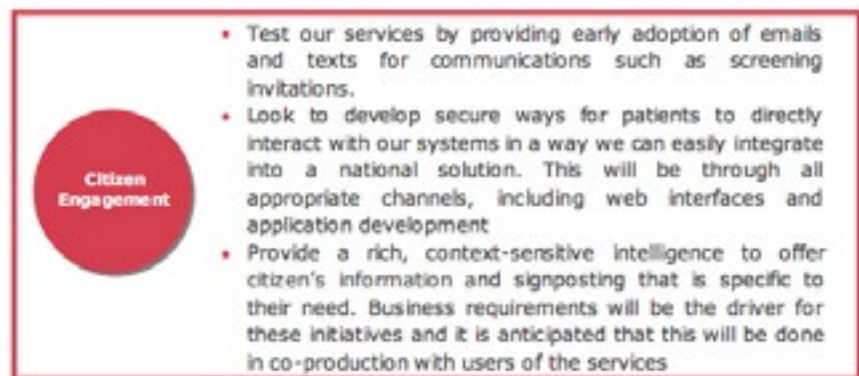
These issues will be taken into consideration in this strategy, as Lesley Griffiths, Minister for Communities and Tackling Poverty stated: Achieving a more digitally inclusive society will make a significant contribution to meeting our Tackling Poverty commitments and the seven goals of our ground-breaking Well-being for Future Generations (Wales) Act.

Powys Teaching Health Board's Integrated Medium Term Plan⁶⁶ includes a chapter on Digital Health and Care. The strategy is strongly focused on the needs of a rural geography and the principle of digital first.

This opportunity for a digital first approach has not been effectively exploited and while some small-scale projects such as Florence and Mastermind are working well, there is enormous potential to explore and implement more technology and digital solutions. A digital first approach will enable and promote telehealth, telemedicine, self-care and support for patients and carers and support and enable clinicians, managers and support staff to work more effectively and efficiently, whether in community hospitals, primary care facilities or out in the community.

Public Health Wales

Public Health Wales' Integrated Medium Term Plan⁶⁷ adopts an overarching digital first policy.



Citizen Engagement

- Test our services by providing early adoption of emails and texts for communications such as screening invitations.
- Look to develop secure ways for patients to directly interact with our systems in a way we can easily integrate into a national solution. This will be through all appropriate channels, including web interfaces and application development
- Provide a rich, context-sensitive intelligence to offer citizen's information and signposting that is specific to their need. Business requirements will be the driver for these initiatives and it is anticipated that this will be done in co-production with users of the services

Public Health Wales does recognise that digitally excluded people must not be left behind.

The drive from central government is digital empowerment for the citizens of Wales. Public Health Wales must play its part in delivering to that policy whilst not forgetting the 'digitally disadvantaged'. This strategy recognises there are those citizens that cannot, or do not wish to, engage electronically with our systems and services. The Trust will need to set out arrangements for them separately to this strategy.

Local authorities

Local authority digital strategies are stronger on digital inclusion than Health Boards.

Like the Health Board, local authorities in Wales have also developed local digital strategies, focused on driving digital first public services. These seem to have a clearer recognition of the need to address digital inclusion than do most of the Health Board digital strategies. The Welsh Government's Digital Baseline of Local Authorities⁶⁸ concludes that local authorities' digital strategies are "mostly strong on digital inclusion" and includes digital inclusion as one of its 6 Digital Dimensions. The Digital Baseline sets out what a good approach to digital inclusion should look like for local authorities:

No single local authority or organisation can tackle this alone, this must be done in partnership across all sectors to make it successful. Good local authorities will ensure they are addressing access (through network infrastructure initiatives, as well as making equipment available), skills, motivation and trust to maximise their levels of digital inclusion. They will know where the digital inclusion problem areas are, understand their root cause and be taking measures to address them. They will ensure digital inclusion is not just for their citizens but also for their staff by enabling them to have the right skills and right tools to do their work in the most digitally efficient way.

The Rhondda Cynon Taf (RCT) Digital Strategy⁶⁹ is notably strong on digital inclusion:

We will also continue supporting digital inclusion of residents within our communities, ensuring everyone is able to participate in and benefit from an increasingly digitally society.

RCT has a good track record of local action:

What we are doing:

- Supporting the development of Digital Fridays (public access digital sessions) at libraries and other community venues across the county.
- Developing Digital Champions within the Council to support employees who require encouragement and assistance with the digital transformation.
- Working with schools to ensure their digital platform ensures technology is a tool for education and not a barrier.
- Delivering the 21st century schools strategic capital investment programme with the aim of creating a generation modern schools in Wales. Digital technology will have a key part to play in the programme, ensuring our pupils are able to harness the skills to help them succeed.
- Working with industry leaders including Microsoft to prepare our learners for life within the workplace.

And an ambitious and imaginative set of future intentions:

What we will do:

- Ensure that our schools and community venues have first class digital infrastructure, giving teachers the freedom and flexibility to deliver education that uses technology throughout the curriculum.
- Collaborate with our further and higher education partners to promote digital pathways, ensuring that we capitalise on the opportunity within the digital sector of our economy.
- Encourage close relationships between business and academia, to ensure our young people leave education with the skills required for employment.
- Continue to delivery the 21st century schools programme.
- Develop Digital Factories within our schools to ensure digital wcompanies and entrepreneurs are able to work innovate together and develop their businesses with the support of digital mentors and leaders. These co-working spaces aim to link education with industry to inspire entrepreneurship and digital career paths.
- Develop makerspace collaboration spaces within our libraries, Digital Factories or at appropriate community venues.
- Welcome large technology companies into the county including a continued relationship with Microsoft and programmes like Code Club, to inspire our learners.

- *Provide support to our residents to develop and utilise digital skills. Through public access Wi-Fi, digital champions within our workplace, communities, schools and businesses, we support people who want to get online.*
- *Influence technology providers and Ofcom to ensure our county is always able to take full advantage of technology advances ensuring our communities have the same digital possibilities as any other area.*

The Newport Digital City strategy⁷⁰ identifies the need to provide alternative channels and assisted digital support, as well focusing on harder to reach communities:

We continue to recognise that not everyone may be able to make the switch; whether this is due to lack of skills or non-availability of technology. In these cases, we will continue to support contact through other means such as the Information Station, face-to-face, or via telephone, and will also promote digital inclusion with and through our partners. We will look to ensure that this change does not create or exacerbate digital exclusion, and focus will be given to supporting those harder to reach within the community and also those for whom English is not the first language.

In Swansea's digital strategy:⁷¹

The Council recognises that not all residents have the means or skills to take-up digital... therefore the Council aims to grow and develop its digital inclusion work to provide residents and staff with the skills and confidence in this area, for those people most likely to use and deliver Council services. Digital inclusion work will be equally important for young people, in ways that increase employment opportunity, life chances and reduce poverty.

And in Cardiff:⁷²

We will encourage our communities to access digital services through providing digital resources across the city, and offering support and training where required.

Blaenau Gwent⁷³ has the highest levels of digital exclusion in Wales. Here the Council has a digital inclusion officer, there is a Computer Confidence Club at Tredegar Library, and Digital Communities Wales has provided tablet devices on loan for people who find it difficult to use computers.

In Carmarthenshire, the County Council has just established a new company, Llesiant Delta Well-being,⁷⁴ becoming the largest bilingual provider of telecare services in Wales.

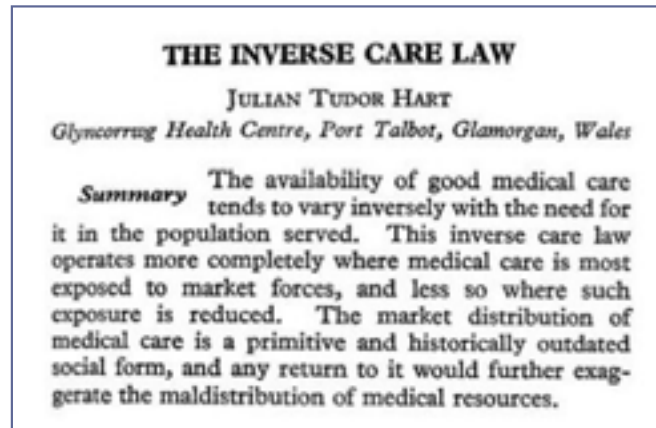
3. Supporting digital inclusion for health in Wales



3. Supporting digital inclusion for health in Wales

Combating digital inverse care

Health inequality is a well recognised problem in Wales. (Julian Tudor Hart set out his Inverse Care Law in Port Talbot in 1971,⁷⁵ arguing that the availability of good health care varies inversely with need).



As the NHS in Wales progresses its digital transformation agenda, there is a real danger of a new digital inverse care law where those citizens most in need of accessing new digital services will be left behind again, due to their lack of digital skills and access.

In a blog to mark the NHS 70th birthday, Professor Hamish Laing⁷⁶ asks what Aneurin Bevan would think of the NHS today. Would he be amazed at all the new technologies, operations and treatments that we have available? Would he be in favour of the digitisation of the NHS? For Bevan, one of the founding principles⁷⁷ of the new NHS was “generalising the best health advice and treatment” for all. He would no doubt have been concerned if digital exclusion means that some citizens and communities miss out on all that digital healthcare can offer, creating health outcome inequality, instead of closing the gap.

But Bevan would certainly have been impressed by the range of activities, led by Digital Communities Wales, which are actively combating the new digital inverse care law and digital health inequalities.⁷⁸

Digital Inclusion Charter

Supported by a wide range of organisations across Wales, the Digital Inclusion Charter⁷⁹ promotes helping people to gain basic digital skills through asking organisations to sign up to six Principles including giving all staff and volunteers the opportunity to learn about new technologies.

Digital Inclusion Charter Six Principles

1. *Ensure that all our staff and volunteers have an opportunity to learn basic digital skills, and that they take advantage of this opportunity.*
2. *Ensure that digital inclusion principles are embedded into our day-to-day activities.*
3. *Encourage and support our staff and volunteers to help other people to get online and have the confidence to develop basic digital skills, and help other organisations to embrace digital tools.*
4. *Commit support and resources for digital inclusion activities and initiatives in Wales in whatever ways we can.*
5. *Share best practice and activity around digital inclusion with Digital Communities Wales, so that our activities can be co-ordinated for maximum impact and measured consistently.*
6. *Look to build local partnerships amongst organisations which want to share ideas and co-ordinate activities with others in their area.*

To date, 300 organisations have signed the Charter. Signatories range from GoCompare, BT Wales, Welsh Water, local authorities, housing associations, national charities, care homes and regional support organisations – all committed to help digitally excluded people enjoy the benefits of digital technology.

Although voluntary health organisations have signed up to the Charter (including Mental Health Matters Wales and Disability Wales), sign up from the NHS in Wales (Health Boards and Trusts) has so far been disappointing (Hywel Dda University Health Board is represented through a partnership with Macmillan). Significantly, in July 2018 ABMU became the first Health Board to sign up to the Charter, and is encouraging other Boards to do the same.

Digital inclusion training

Digital Communities Wales has a well-established training programme⁸⁰ provided free to organisations that are working with digitally excluded people including older people, people with disabilities, unemployed people, social housing tenants and families in poverty. Frontline staff and volunteers (for example, customer advisors, tenant support officers, librarians) can be trained so they have the confidence to show people how to use technology.

Training particularly relevant to health and care includes:

- Digital Heroes
- Health and well-being apps
- Inspiring digital activities in care homes

Training materials for these and other courses are available on the Digital Communities Wales website.⁸¹

A specific training course has been developed for healthcare staff and volunteers who would like to gain a greater understanding of digital health resources.⁸²

With many digital health apps and websites available, this course introduces participants to a number of them, highlighting how to access quality health related information. The session also explores some health apps that could be used by participants with patients or service users to improve or manage their health conditions.

Learn My Way⁸³ is a series of online training resources developed by Good Things Foundation in England. There are two health modules – one on using health information online and another on online GP services.⁸⁴ Funding has now been secured from the Welsh Government to translate parts of Learn My Way which are relevant to Wales into Welsh (although this does not currently include the health modules, because of differences in the English and Welsh health systems).

There are other organisations providing digital skills training in Wales, although not specific to health and care. Citizens Online has been leading the Digital Gwynedd⁸⁵ project providing training to individuals and digital champions within organisations. The project has worked to ensure frontline staff in benefits teams, Jobcentre Plus offices and housing teams have basic digital skills and can sign-post claimants to access and support, including Universal Credit.

With the closure of bank branches, particularly in rural areas, there is a strong focus on developing digital and financial literacy with DCW working with HSBC, NatWest and the other major banking groups. Google Digital Garage,^{86,87} Barclays Digital Eagles⁸⁸ and Lloyds Bank⁸⁹ are also providing digital skills support in Wales, although focusing more on the digital capability of small businesses and entrepreneurs than citizens.

Digital Heroes: intergenerational befriending

Working with the Welsh Joint Education Committee (WJEC), Digital Communities Wales wanted to develop opportunities for pupils and students who were interested in helping other people to get online, using their own skills and interests in the process. DCW has created an initiative called Digital Heroes,⁹⁰ where young people volunteer to support older people who are risk falling further behind as technology continues to expand into people's lives.⁹¹

Case study: Woffington House Care Home

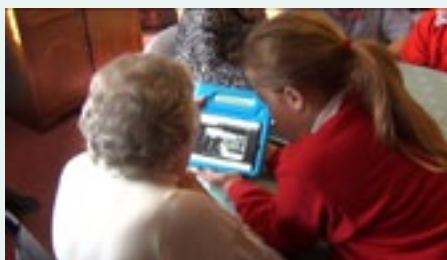
Woffington House is an innovative care home for seniors in Tredegar. The care home has developed a partnership with local primary schools whereby schoolchildren visit residents on a regular basis. Children from Georgetown Primary School have been Digital Heroes, befriending residents and showing them how to use technology, using tablets loaned by Digital Communities Wales. Residents particularly enjoy visiting places they used to go online.

Ken (not his real name) has lived at Woffington House for over two years. He has no family and has no visitors. He suffers with anxiety, mild depression and lives with dementia. At times he would bite his knuckles and hit door frames because of his frustrations. He was prescribed Lorazepam when necessary.

Using an iPad and Virtual Reality glasses, Ken has been able to revisit Aberystwyth in 1965 as well as go on rollercoaster rides. He also loves looking up songs using YouTube. Ken's health and well-being has improved dramatically and gone are the days of anti-psychotic medications.

Ken has also been researching pigeon racing with the children. The children are now going to come to the home and extend the activity further by letting off racing pigeons from the care home car park. Ken's hobby has been brought to real life as a result of the Digital Heroes scheme

Ken's experience is typical in the care home, where anti-psychotic medication on an as required basis has been reduced by 100%. Falls have also been reduced significantly and ambulance call outs (which cost the NHS £300 a time) have been reduced by 28%. Furthermore, staff morale has been boosted – and primary school children say they want to work in care professions when they grow up.



In this YouTube video,⁹² Woffington House manager Adam, care assistant Heather, and 91-year old resident Tom talk about the difference digital technology has made

Beginning with a Girl Guiding group in Rhiwbina 18 months ago, 1,250 young people have been trained as Digital Heroes. Police Youth volunteers have been working with libraries and banks. Scouts have been holding digital awareness sessions in local communities. Schoolchildren have been visiting wards at Torfaen County Hospital

And in Cardiff, a partnership between Tŷ Llandaff care home and Ysgol Pencae meant that older people who had never been online found out what the internet could offer them – from primary school children who couldn't imagine life without it. The residents have learnt how to use digital devices and use the internet whilst the children have gained valuable listening and coaching skills.⁹³

Wales is leading the way with intergenerational support for digital inclusion. It is encouraging to see that Skills for Care is now interested in piloting a Digital Heroes approach in England.⁹⁴

Loneliness and isolation

As traditional close communities are eroded and families become more dispersed, loneliness and social isolation is becoming a major public health challenge. This can be particularly marked in rural communities, including in Wales.

In 2017 the National Assembly for Wales published its Inquiry into Loneliness and Isolation⁹⁵ which painted a stark picture of the impact, particularly on older people:

- 25% of older people in Wales say they are lonely
- More than 75% of women and a third of men over 65 live alone
- The cost of social isolation and disconnected communities in Wales is £2.6 billion per annum
- Loneliness can have the same health impact as living with a long term condition or smoking 15 cigarettes a day^{96 97}

Digital Communities Wales, working with partners, has shown how getting online can be a transformative experience for people who would otherwise suffer from loneliness. In Llangefni⁹⁸ the Asset Coordination Project supports people who are housebound and need help looking after themselves in their own home. Digital Communities Wales has provided Digital Champion training to volunteers so that they can support housebound people to get online. The project reports that feelings of loneliness have decreased as housebound people are able to keep in touch with friends and family through email or social media. And housebound people are now able to shop online, making use of better deals.

Funded through the Health Technology Wales Scheme and 1,000 Lives, Ffrind i Mi⁹⁹ (or Friend of Mine) is a new initiative that Aneurin Bevan University Health Board and partners are developing to try and make sure that anyone who feels lonely or isolated are supported to reconnect with their communities. Working with Community Connectors and existing volunteer befriending services, Ffrind i Mi is aiming to recruit as many volunteers as possible to support those who are lonely and/or isolated, matching the interests of people to volunteers with the same interests, e.g. gardening, watching sport, dog walking etc

Dementia

The Dementia Action Plan for Wales¹⁰⁰ sets out the vision for Wales to be a dementia friendly nation. People with dementia should be able to live independently wherever possible, and in a way that provides a good quality of life. There should be increasing recognition of dementia through initiatives such as Dementia Friends and dementia supportive communities and organisations.

Digital technologies have enormous potential for enabling people with dementia to engage with the wider world and their own past. At Mardy Park Day Centre in Abergavenny, staff realised the potential for clients with dementia and complex needs and approached DCW for training and equipment.¹⁰¹ DCW delivered training to six members of staff showing them ways to use technology to communicate with people. The training also highlighted websites, tools and resources which might appeal to older people. DCW then loaned the centre some tablet devices so the team could try out this new way of working. It brought the outside world into the lives of the centre users and helped them contact friends and families. They could create and express themselves in a range of different ways and it helped staff gain a better understanding of users' experiences, likes and dislikes.

Digital technologies are ideal for providing access to reminiscence therapy resources for people with dementia.

Case study: Book of You

Book Of You^{102 103} is a CIC (Community Interest Company), which helps people with dementia in Wales, through life stories supported by its innovative web app. The social enterprise organises life reminiscence sessions in care homes for staff, families and people with dementia, using digital media (internet, tablet computers) and a range of approaches, to help people compile their life stories. Its programme of six weekly sessions has a direct impact on well-being, mood, personalisation of care and social isolation.

Not all care environments have the necessary equipment to run a Book of You life reminiscence session, but the company doesn't want people to be excluded. Its sessions can include up to eight people with dementia, working on their books directly or in a pair, using either a laptop or tablet. The company's work helps people to build skills in using computers and tablets, taking photos and uploading them, research using the internet, using tablet-shot video to help people tell their stories, finding and using music and video, and using Skype and other tools to tell their family and friends about their story.

Book of You's clients are all digitally excluded, including people with dementia and their relatives and friends, most of whom are aged 65 and over. Book of You estimates that it will be able to work with 25 people with dementia each month, with the kit it has received from Digital Communities Wales. Book of You will also use the Digital Communities Wales kit to train care home staff, supporting them through a six-week programme. People with dementia will therefore be supported directly by Book of You staff and volunteers, and the trained care home staff.

Increasingly virtual reality technology can make a dramatic difference to the ability of older people, including those with dementia, to reminisce about their past.

Case study: VR headsets trigger happy memories

Older people living in Swansea have been using Virtual Reality (VR) headsets to go back in time to the sights and sounds of their youth.¹⁰⁴ This has helped them connect and share their recollection of major national events with their friends and families, whilst maintaining their identities and reminding them of happy memories and positive emotions.

When Jane Thomas, Swansea Social Services Quality Assurance Officer, attended training from Digital Communities Wales, she was inspired by way that VR headsets could help improve quality of life for older people, including those with dementia. She decided to try this approach with service users in Swansea. Jane initially used the headsets with older people in residential homes and those using respite, day and assessment services, including people who had dementia. It was so successful, Jane asked DCW to deliver training to frontline staff in other social services teams, including those supporting people with learning disabilities, physical disabilities and sensory loss.

Social services bought ten VR headsets and are now using a range of content to improve the well-being of service users. Most successful has been a virtual reality film called "The Way Back", which recreates a street party celebrating the coronation in 1953. VR has also enabled people to experience going on safari, going under the sea, walking on the moon and taking a ride on a roller coaster.

People who used the VR headsets become more alert, engaged and uplifted as they recalled and shared happy memories from their past, enabling them to create meaningful connections. These rich memories prompted storytelling and reminiscence where people were able to share knowledge and history with staff and others around them, gaining a sense of well-being and self-worth.

The pilot has been so successful that Swansea Social Service Adult Services is expanding the training and virtual reality experience across all of adult service provision. Digital Communities Wales has now trained 23 staff from the team who are putting into practise the use of the different technologies and apps within their services, including SEE AI apps which help people with visual impairment know what is around them in their immediate environment by describing the surroundings.

Mental health

One in four people experience mental health problems at some point in their lives. The impacts of mental ill health can be significant for people themselves, for families and friends, and society as a whole. The estimated cost of mental ill health for Wales has been estimated as £7.2 billion. Together for Mental Health¹⁰⁵ is the Welsh Government's strategy for mental health and well-being. Published in 2012, the strategy is taken forward through a Together for Mental Health Delivery Plan.¹⁰⁶ There are

key actions in the Delivery Plan which can be enabled by digital delivery and supporting digital inclusion:

- To enable people in Wales to have access to appropriate information and advice to promote mental well-being and to help them understand/manage their condition
- To promote mental well-being and where possible prevent mental health problems developing
- To improve the health and well-being of people in Wales through reducing loneliness and unwanted isolation
- To reduce inequalities for vulnerable people with mental health needs, ensuring equitable access and provision of mental health services
- To ensure people with mental health problems have access to advice and support on financial matters

People with mental health problems in Wales often have difficulties in accessing mental health services, including accessibility and waiting times.¹⁰⁷ Delivering psychological therapies online CBT is a well-established approach which is being made increasingly available in Wales. For example, in August 2018 it was announced that the digital health provider Silver Cloud will be working with Powys Teaching Health Board to provide digital mental health services to 130,000 people. The programme is funded by Welsh Government through the Efficiency Through Technology Fund (ETTF).

A recent consultation on mental health services in Hywel Dda¹⁰⁸ found support for increased availability of digital mental health services but awareness of some of the constraints:

“In the engagement workshops, there was a positive response to using digital tools to promote self-care and raise awareness of the services available, especially from younger respondents. Equalities groups highlighted the need to ensure that the needs of groups such as those with sensory loss, literacy problems, or learning disabilities are accommodated. It was recognised that older people may not adopt these tools. Whilst there is strong support for adopting digital health tools, it was recognised that this should not replace the face-to-face care and support currently available. Attendees at some of the meetings pointed out that lack of reliable high-speed broadband and mobile reception, particularly away from major population centres, could be a barrier to the take-up of such tools”.

Digital Communities Wales has worked with partners (including Mind, Mental Health Matters Wales, Ponthafren Association and Merthyr Tydfil Housing¹⁰⁹) to provide access to digital technologies and support for digital skills and confidence for people with mental health issues. Digital Communities Wales supported Mental Health Matters Wales by providing kit that it can use with its service users, in community settings. DCW provided MHMW with a laptop, iPad, wireless keyboard and Bluetooth speakers. Service users now go online for shopping, general searching, registering for courses, NHS information and dealing with referrals to other agencies.^{110 111}

In this YouTube video¹¹² Ceri Bosley, Community Services Worker, Mental Health Matters Wales talks about digital inclusion support at the Mental Health Matters Wales Well-being Centre.



In Monmouthshire^{113,114}, a Digital Engagement Improvement Plan has been developed to help Mind Monmouthshire to provide digital support to its service users. As a result, all of the supported living houses now have Wi-Fi installed and the password is available to tenants and visitors to the properties. All support workers have been inducted to ensure that they remind all clients of internet safety and the dangers of identity theft, accessing inappropriate images/ materials and potential financial fraud. New service users have been encouraged to get an e-mail address and have been shown how to use library equipment to ensure these skills are maintained.

Elsewhere, Vale of Clwyd Mind has trained volunteers to be digital champions¹¹⁵ while Caerphilly based mental health charity Gofal has signed the Digital Charter and DCW delivered training to staff, showing them how to support people to get online.¹¹⁶

Long term conditions and disabilities

One third of adults in Wales have a long term condition or disability¹¹⁷ with two thirds of people aged over 65 and three-quarters of people aged over 85.

People with long term conditions and disabilities could benefit most from services delivered digitally yet they are least likely to be online. Only 75% of people in Wales with a limiting longstanding illness or disability use the internet, compared with 90% of those without.

In this YouTube video¹¹⁸ ABMU Medical Director Hamish Laing talks about how patients with long term conditions have the most to gain from digital health.



RNIB Cymru is Wales' largest sight loss organisation, providing a wide range of services and support to blind and partially sighted people across Wales.

It is also heavily involved in digital inclusion, as blind and partially sighted people are less likely to be online than others. RNIB Cymru was involved in a Lottery funded UK-wide project, Online Today, that supported blind and partially sighted people to get more out of computers, tablets, smartphones and the Internet. Through Online Today, a team of digital inclusion officers and volunteers worked with people with sight loss, or who are deaf or hard of hearing, to help them gain confidence in using digital technology in everyday life.¹¹⁹ The project has now ended and is being evaluated by Swansea University.

North Wales Deaf Association is a regional organisation supporting deaf, deafened, hard of hearing and deaf-blind people across North Wales. Digital Communities Wales provided 'Digital Champion' training to frontline staff and volunteers, and provided with a Digital Inclusion Strategy document, designed to identify the way in which the organisation uses technology for administration and communications, and providing them with a clear path and end goals. The training has changed the way in which the support staff assist service users; they are now able to communicate far more effectively with both service users and their support staff and families. They are also supporting service users by incorporating British Sign Language (BSL) skills with the digital training, providing "trilingual" IT sessions to users. This has included communicating using BSL over software such as Skype – something that has not happened in North Wales before.¹²⁰

Case study: Digital prescriptions for PocketMedic films for people with long term conditions

Video can be an accessible, easy to digest format for health advice. Watching short health information films on a computer, tablet or smartphone can help the growing number of people living with diabetes to better manage their condition. PocketMedic¹²¹ films were 'prescribed' to people newly diagnosed with type 2 diabetes, alongside standard treatments, by a GP or practice nurse. After just three months, routine tests showed a clinically significant improvement in HbA1c - an established marker of diabetes control.

Self-management skills are widely recognised as an increasingly important treatment that can have a major effect on an individual's quality of life. Yet less than one in 100 people typically choose to attend an educational programme that can, potentially, prevent them from developing blindness, kidney failure, amputation or other health complication.

Professor Jeffrey W Stephens, consultant physician at Abertawe Bro Morgannwg University Health Board and DRU Cymru work package lead for Prediabetes, Obesity and Metabolic Surgery, said, "These results are highly encouraging. One in four patients watched at least one PocketMedic film and these film-watchers demonstrated that, as a result, they were better able to manage their condition."

Dr Sam Rice, a consultant physician at Hywel Dda University Health Board and DRU Cymru work package lead for New Therapies and Devices explained, "Digital prescriptions encourage people to access expert health information, practical advice and emotional support from the comfort of their own home. Each motivational film can be watched by patients and carers as many times as required and, crucially, at a time when the individual faces a new health challenge."¹²²

Digital health tools: putting people in control

Giving people greater control so that they can become more active participants in their own health and well-being is central to the vision of A Healthier Wales. At a national level, My Health Online gives patients the convenience of booking appointments and ordering prescriptions online. At a local level, Health Boards are piloting innovative digital tools like Patients Know Best which empower patients through access to their own health record and communication with health professionals and carers.

Although My Health Online is now available for all GP practices in Wales, take-up has been slow with 230,000 patients registered to date (less than 8% of the population). There are likely to be several reasons. Initial registration is cumbersome (with need to take confirmation of identity into GP practice), awareness of it is low, and the benefits of signing up have not been marketed strongly. Furthermore, as we have seen, patients who are most likely to need to access NHS services (older people, people with long term conditions and disabilities) are least likely to be online. If the benefits of digital health tools like My Health Online are to be realised, we need to ensure that people who are less confident and motivated are supported.

Case study: Digital inclusion support for Patients Know Best

Patients Know Best¹²³ is an online portal which gives patients instant access to their medical records. Patients can access up-to-date information on treatments, medication, allergies and more from any device. This information can be shared with different medical teams and carers. Patients can also access messages from clinicians, test results etc. Patients Know Best is being implemented in ABMU Health Board¹²⁴ (for patients with diabetes and with heart failure, extending to COPD and Parkinson's) and Cardiff and Vale Health Board (for ENT patients).¹²⁵

This video shows BBC Wales coverage of Patients Know Best in Bridgend.¹²⁶



Patients are invited to join Patients Know Best (PKB) by their clinician. Although take-up so far has been good, not all patients are joining. Some patients may not want access to their record; others may not have access to technology or their own email address. ABMU is now working with Digital Communities Wales to direct patients to libraries or other community resources where they can have access to a computer and support with setting up email etc so they can join PKB if they wish to do so.

In this YouTube video, Nikki Ellery at ABMU talks about how digital inclusion support can help people get online and join PKB.¹²⁷



Case study: Swansea Bay GP Cluster

In Swansea, the local GP Cluster wanted to encourage more patients to sign up for My Health Online. If patients are to be encouraged to register, staff need to be knowledgeable and enthusiastic about digital health tools. Working with Digital Communities Wales, non-clinical frontline staff from eight practices have been given training to gain skills in supporting people to use My Health Online. Two staff from each practice have been trained. Post training, a digital open day for patients is being developed.

Also in the Swansea Bay GP Cluster, two five-week digital health courses for patients are being developed. Patients are referred from GPs through their social prescribing initiative. The first course focus on a Fitbit project for weight loss patients, and the second course will be on combating isolation with older patients. Course content will be developed with DCW and Adult Community Learning, through consultation with the GPs, and delivered by Adult Community Learning.

Digital Companions

Digital Communities Wales has recently been successful in obtaining funding under the Bevan Commission Exemplar Programme¹²⁸ for a Digital Companions initiative in Hywel Dda and Aneurin Bevan Health Boards.

The idea is to establish a social movement of Digital Companions across Health Boards in Wales. Digital Companions will follow a set of basic principles in supporting non-internet users to get engaged in the basics of technology on a gradual basis, with support from a peer of similar interest, age and local understanding. As individuals get connected online, the support will look at how the internet can be used to improve people's health and general well-being.

The Digital Companion movement will be underpinned by social and practical principles so that 'digital' is not presented as the main driver. Companions will follow a structured approach to build trust and seek to understand each person and their individual interests, backgrounds and history. They will be trained in understanding how best to enable connectivity. Links will be made with agencies that offer in-home services to enable a recruitment of the initial Companions. These will include Country Cars (a community-based car-sharing scheme), Meals on Wheels, Fire Service, befriending services and similar regional services.

Rural health and care

People living in rural areas are increasingly vulnerable, particularly as they age and become increasingly dependent on services. Nearly 20% of the Welsh population live in communities of fewer than 1,500 people, compared with 10% in England. Significant numbers of people retire to rural Wales where transport and services may be scarce just at the time when their health may be becoming worse.¹²⁹

A new report from the Prince's Countryside Fund¹³⁰ paints a picture of the reality of rural living including poor infrastructure, with roads that are no longer in a fit state to support the rural economy because they have been worn away (particularly following severe winters), as well as poor public transport and limited access to utilities.

Survey respondents describe how very limited access to, or absence of, services remains a problem, including very basic or no shops, leisure facilities, physical and mental health services, libraries, social and self-help groups, and schools. Furthermore, the issues associated with housing and homelessness, and social isolation and exclusion are key concerns.

Hospital services are becoming increasingly specialised, leading to longer travelling times for rural patients needing specialist care, often with the added complication of arranging cross-border treatment in England. Smaller patient volumes can render some specialist services unviable, and remote locations make it more difficult to recruit the workforce required to provide and deliver services.

To address these challenges, NHS Wales is focusing on new ways of delivering services closer to home and harnessing the opportunities provided by digital technology and multi-disciplinary working. The Mid Wales Healthcare Study of 2014¹³¹ focused on the provision and delivery of health services in Mid Wales and provides a useful platform, but there are further opportunities (including the use of digital technologies) to enable healthcare to be accessible for all Welsh communities. The Welsh NHS Confederation's briefing on Rural Health and Care in Wales¹³² provides a useful overview of the challenges with case studies.

Rural Health and Care Wales¹³³ has been established as a centre of excellence that is leading the way in the field of rural health and social care in Wales, the UK and internationally. RHCW was formed and is supported by Hywel Dda, Betsi Cadwaladr, and Powys Teaching Health Boards and Welsh Ambulance Services NHS Trust, and works in collaboration with the Universities of Aberystwyth, Bangor, Cardiff, Swansea, Trinity Saint David and Coleg Cymraeg Cenedlaethol, along with the local authorities of Ceredigion, Powys and Gwynedd.

Older people living in rural areas can find it difficult to access healthcare services particularly where this involves travel. In North Wales, the Future Hospital^{134 135 136} programme is developing innovative ways to improve

"The top three barriers for people living in rural areas are poor transport networks, poor employment opportunities - and poor broadband and mobile coverage".

Princes Countryside Fund

access to care for frail and elderly patients in rural Wales. The programme is responding to chronic health needs, including end-of-life care, by bringing access to specialist care into easy reach of those living at considerable distance from secondary (or tertiary) care centres, principally through telemedicine.

The CARTREF (Care Delivered with Telemedicine to Support Rural Elderly and Frail) programme is providing consultations with clinicians using Skype for Business. Employing a digital inclusion officer for an initial six-month period was crucial to create the right conditions for acceptance by older people.

Case study: Telehealth for frail elderly people in rural North Wales

In the Betsi Cadwaladr Health Board area, patients over 85 (one patient was over 100) are seeing their doctor via telemedicine clinics at their local community hospital. This has reduced travelling for many patients from 30 miles to 2-5 miles. Dr Olwen Williams says:

“Co-production was essential for success in setting up the telemedicine service because uptake and delivery are entirely dependent on both clinical and patient groups buying into a service model that meets the needs of the majority. User engagement from the outset can be facilitated by working with agencies, such as Citizens Online, that focus on digital inclusion, dispelling myths and anxieties, and providing training and support. We employed a digital inclusion officer who secured community support by working with local community groups, county councillors and the local media. Patient champions and representatives should be made familiar with all aspects of the planned patient pathway – their opinion is invaluable. Patient information leaflets and an option to take part in a demonstration consultation was also made available”.¹³⁷

Significant positive feedback has been received from patients, with over 83% stating that they would recommend the clinics to family and friends. Patients have saved on average 64 minutes of travel time (40 miles) to and from the clinics.

In Powys, virtual wards have been running since 2012.¹³⁸ Now, as a Bevan Commission Health Technology Exemplar,¹³⁹ a web-based application (MyCOPD) is being used to support pulmonary rehabilitation and self-management.

Studies at the Centre for Excellence in Rural Health Research at Aberystwyth University have provided valuable insights into the potential and acceptability (for staff and patients) of telehealth in rural areas.¹⁴⁰ Research commissioned by Hywel Dda Health Board for the United for Health programme specifically looked at barriers.¹⁴¹ Most of the patients in the study were unaware of telehealth, but once they had used (to monitor COPD and diabetes) they were positive about the experience. Some felt lack of experience with technology was a barrier; others with disabilities such as poor eyesight or cognitive impairment were less able to use telehealth. Interestingly none of the patients interviewed felt they were too old to adapt – but felt it might be difficult for other people.

“I could imagine people older than myself would have problems with the technology. Yeah, as time goes by that will disappear. I mean, you know, if you want your phone done you find a kid. So for the future I can see that it has immense benefits, you know.”

Wearable technology

The benefits of regular physical activity for older adults and those with chronic disease and/or mobility limitations are indisputable. Regular physical activity reduces the risk of obesity, cardiovascular disease, diabetes, depression and anxiety, and cognitive decline. Walking has been shown to improve cognitive performance in older people. And walking with others can help reduce social isolation and loneliness amongst older people.¹⁴²

“The Fitbit activity tracker is all the rage at the moment and it’s becoming an emerging tool for digital inclusion work in Wales.”

Digital Communities Wales project, Neath

Personal health monitoring can be a real motivator for people to get online. Digital Communities Wales has been involved in several projects where people have been supplied with wearable fitness monitoring devices.¹⁴³ At the Aneurin Leisure Trust in Ebbw Vale,¹⁴⁴ a group of women wanting to improve their fitness joined a programme called Your Body Your Life. They were loaned Fitbits and shown how to pair them with smartphone or tablet. They reported increased motivation for physical activity, as well as new friendships, swapping health tips, finding new health websites, and having group chats on social media.¹⁴⁵ Their digital skills improved at the same time as their fitness.

Tenants of Newydd Housing Association in Pontypridd had a fitness group which met in the HAPI Hub community centre every two weeks.¹⁴⁶ They were also loaned Fitbits and developed new skills linking them to smartphones. At the fortnightly meeting they were able to compare activity levels.

Following in the footsteps of similar pilot projects in West and South Wales, Digital Communities Wales has been working with Melincryddan Community Conference and Neath East Communities First on a project that was looking to improve people’s health, while increasing confidence around digital technology at the same time.¹⁴⁷ The Neath initiative saw five people meeting on a weekly basis. The group used the Fitbit device to measure their activity levels, to see whether they’ve been reaching health goals, while understanding how digital technology can help them achieve this. Volunteer Digital Champions have also been working with stroke survivors through Neath Stroke Group.¹⁴⁸ The volunteers completed Level 2 accreditation digital champion training, delivered by DCW. The group facilitators also promoted further drop-in sessions in Neath, Skewen, Glynneath and Pontardawe libraries. Stroke survivors were motivated to track weight and fitness.

“I think the project has been excellent. I will be getting a Fitbit of my own, for my birthday. I enjoyed monitoring my steps and heartrate and sleep patterns. It makes me want to try and walk more and it has allowed me to address specific concerns in regards to my heart rate and overall health with my GP.”

Melin Homes is a registered social landlord in South Wales with a strong commitment to the health and well-being of its staff.¹⁴⁹ Here the loan of the Fitbits enabled Melin to offer members of the Direct Workforce team (e.g. plumbers, electricians, painters) and Sheltered Scheme Managers the opportunity to participate in the project. The Direct Workforce team, because of the nature of their jobs, have not had to use technology within their role until fairly recently, when Melin’s Agile Working project was introduced to replace the paper-based system that was previously in use. This is a huge cultural shift for some team members, many of whom would be considered to be digitally excluded. The loaned Fitbits enabled team members to use and experience technology in a fun and informal way and encouraged them to use technology to improve their general health and well-being.

Wi-Fi

In 2015, the National Information Board in England invited Martha Lane Fox to make recommendations to the Secretary of State for Health on the key steps which should be taken to tackle digital exclusion and accelerate digital adoption. Her recommendations were:

- Reach the 'furthest first' – making sure those with the most health and social care needs who are often the least likely to be online, are included first in any new digital tools being used across the NHS.
- Build the basic digital skills of the NHS workforce to ensure that everyone has the digital skills needed to support people's health needs.
- Provide free Wi-Fi in every NHS building.

"Free Wi-Fi will allow patients staying in hospital to self-monitor their conditions using apps, maintain contact with social networks that can support recovery and crucially help them to stay in contact with family and friends. It would also reduce the administrative burden on doctors, nurses and care staff, currently estimated to take up to 70% of a junior doctor's day, freeing up more time to be spent with patients and enable safer working practices such as e-prescribing known to reduce medication errors by 50%."¹⁵⁰
(Martha Lane Fox)

Access to Wi-Fi is a key enabler for digital inclusion. There is a commitment in Informed Health and Care that "people attending all large healthcare settings, such as acute and community hospitals, will have access to free public Wi-Fi".

Free patient Wi-Fi is now being installed in NHS premises in Wales, although this is not universal and there is more progress in hospital settings than GP practices. ABMU was the first health board in Wales to offer free public wi-fi in some of our hospitals and new investment is making it available in every hospital in ABMU, including community hospitals.¹⁵¹

Case study: Free public Wi-Fi

"I think free public Wi-Fi has made a huge difference. A while ago we were the first health board in Wales to offer free public Wi-Fi. It was driven by a conversation with a patient on the renal dialysis unit. I was walking around talking to patients, seeing how they were. He was a young chap, running a small business. He spends four hours, three times a week, in the basement in our hospital and he said, "You know, I can't even get a phone signal here. I can't get on the internet and I've got to run my business. For about half of every week, I cannot work." That's what life can be for someone who has renal failure. "Could you get me a phone signal? That would make a difference!" I said, "How about if we got you Wi-Fi instead?" He replied, "Brilliant."

The initial response from colleagues in IT was, "No we can't do that!" due to the issues of security. "What if they downloaded inappropriate material? We could be liable for that."

But I knew that when you stay in a hotel, they've got two networks: one for running the business and one for the customers. Once a partition was established then we created our own connections to the internet rather than using the NHS network. It has been the most brilliant thing.

We can have 12,000 concurrent users at times. It's allowed patients to stay connected to their businesses and their families and friends. It also allowed us to completely transform our model of mobile working for the staff in our sites too: using our free Wi-Fi and secure middleware which we give them. It has also released bandwidth on our NHS network: lots of "wins" for a small investment!"

Prof Hamish Laing interviewed by DrDoctor.¹⁵²

Welsh language

According to the Office of National Statistics¹⁵³ 874,700 people are able to speak the language, up from 726,600 in 2008. The greatest concentration of Welsh speakers is in rural North Wales.

The Welsh Government's vision, as set out in the strategy Cymraeg 2050¹⁵⁴ is to have one million Welsh speakers by 2050. Successful implementation of this target will depend on a range of actions, including:

"Digital technology: ensure that the Welsh language is at the heart of innovation in digital technology to enable the use of Welsh in all digital contexts...It is vitally important to invest in in order to ensure that it is possible to use the Welsh language in as many contexts as possible, through voice as well as the keyboard. In the future, we should concentrate on investing in language technology infrastructure on a large scale, such as Welsh language speech-to-text technology and the ability to translate with machines."

National Survey for Wales figures suggest that a higher percentage of Welsh speakers use the internet compared to the average for all adults (83% vs 81% of those aged 16+). However, the Ofcom Communications report (which has a significantly smaller sample size than the National Survey for Wales) suggested the reverse - that Welsh speakers are significantly less likely than all adults in Wales to have internet access at home (76% vs 86%). This differs from the latest NSW figures above and a previous study conducted by Welsh Government social researchers which showed there was no significant correlation between Welsh language and internet use.^{155 156}

Mentrau Iaith¹⁵⁷ are local language initiatives which support communities to increase and develop their use of the Welsh language. Mentrau offer free advice and assistance to individuals, organisations and businesses and it organises activities and community projects to promote the use of the Welsh language. Digital Communities Wales has been developing a Welsh language offer for organisations that support people through the medium of Welsh. This has resulted in the creation of a new training module developed in partnership with Mentrau Iaith which includes Welsh language online resources, apps and content.

There is an additional challenge due to the lack of good quality health information content in Welsh. Public facing health websites including NHS Direct Wales¹⁵⁸ and Dewis¹⁵⁹ are available in Welsh (as well as English) as is health promotion content from Public Health Wales¹⁶⁰ and information from some patient organisations. However the range and depth of content about health conditions in Welsh is small compared with that in English.

Wikipedia¹⁶¹ (the Welsh language version of Wikipedia) is the most viewed Welsh language website in the world with over 90,000 articles. A recent audit of the content revealed that Welsh Wikipedia has very few articles about health and yet the few articles which do exist are, on average, being viewed more times than articles on any other subject. This suggests that Welsh speakers want to consume information about their health in Welsh, through Wikipedia.

- Welsh Wikipedia has 1,500 Welsh language articles on health compared to 84,000 in English
- 2.09% of Welsh Wikipedia articles are about health compared to 6.67% in English
- Views of Welsh articles about health make up 12% of total page views, more than any other subject

The National Library of Wales, with funding from Welsh Government, has been undertaking a project to create more Welsh language health content on Wikipedia.¹⁶² A series of public events across Wales are being held, to teach and encourage health professionals, medical students and the general public to help improve health content on Wikipedia. The project also seeks partnerships with charities and institutions who already produce Welsh language health content with the aim of working together to provide access to this content through Wikipedia, with links back to their own online services. It is hoped that this will result in the creation of 3,000 new Welsh language health related articles on Wikipedia.

Libraries

Despite the adverse impact of widespread library closures (499 libraries closed in the UK between 2012 and 2017¹⁶³) libraries remain a crucial community asset for both health promotion and digital inclusion. Libraries are trusted community spaces, whose unique benefits include assisted digital access, health information, resources and services, and the volunteering and recreational opportunities they provide. They can deliver a range of health and well-being benefits to local communities including those who may not normally access other services.

The quality framework for Welsh public library standards, Connected and Ambitious Libraries,¹⁶⁴ introduced a specific quality indicator for health and well-being. Libraries must ensure that the following are offered in all static service points open for ten hours a week:

- Books on Prescription Wales
- Better with Books Scheme
- Designated health and well-being collection
- Information about healthier lifestyles
- Signposting to health and well-being services

And must report on the number of service points where the following are available:

- Macmillan cancer or other health information partnerships
- Dementia friendly services
- Mental health awareness services

The Society of Chief Librarians (now Libraries Connected¹⁶⁵) has developed a set of Universal Offers, including a Universal Health Offer and a Universal Digital Offer. The Universal Health Offer¹⁶⁶ includes a commitment for public libraries to provide a range of services including:

- Creating Reading Well self-help reading lists and book collections in libraries covering key areas of health and well-being such as mental health, dementia and long term conditions.
- Signposting and referring the public to information and local services who can provide advice and support.
- Providing creative and social reading activities for a range of targeted groups such as dementia sufferers, teenagers, and older people.

The Universal Health Offer includes the Reading Well programme, developed with the Reading Agency.¹⁶⁷ Reading Well promotes the benefits of reading for health and well-being, and includes Books on Prescription and Mood Boosting books. The Welsh rollout of the scheme – Darllen Yn Well – is funded by the Welsh Government and delivered by The Reading Agency in partnership with the Society of Chief Librarians Cymru. The Reading Agency is also working with the Welsh Books Council to make the books available in Welsh for the first time and to create adapted Welsh-language resources to support the scheme.

The Universal Digital Offer¹⁶⁸ aims to narrow the digital divide between those who regularly access information online and those who don't by:

- Ensuring that all public libraries offer a basic level of digital service to the public, to include free wi-fi, computers, and online information about library services.
- Working to develop staff so that they have the skills to help customers who do not normally access information and services online.
- Identifying significant digital developments and highlighting how public libraries and their leaders should respond.

Public libraries in Wales have been working with Digital Communities Wales to provide digital skills training and support information literacy. A half-day digital inclusion training course has been developed for staff and volunteers in libraries.¹⁶⁹ A two-day digital champions course has been delivered through Pembrokeshire Libraries¹⁷⁰ and Flintshire Libraries are holding Digital Fridays.¹⁷¹

During 2018, Newport Libraries delivered two health related pilot projects, and it is hoped these will become part of the core programme during 2019. The projects were delivered in partnership with a social housing association and MIND. Between May and August 2018, Tea & Tech sessions were based around using the internet to look at ways of improving health and well-being, visiting recognised safe sites for support and guidance. The "Add to your Life" online health assessment was completed and from the results one user was signposted to support groups that could give information on their condition – Diabetes UK.

The attendees commented that they were not aware of the type of support that was available online and that once some of the fears regarding safety had been overcome, they were happy to use the internet again. A printed list of popular sites is available, and some reputable safe sites are easily accessible through the Newport City Council website so a user knows they will be accessing a bona fide site.

The project with MIND started in August 2018, encouraging the use of apps to support health and well-being. As apps are becoming more popular the Library Service has been considering how we can promote their use within the digital literacy support programme. Health and well-being appeared to offer a good opportunity to encourage the use of this platform, due to the number, and diverse range, of apps available within this subject area.

Case study: RNIB/Library IT Days in Powys

Powys libraries and the RNIB have teamed up to help people with sight loss enjoy the benefits of being online. Under the initiative residents with visual impairment of any age or ability can get free one-to-one technical support at a library or at home to get the most out of new technology, whether it is a laptop, tablet or smartphone.

The support includes help adapting computer equipment or advice on the best equipment available, with library and RNIB support setting up equipment to use Powys County Council library eBooks and e-audiobooks which are available free of charge.

RNIB digital inclusion advisor Dafydd Ladd states that, "This free service is available throughout Powys and is called 'Online Today'. It is funded by the Big Lottery and is here to ensure people with a sight loss have access to the same opportunities as everyone else.

"We can give you the information and knowledge to realise and enjoy the benefits of being online, understand how it can assist your everyday living and importantly, how to stay safe online. Working with you, we can advise on how being online can help you, whether it is using Skype to talk to family far away or getting your regular sports or weather updates."

4. Levers and enablers for digital inclusion



4. Levers and enablers for digital inclusion

As we have seen in Section 3 above, Wales already has an impressive record of action to tackle digital exclusion and achieve real transformation in people's health. However much more needs to be done if the benefits of the digital revolution are to be realised for all, leaving nobody behind.

In interviews for the report, several further areas of opportunity for taking forward the digital inclusion and health agenda were suggested. These are reflected in the Recommendations.

Planning for digital health and care

Every October, the Welsh Government publishes its Planning Framework, setting out the principles that Health Boards should follow when developing their Integrated Medium Term Plans (IMTPs). Digital health and care is a key enabler in the 2018-21 Planning Framework,¹⁷² and IMTPs must:

- be clear on how clinical care, quality improvement and service plans will be increasingly data driven and how informatics will support this
- detail digital health and care developments fully aligned and integrated with the service and workforce change priorities
- show how the organisation is embracing the opportunities that digital technologies, including telehealth, can bring to transforming service models and supporting our ambitions
- set out a clear resource plan for informatics to support service transformation
- be clear what benefits informatics improvements will deliver and how they will enable the delivery of the wider organisational objectives
- detail how organisations are working collaboratively to deliver digital change

However, the Planning Framework does not ask Health Boards to take into account digital inclusion as an enabler of digital health and care, nor to recognise digital exclusion as a barrier to achievement.

This is unlike in England, where Guidance on Developing Local Digital Roadmaps specifically directs that:

"Local health and care systems should pay due attention to key enablers of the vision, including digital inclusion and the digital literacy of the workforce and patients and carers."

It would be a considerable advance in ensuring that digital inclusion is on the agenda of Health Boards if future Planning Frameworks were to include an expectation similar to this.

Prudent healthcare

Planning Guidance is underpinned by the principles of prudent healthcare¹⁷³ as developed by the Bevan Commission.¹⁷⁴ Prudent healthcare is a blueprint for co-production of better, more integrated health and social services by identifying and prioritising need, choosing treatments wisely, and reducing inappropriate variation.



Digital exclusion is an inappropriate variation in healthcare in Wales. The contribution of digital inclusion to the four principles of prudent healthcare should receive greater recognition in healthcare planning and delivery.

Recognising and acting on digital exclusion is entirely consistent with prudent healthcare - but the connection does not seem to have been explicitly recognised. In fact:

- Working with patients and carers to understand and meet their digital health needs is a real demonstration of **co-production**.
- Digital inclusion means that those with the **greatest health needs** are not left behind in an increasingly digital healthcare system.
- Providing access to digital health resources, and the skills and confidence to use them, enables appropriate self-care and self-management so that we do **only what is needed**.
- The digital divide is an **inappropriate variation**, where increasingly some sections of society and some parts of Wales will have less access to care.

Public health and social determinants of health

In 2016, Public Health Wales produced a report **Making a Difference**¹⁷⁵ presenting research evidence and expert opinion in support of preventing ill health and reducing inequalities. Three priority areas are suggested for action on prevention:

- Building resilience across the life course and settings
- Addressing harmful behaviours and protecting health
- Addressing wider economic, social and environmental determinants of health

Economic and social inequalities persist in Wales with multi-generational negative impacts on health and well-being, triggering and sustaining health inequalities, unhealthy behaviours and influencing future generations and their life prospects

Tackling the causes of social and economic inequalities that drive health inequalities is likely to be most effective. This may include interventions to ensure a living wage, reduce unemployment, improve the physical environment and provide universal services (accessible to all) while also investing additionally to support vulnerable groups.

The supporting evidence¹⁷⁶ behind Making a Difference presents abundant evidence on social determinants of health, including poverty, employment, housing, fuel etc. However digital exclusion is not included. In the 21st century, there is a strong argument that digital exclusion is a new public health challenge. Those who lack access to digital technologies, and the skills and confidence to use them, are at greater risk of ill health.

Today digital exclusion should be regarded as a social determinant of health. Evidence is available on the extent of digital exclusion in Wales (see Section 1). In future this should be included in evidence mapping by Public Health Wales and other health bodies.

The Stay Well in Wales¹⁷⁷ survey sought to obtain the views of residents of Wales on a range of public health issues in order to inform the development and implementation of Public Health Wales' strategy for 2018-2030. The survey results are interesting for people's sources of health information:



Digital exclusion should be regarded as a social determinant of health, in the same way as other equalities.

But they also provide an insight into people's priorities for where they feel more action is needed. Although digital inclusion is not identified explicitly, it should be noted that tackling the priorities of social isolation and loneliness, and difficulties accessing health care services, are both areas where getting online can have significant benefit.



A follow up survey to Stay Well in Wales is being carried out by Bangor University which should provide further insights into people's use of digital health information.

Social prescribing / community referral

Addressing health inequalities is another key principle of the Planning Framework, with specific reference to social prescribing.

"Organisations that place health inequalities at the heart of their planning and delivery systems will show evidence of strong community involvement to co-produce good health opportunities for all such as social prescribing."

Social prescribing, sometimes referred to as community referral, is a means of enabling GPs, nurses and other primary care professionals to refer people to a range of local, non-clinical services (such as horticulture, exercise, weight loss programmes, community arts or welfare rights advice). There are many different models for social prescribing, but most involve a link worker or navigator who works with people to access local sources of support.

Social prescribing has been commonplace for some time but there has recently been a new emphasis. A survey by Nesta¹⁷⁸ identified that four out of five GPs think social prescriptions should be available from GP surgeries. The Welsh Public Health Observatory has produced a social prescribing evidence map¹⁷⁹ and the Welsh primary care development website now includes a social prescribing area.¹⁸⁰ There are social prescribing communities of practice¹⁸¹ and new funding is available for social care pilots, such as a recent call for bids for social prescribing in the area of mental health.¹⁸²

Torfaen is one of the early adopters of social prescribing in Wales and has delivered the service in the north of the borough since October 2015 and the south since January 2017. Each of the 13 GP practices it serves have access to a Social Prescriber for one half-day session (three appointments) per week where patients can book directly with the practice for a one-to-one conversation about any challenges they face, what matters to them and the support available to help.¹⁸³

In Cardiff and the Vale, Well-being Coordinators were appointed to work at the interface between the GP, patient and community to deliver public health support, embed public health principles and enhance the social model of care through the use of existing community networks and experience of co-production. An impact report was published in 2018.¹⁸⁴

And in Anglesey, a new Big Lottery funded social prescribing project, Cwlwm Seiriol, is linking people with long term conditions to the natural environment through "green" prescriptions. This could range from participating in woodland walks to becoming involved in conservation projects.¹⁸⁵

For many patients developing digital skills and confidence could be a very appropriate non-medical intervention. However social prescribing to digital inclusion support is in its infancy (it does not feature in the Public Health Observatory evidence map). There are examples of where this is beginning to happen in general practice – see the Swansea Bay GP Cluster case study above, and work with Medrwn Môn¹⁸⁶ in Anglesey, where patients are connected with self help groups – but this is ripe for further development.

In England, the NHS Widening Digital Participation programme has piloted social prescribing to digital inclusion support in two settings – in Sheffield and at the Bromley-by-Bow Centre in East London. A practical how-to guide¹⁸⁷ on lessons from these pathfinders has recently been published and could usefully inform the development of social prescribing for digital inclusion in Wales.

There is a real opportunity to develop social prescribing of digital inclusion support more strongly.

A digital workforce

In a modern NHS, health and care staff increasingly need digital skills to do their jobs.

Wales Institute of Digital Information¹⁸⁸ has been formed as part of a strategic partnership between NHS Wales Informatics Service and the University of Wales Trinity Saint David. Its aim is to create opportunities for and nurture new talent in health informatics. Higher Apprenticeship (level 4) and a Digital Degree Apprenticeship (levels 4 to 6) are now available for people looking to progress a career in health IT.

As the largest workforce in the NHS, the digital skills of nurses are particularly important. In Cwm Taf, the Health Board's Head of Clinical Education has been championing the use of technology and informatics to improve care after being appointed to NHS Improvement's Nurse Fellowship.¹⁸⁹ Lesley Jones is developing a toolkit and a career framework for nurses and allied health professionals aiming to specialise in clinical informatics and digital delivery in health and care settings.

The framework draws on work at Health Education England, which is leading work on digital literacy for health and care staff, as part of the Building a Digital Ready Workforce programme.¹⁹⁰

Health and care staff not only increasingly need digital skills to do their own jobs, but also to be advocates for digital health with their patients and service users. If staff do not have knowledge and confidence in using digital health resources themselves, they are unlikely to act as digital champions and recommend digital tools to their patients. This can be one of the biggest barriers to digital inclusion. As Martha Lane Fox puts it in her recommendations on digital inclusion to the NHS in England:¹⁹¹

"Building the digital skills and maturity within the health workforce could radically improve the take-up and adoption of new digital tools and technology. Digital health literacy, confidence and maturity amongst the NHS workforce are critical to realising the great potential the network age brings. It would provide two major benefits. Firstly, it would enable health care workers to support people to engage with digital services and tools to promote take-up and engagement. Secondly it would support health care worker's own professional development and engagement with new ways of working as the digital revolution progresses and work patterns change. We know that changing technologies demand constant updating of expertise."

Building on their success in training digital champions with other organisations, Digital Communities Wales are beginning to train non-clinical NHS staff as digital champions too. This is happening with general practice staff in the Swansea Bay GP Cluster and hospital staff in ABMU to support take-up of Patients Know Best (see Case Studies). There is considerable potential to extend this approach more widely through the NHS in Wales.

As well as frontline staff, we also need to develop a new generation of digital leaders who can drive the information and technology transformation of the NHS. The NHS Digital Academy¹⁹² has now been set up in response to Professor Robert Wachter's Making IT Work¹⁹³ report, which observed that the NHS was lacking in leaders who could drive forward the digital transformation required by the service. The Digital Academy aims to develop such leaders to help realise the full potential of modern digital technology, and avoid the high-profile failures of the past.

The Digital Academy will provide a year long world class digital health training course¹⁹⁴ to Chief Clinical Information Officers, Chief Information Officers and aspiring digital leaders from clinical, and non-clinical, backgrounds.

Commissioned by NHS England, the Academy is delivered by a partnership of Imperial College London, the University of Edinburgh and Harvard Medical School. The course is now underway with the first cohort of 100 course participants. Although funded by NHS England, the course is open to candidates from other countries, including Wales.

Course modules are still in development, including a module covering User Centred Design and Consumer Driven Informatics. It is very encouraging to note that this module will include content on digital inclusion, drawing on the Digital Inclusion Guide for Health and Social Care.¹⁹⁵ This presents a tremendous opportunity to engage the next generation of digital leadership in delivering equitable digital health in the NHS.

Rethinking digital inclusion

For a number of years now, the focus of digital inclusion support throughout the UK has been on helping people develop basic digital skills. But today lack of basic skills may no longer be the crucial barrier to digital take-up, particularly in health and care. More and more people have access to, and are familiar with, digital technology, in particular, mobile devices. And technology is much easier to use with simple touch screen functionality on tablets and phones.

In July 2018, the Centre for Ageing Better published an important and thought-provoking report on new approaches to supporting people in later life to get online.¹⁹⁶ People in later life stand to benefit hugely from being online – to improve health and well-being, save money and keep in touch with family and friends. However, there remains a core of people in later life who are not online and have no intention of getting online. When asked what would prompt them to go online, 74% of people over the age of 65 responded 'nothing'.

The Centre for Ageing Better funded Good Things Foundation to conduct research to understand what enables and prevents people in later life from getting online – focusing specifically on people in later life who have never used the internet, those who used to but have now stopped or those who have limited usage. The report concluded:

- *Not using the internet and being digitally excluded are not the same thing. Some people make a reasoned decision not to be online.*
- *We need to move on from a focus on basic digital skills to building confidence and motivation to do things online that matter to people.*
- *We must measure success by outcomes (including health outcomes) rather than just numbers of people attaining basic digital skills.*

The messages are clear. People in Wales need digital health and care services which matter to them, are accessible and well designed, and are meaningful to their everyday health experience. They need more than basic digital skills – they need digital health literacy which gives them confidence to use tools and resources effectively. If this digital inclusion support is to be sustainable, we need to be able to measure impact through outcomes which have resonance for the NHS and social care – including self-care, patient activation, and appropriate service utilisation. And as we rethink some of our approaches to digital inclusion for health and care, we will be most successful if we work with patients and service users to co-produce solutions which are most relevant for them.

Appendix 1: Benefits and business case



Appendix 1: Benefits and business case

Economic and social benefits of digital inclusion

Increasing attention is being given to building a more evidence-based understanding of the nature of digital exclusion, and the benefits of people getting online. The Welsh Government's Digital Inclusion Analysis Package¹⁹⁷ notes that:

There is scope for our understanding of the economic impact of digital inclusion on individuals and wider society to be strengthened, which may in turn challenge some of the underlying assumptions of the existing evidence base.

A 2011 evidence review of economic and social benefits of digital inclusion carried out by the Welsh Government¹⁹⁸ draws on a 2009 Price Waterhouse Cooper report on the Economic Case for Digital Inclusion¹⁹⁹ and identifies benefits including:

- Households off-line miss out on savings of £560 per year from shopping and paying bills online. For 3.6 million low income households this is equivalent to savings of over £1 billion a year being lost from shopping and paying bills online.
- Children's educational performance can be improved by home access to a computer and the internet. 1.6 million children in families who do not use the internet to go online at home could boost their total lifetime earnings by £10 billion.
- People with good ICT skills earn between 3-10% more than people without such skills.
- Conducting transactions online could save service providers between £3 and £12 per transaction.

A report from BT - Valuing Digital Inclusion²⁰⁰ - calculated the social return on investment (SROI) of digital inclusion for individuals and for workers.

For individuals, getting online is worth £1,064 a year due to:

- increased confidence
- less social isolation
- financial savings
- increased opportunities in employment and leisure

For workers, getting online is worth £3,568 a year due to:

- opportunities for remote working
- increased earnings

The most recent analysis of the economic impact of digital inclusion comes in a report prepared by Cebr (Centre for Economics and Business Research) for Good Things Foundation and published in September 2018.²⁰¹ This suggests a net present value of providing everyone in the UK with digital skills of £21.9 billion. Savings by 2028 include:

- Time savings from undertaking government and financial transactions online - £1.1 billion

- Transactional benefits from shopping online £1.1 billion
- Communication benefits from keeping in touch, reducing isolation and participating in recreational and cultural activities £400 million

Benefits of digital inclusion for health and care

The Department of Health in England has estimated annual savings of £2.9 billion from digital deployment in the NHS.²⁰² But these savings will not be delivered at scale while the heaviest users of the NHS are least likely to be online.

In particular, people with long term conditions are less likely to be online, and account for:

- 50% of GP appointments
- 64% of outpatient appointments
- 70% of inpatient days
- 70% of total health and care expenditure

There is beginning to be more evidence specifically on the benefits of improving digital inclusion for health and social care. Benefit opportunities for individual patients and carers, include:

- improved self-care for minor ailments
- improved self-management of long term conditions
- improved take-up of digital health tools and services
- time saved through accessing services digitally
- cost saved through accessing services digitally
- reduced loneliness and isolation

Benefit opportunities for the health and care system, include:

- lower cost of delivering services digitally
- more appropriate use of services, including primary care and urgent care
- better patient adherence to medicines and treatments

Evaluation of Phase One of the NHS Widening Digital Participation programme in England²⁰³ provides the most detailed analysis of the impact of increasing digital inclusion on health we have to date. In developing this evaluation, NHS England, as commissioner of the programme, was keen to ensure that the outcomes measured were meaningful to the NHS, rather than simply numbers of people trained in digital skills.

Of those who were supported by the programme:

- 56% went on to find information on the internet about health
- 59% felt more confident in using health information
- 51% have now used the internet to explore ways to improve mental health and well-being
- 52% feel less lonely or isolated
- 54% of those in need of non-urgent medical advice said they would now go online before consulting their GP, to look at sites such as NHS Choices
- 21% have had fewer visits to their GP
- 22% have progressed to booking GP appointments online and 20% to ordering prescriptions online
- 39% have saved time through carrying out health transactions online

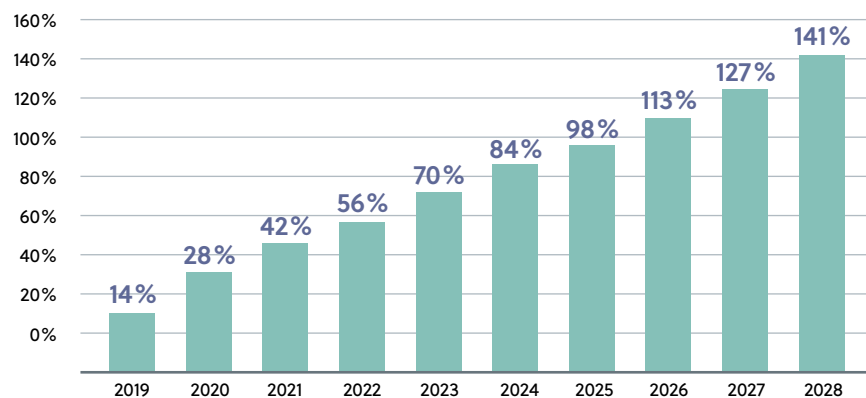
The impact of digital inclusion initiatives should be measured against outcomes which matter to health and social care.

Investing in digital inclusion can save the NHS in the UK £10m a year, with cumulative savings of £141m by 2028.

This evaluation estimated £6.40 saved for every £1 invested as a result of reduced avoidable contacts with the NHS due to increased self-care through access to information and advice online.

The level of savings for the NHS has now been revised in the Cebr report (above). Cebr calculate savings to the NHS through individuals learning digital skills and so being able to use the NHS website for self-care advice, as well as booking appointments and requesting prescriptions online. These amount to £141 million by 2028 through reduction in GP visits and reduction in use of offline services. Reduction in avoidable GP consultations alone could save £10 million within a year.

Figure 22: Cumulative cost savings to NHS from a reduction in GP consultation due to the use of the NHS Choices website and from the use of online booking services, £ millions, 2019-2028



Source: Murray et al. (2011), Unit Costs of Health and Social Care (2017), Cebr analysis

Benefits of digital inclusion for public health

Of course, increasing digital inclusion has benefits for society as a whole as well as for the NHS. It is important to take these benefits into consideration when bearing in mind the impacts for public health.

A 2016 analysis of Scottish data carried out by Ipsos MORI for Carnegie UK Trust²⁰⁴ illustrates the wider societal benefits how internet use is associated with better health and well-being. Those who use the internet are more likely to have:

- been to a cultural event
- visited outdoors for recreation
- taken part in sport
- volunteered

Conversely those who are not online are more likely to have visited their doctor once a month or more.

Loneliness and isolation

There is a particularly strong benefits opportunity in digital inclusion relieving loneliness and isolation. The National Assembly for Wales Inquiry into Loneliness and Isolation²⁰⁵ includes powerful evidence on the impact:

- There is a strong link between loneliness and depression. 60% of older people who report being depressed also say they are lonely.
- Lonely and isolated people tend to smoke and drink more, have a poorer diet, and skip medication.
- Falls among lonely and isolated people tend to go unnoticed and unreported.
- Lonely and isolated older people are at an increased risk of dementia.

The cost of social isolation and disconnected communities in Wales has been estimated as £2.6 billion per annum, which included:

- £427 million - demand on health services
- £10 million - demand on policing
- £8 million - cost of stress and low self-esteem

Disconnected communities are linked to a loss of productivity, with a net cost to the Welsh economy of over £1 billion every year.

Economic modelling of the cost effectiveness of actions to reduce loneliness to promote better mental health carried out for Public Health England “concludes conservatively that substantial costs to health and social care systems potentially may be avoided if poor health associated with loneliness can be avoided”. This modelling suggests that these costs conservatively may be in the region of £1,700 to £6,000 per case of loneliness avoided over a ten year period for people aged 65-75.

The Older People’s Commissioner told the Inquiry that an intervention such as a befriending scheme could save £300 per person annually in health and social care costs.

The Widening Digital Participation evaluation in England showed 52% of people provided with digital inclusion support felt less lonely and isolated.²⁰⁶

Loneliness and isolation costs Wales £2.6 billion a year. Helping people get online can have a marked impact on reducing loneliness.

Downsides

While there are significant benefits, it is important to remember that being online can also have downsides. Some people have been scammed or victims of cyber-crime. Others (particularly young people) have been victims of online bullying. There is an abundance of “fake news” in health with poor quality health information online. Increasingly digital skills support is focusing on information literacy: helping people approach the internet critically so that they can appraise information, and mindfully so they are not overwhelmed by it.

For some people getting online means increased risk to potentially harmful behaviour. In this context it is salutary to see the Chief Medical Officer for Wales Annual Report for 2016-17²⁰⁷ focusing on gambling-related harm as an emerging public health issue. Online is the fastest growing method of gambling, making gambling more accessible than ever, from home, 24 hours a day. Furthermore, online gambling is usually a solitary activity, lacking the benefit of meeting in a social space or increased excitement when attending a sporting event. 9.2% of online gamblers have been identified as problem gamblers.

The CMO's Annual Report recommends:

Parents, guardians, and those responsible for the health and well-being of children and vulnerable people should be aware of the harms, and potential harms, of both online gaming and gambling, and should take a precautionary approach to this by reducing exposure wherever possible.

Appendix 2: Digital inclusion in other countries



Appendix 2: Digital inclusion in other countries

This section provides a brief overview of approaches to digital inclusion, with particular reference to health and care, in a selection of other countries. Those selected are:

- Other nations in British Isles (England, Scotland, Wales, Northern Ireland, Ireland)
- Smaller innovative nations, similar in size to Wales (Estonia, New Zealand, Singapore)
- Two countries currently active in developing digital inclusion programmes with Good Things Foundation (Australia, Kenya)

England

In England, commitments to tackle digital exclusion have been made in key NHS policies. The digital strategy Personalised Health and Care 2020²⁰⁸ identifies the need to:

- Ensure that the digital inclusion opportunity is inclusive, and
- Build better insight into the barriers to digital inclusion

And the Five Year Forward View²⁰⁹ talks of:

- Building the capacity of all citizens to access information, and
- Developing partnerships with the voluntary sector and industry to support digital inclusion

NHS England and NHS Digital have been working for five years with Good Things Foundation²¹⁰ to provide a national programme for digital inclusion in health and care – called Widening Digital Participation. The first phase of the programme (2013-16) focused on digital skills, supporting over 350,000 people to get online so that they could participate more actively in their own health.²¹¹

Evaluation of this programme demonstrated some impressive results in terms of health outcomes, better experiences for patients and citizens, and savings in cost and time (see Appendix 1: Benefits and business case).

The Widening Digital Participation programme was extended in 2017, again working with Good Things Foundation. In this second phase there has been a shift away from a focus on digital skills to a discovery and service design approach, which aims to build a better understanding of the barriers to digital inclusion, and to co-design and test solutions with service users.

A series of Widening Digital Participation Pathfinders has been developed with the full buy-in and cooperation of local health and care stakeholders. Up to 20 Pathfinders will be funded over the next three years, with 11 live to date:

- North London – young people with mental health issues
- Sheffield – social prescribing
- North Somerset – high street healthy living hub
- Stoke – people with long term conditions
- Bradford – young people as carers
- Wakefield – hearing and visually impaired people
- Hastings – homeless and insecurely housed people

The NHS Widening Digital Participation programme in England is working through co-production to rethink approaches to digital inclusion.

- Sunderland – isolated older people
- Thanet – people in social housing
- Dorset – maternity care, particularly with travellers
- Blackpool – accident and emergency

Progress on the work of all the Pathfinders can be followed on the programme's Digital Health Lab²¹² which includes blogs, case studies, reports of design sessions, and practical how-to guides capturing learnings.

The Widening Digital Participation programme has also produced a Guide to Digital Inclusion²¹³ for local health and care organisations. The Guide is intended to provide practical advice on establishing the extent of digital inclusion locally, commissioning and evaluating digital inclusion support, benefits and business case, and partnership working. Coverage of the Guide was researched through a programme of engagement with stakeholders, and an agile approach was taken to development with user feedback on alpha and beta versions before the Guide was published online in May 2018.

Widening Digital Participation is one of the workstreams within the Empower the Person Roadmap²¹⁴ (equivalent to Workstream One of Informed Health and Care in Wales).

Other workstreams include:

- Free Wi-Fi throughout NHS
- Library of accredited health apps
- New NHS.UK website to replace NHS Choices
- Online GP services
- Online consultations

Scotland

Scotland published a new Digital Health and Care Strategy in April 2018²¹⁵ aimed at delivering digital service transformation through initiatives including supporting prevention and self-care, spreading use of video consultations, and delivering remote monitoring.

The strategy emphasizes the need to increase digital participation of patients and staff, and "expects all organisations involved in the delivery of care to sign up to the Digital Participation Charter²¹⁶ to ensure that they are working towards everyone having basic skills". The Charter now has over 500 signatories, including NHS bodies (NHS 24, NHS Lothian, NHS Tayside) and voluntary health organisations (including Alzheimer's Scotland, Scottish Autism, Patient Opinion and Turning Point Scotland).

Scotland's Digital Participation Charter is run by the Scottish Council for Voluntary Organisations (SCVO). SCVO Digital²¹⁷ is leading action on digital inclusion in Scotland²¹⁸ through:

- Reports and briefings²¹⁹
- Promoting Scotland's Digital Participation Charter²²⁰
- Free training and access to Digital Unite's Digital Champion's Network²²¹

Over the past four years, the Scottish Council for Voluntary Organisations' (SCVO) Digital Participation Charter Fund²²² – supported by the Scottish Government and BT – has provided funding to 150 organisations across Scotland to get people online and develop basic digital skills.

The Scottish Digital Health and Care Strategy expects all organisations involved in delivery of care to sign up to the Digital Participation Charter.

In August 2018, Round 6 of the Charter Fund made awards of over £220,000 to 26 organisations from across the country,²²³ which work either to support working-age people to increase financial capability, employment and other economic outcomes; or support older and disabled people to reduce social isolation and loneliness.

Northern Ireland

In Northern Ireland, the Digital Age Project²²⁴ supports the use of technology as a tool to link generations whilst promoting digital and social inclusion of older people. The project has established new partnerships between schools and sheltered housing schemes, co-ordinated and delivered IT courses to older people within residential schemes. Through linking the schemes with local schools and youth groups, they delivered intergenerational sessions using ICT as a tool to create links between older and younger people in communities, with the aim of creating better understanding and interaction. The course and supporting toolkits provided innovative approaches and resources to develop participants' digital capabilities in communicating, carrying out online transactions, finding and using online information.

The Digital Age Project in Northern Ireland is supporting intergenerational partnerships.

Ireland

Public engagement and patient empowerment are seen as key enablers in the eHealth Strategy for Ireland²²⁵ - but not digital inclusion specifically. However, there are digital inclusion initiatives in wider society.

Ireland's new Getting Citizens Online programme²²⁶ is focused on encouraging and empowering citizens to participate fully in a digital economy and society. The Programme includes the 'Digital Skills for Citizens Scheme' which aims to give the one in seven people who have never used the internet the confidence, motivation and skills to take their first steps online. Under the scheme, grant funding of €2.2m has been provided in 2017 to 15 community and voluntary organisations to provide training in basic digital skills, free of charge, to some 26,000 citizens. Training is targeted at people over 45, farming communities, small business owners, unemployed people, people with disabilities and disadvantaged groups. The programme will also establish a partnership framework, comprising public and private sector stakeholders, to provide digital assistance to support citizens to "do more with digital" in their everyday life.

Ireland's Getting Citizens Online programme addresses the needs of farming communities in rural areas.

Highly innovative small countries

In 2014, Nesta produced a report on highly innovative small nations²²⁷ focusing on Finland (population 5.5m), Estonia (1.3m), Singapore (5.7m), Israel (8.5m) and Basque Country (2m). The report concludes that these countries (all similar in scale to Wales) exhibit a sense of national mission, an entrepreneurial spirit at all levels including government, an open culture, and downstream innovation through SMEs.

A more recent study from Tufts University²²⁸ looks at digital competitiveness and trust worldwide. Its Digital Evolution Index shows, once again, small nations leading the way for fast moving digital innovation – Hong Kong, Singapore, New Zealand, Estonia, Israel (and interestingly UK).

Estonia

When Estonia regained its independence from the Soviet Union in 1991, only half the population had a phone line. Today it is one of the most tech-savvy nations in the world. This came about because of a conscious decision by the new, young generation of politicians, who came to power after the breakup of the former Soviet Union, to see how rapid expansion in new technologies could support the growth of a 'new' nation. In 2000, the Estonian Parliament declared basic internet access as a human right, and embarked on an ambitious programme to give its population widespread and free access to Wi-Fi. Estonia now has over 2,440 free certified Wi-Fi areas meant for public use, including at cafes, hotels, hospitals, schools, and petrol stations.²²⁹

In 2002 58% of the Estonian population were not online, with a particular concentration amongst "Blue Collars" (working class) and "Passive People" (those lacking interest, motivation and trust).²³⁰ Today, Estonia has one of the highest rates of online take-up in the world, with 88% of households having internet connection.

E-Estonia, the Estonian Government's world leading integrated e-services, has been developed from a partnership between government and the ICT sector. All Estonians have an e-identity²³¹ which is used to access a wide variety of government services online. Using their ID card, mobile ID or Smart ID citizens can securely identify themselves and use a range of e-services.

In 2007, Estonia became the first country to use e-voting in a general election. Every patient who has visited a doctor has an online e-health record²³² which can be accessed via a patient portal. 99% of prescriptions are now digital.

In Estonia basic internet access is a human right.

A single e-identity has been a powerful enabler for simple, secure access to e-services – including health care.

Singapore

Singapore is a digitally advanced country with 84% of the population online, and a strong commitment to developing digital public services around user needs.²³³ There has been a national electronic health record for several years, although fragmented healthcare provision makes integrated information systems more difficult. There is marked consumer demand for digital health products, with 44% of consumers using health apps and 23% using wearable technology.

The Infocomm Development Authority of Singapore's (IDA) Digital Inclusion programme²³⁴ is aimed at building a digitally inclusive society that brings digital technologies to people from all walks of life, focusing on older people.

The Silver Infocomm Initiative²³⁵ aims to bridge the digital divide among seniors aged 50 and above through programmes including:

- an annual Silver IT Fest
- Silver IT Care helpdesks using digitally savvy older people to help other older people with IT problems
- Silver Infocomm Hotspots providing older people with access to technology in community settings used by older people
- Silver Infocomm Wellness Ambassadors awards which recognise seniors who have not only embraced digital technologies but also inspired their peers to pick up digital skills
- Silver Infocomm Junctions learning hubs with affordable and customized training courses that cover topics from basic digital skills such as using a computer to more advanced topics such as online storage and sharing (Cloud Computing)

In Singapore, the Silver Infocomm Initiative uses digitally-savvy older people to help other older people develop digital skills.

- Intergenerational IT Bootcamp which seeks to foster bonds between seniors and their grandchildren or students, while allowing them to learn digital skills in a fun way

The IDA Digital Inclusion Programme also includes home access programmes to bring affordable technology and internet connectivity to students and low-income households, and an assistive technology programme for people with disabilities.

New Zealand

New Zealand has many similarities to Wales (not confined to excellence in rugby). Both are smaller nations, with populations of similar scale (New Zealand 4.7m; Wales 3m). Both are English speaking with unique official languages in Maori te reo and Welsh. Both have challenges of delivering services to rural areas. Both have relatively good levels of digital inclusion (89% of people in New Zealand are online; 85% of people in Wales) but with stubborn levels of digital exclusion in some populations, including older people and socially deprived.

New Zealand has a relatively well developed digital health system, with 97% of GPs using digital health records and a high ranking for infrastructure and network readiness in the recent Global Digital Health Index.^{236 237} A Vision for Health Technology²³⁸ has been published, with a Digital Health Strategy²³⁹ due to be published shortly.

Maori account for 15% of the population in New Zealand. In Maori, New Zealand has a resurgent national language (te reo), which was given official status by the Maori Language Act of 1987. According to the New Zealand National Census, 3.7% of the population could hold a conversation in Maori. Health literacy is often low, with four out of five Maori men and three out of four Maori women having poor health literacy levels.²⁴⁰ There is a lack of good quality health information in Maori although the Health Navigator site provides links to available material.²⁴¹

As in the UK, New Zealand has mapped its digital inclusion on a locality basis. The Digital Divide Map²⁴² shows digital inclusion status drawn from data on digital skills and infrastructure access.

Action on digital inclusion in New Zealand has been led by the 2020 Trust²⁴³ partnering with local communities to deliver digital literacy and inclusion programmes that build New Zealanders' computer skills and online access. A range of organisations have signed up to a Digital Inclusion Manifesto²⁴⁴ and a Digital Inclusion Map showing local digital inclusion projects has been live since 2015.²⁴⁵

In 2018, there has been a new push on digital inclusion with the establishment in February of a Ministerial Advisory Group for the Digital Economy and Digital Inclusion.²⁴⁶ In July a new Digital Inclusion Alliance Aotearoa²⁴⁷ was established in collaboration with the 20/20 Trust. Its aim is to expand the reach of digital inclusion initiatives, so that everyone in New Zealand has equitable opportunities to participate in the digital world.

There are many similarities between New Zealand and Wales, including their approaches to digital inclusion.

Catalunya

Catalunya is an autonomous region of Spain. With a population of 7.5 million it is one of the most industrialised parts of Spain, with an economy larger than most EU states. There is a thriving digital innovation sector centred on Barcelona. Like Wales, Catalunya is proud of its distinctive identity and language. Catalan has equal status to Castilian Spanish as the official language, and is actively encouraged. Nearly all Catalans are bilingual.

The Catalan Connecta't programme has focused on developing digital skills to help unemployed people into employment.²⁴⁸ Training takes place through the Catalan Network of ICT Points and at the venues of other partners such as libraries or youth information points.

Loneliness and isolation in older people is being tackled in Catalunya through the Vincles programme. More than 300,000 (or 20%) of Barcelona's population live alone, and a third of these people are over 80. Vincles, which means "social ties" in Catalan, is an app-based service designed to strengthen and expand personal networks.²⁴⁹ Managed and delivered by Tunstall, Vincles is aimed at people over 65 who feel lonely, with the objective of strengthening relationships with family, friends and neighbours.

Referrals are made by health and social care professionals, from the Barcelona tele-assistance service, or through self referral by people who want to use the service. Tunstall staff also make proactive visits to community centres to promote the service. Participants use an app on a digital tablet which allows them to make voice or video calls, and send messages and photos. There is also a calendar for social events and appointments, and regular activities are organised for users.

Hywel Dda Health Board have now decided to commission the Vincles service for use by older, isolated people locally.

Australia

Australia's national digital health strategy²⁵⁰ was published in 2017, following a public consultation. The strategy makes a clear commitment to digital inclusion, in response to views expressed in the consultation.

While digital innovation is transforming many aspects of our lives, there is not yet equal opportunity for all to participate, particularly those people who make the greatest use of health services. There are 3 million Australians without internet access, and only 63% of Aboriginal and Torres Strait Islander households have internet access at home.

Australia's digital divide was a key theme highlighted by respondents to the "Your health. Your say" survey, who noted that it must be addressed to ensure that the health benefits achieved in the coming years are shared equally.

The Australian strategy includes the Widening Digital Participation programme in England as a case study, and makes a commitment to "convene stakeholders across the community to develop comprehensive approaches to digital inclusion, ensuring that actions to address digital literacy are based on high-quality evidence for how best to support people who are currently experiencing digital disadvantage".

Developing the Australian digital health strategy through a public consultation meant that digital inclusion was high on the agenda.

Digital inclusion status in Australia has been mapped on the Australian Digital Inclusion Index.²⁵¹ Existing organisations providing digital inclusion support, including Leep,²⁵² have now been joined by Good Things Foundation in Australia.

Good Things Foundation Australia²⁵³ was established in June 2017 when they won a contract from the Australian Department of Social Services to establish and support a network of local partners to help older Australians better use the internet.²⁵⁴ This network includes community organisations, public libraries, housing, local charities, and many more. Good Things Foundation supports the network with a range of resources, online training, network events, dedicated network coordinators, an online forum and a helpline.

Kenya

Digital health in Kenya is in its infancy. High costs of digital health systems, poor infrastructure in rural areas, and low digital literacy of the population are all barriers to digital health adoption. However, submarine fibre optic cables and connection of major towns to broadband has led to marked improvements in infrastructure.

The real game changer is mobile. Mobile subscriptions in Kenya have surged from 330,000 in 2001 to 38m in 2016, in a country with a population of nearly 45 million. Many Kenyans have skipped a technological generation, with mobile bringing many online who have never had access to desktop machines or fixed-line broadband.²⁵⁵

The Kenya National e-Health Policy 2016-2030 aims to ensure that health services are electronically accessible to patients at all levels of the economy, with objectives which look familiar to healthcare systems in other countries:

- Ensure that health information on the eHealth platforms for patients and physicians is multilingual, multicultural, multi-professional and multijurisdictional.
- Ensure affordable broadband Internet connectivity to all parts of the country to enable online access to eHealth services and information.
- Ensure that services are offered across a variety of eHealth access platforms including, but not limited to, mobile devices and community digital centres.
- Facilitate the use of telemedicine by caregivers in geographically isolated communities to provide healthcare services.
- Promote cross-border sharing of health information about the medical incidences and history of a particular patient by healthcare professionals, without compromising his/her privacy.

Last year, a new project to help develop digital literacy was launched by the Good Things Foundation in partnership with the Kenya National Library Service. Digital Life:Kenya²⁵⁶ worked with librarians to develop their digital skills, which were often low, so that they could act as digital champions with library users. Libraries are now providing outreach sessions to teach digital skills in local schools.

At Kinyambu Library, over 50 library users have registered on the Learn My Way online digital skills learning platform. The library now runs a Community Digital Club on Saturdays. Two library users have found jobs after completing Learn My Way.

"You can't serve a digital customer without having digital skills yourself."

(Kenyan librarian)

WHO resolution on digital health

The World Health Organization recognises the potential of digital technologies to advance sustainable healthcare development, and in particular to support health systems in all countries in health promotion and disease prevention, and by improving the accessibility, quality and affordability of health services.

In May this year, the World Health Assembly adopted a resolution on digital health²⁵⁷ with 11 actions to drive forward digital health adoption. It is encouraging that WHO sees digital inclusion of citizens as central to achieving the benefits of digital health, and urges member states to:

Improve the digital skills of all citizens, including through working with civil society to build public trust and support for digital health solutions, and to promote the application of digital health technology in the provision of, and access to, everyday health services.

Appendix 3: Wales in Summary



Appendix 3: Wales in Summary²⁵⁸

3.1 million people live in Wales

The largest urban areas are Cardiff (361,500), Swansea (244,500) and Newport (149,100)

About 1 in 20 of the UK population live in Wales

There are 1.3 million households

The total land surface of Wales comprises nearly 2.1 million hectares, of which some 80% is devoted to agriculture

Life expectancy from birth in Wales is 78.4 years for males and 82.4 years for females

Around one fifth of the population of Wales say they can speak Welsh

Larger towns and cities are concentrated around the edge of Wales, along the coasts and the border with England. In the heart of Wales, there are no large towns but a plethora of small towns up to a size of around 20,000.

Carnegie UK recently hosted a discussion event in Cardiff, 'Understanding Welsh Places'²⁵⁹ to explore what data exists and what it could tell us about Welsh towns.

The picture suggested is one of diversity. The variety of towns was described through a six point typology:

- sub-regional centres (e.g. Aberystwyth)
- anchor towns (e.g. Brecon)
- island towns (e.g. Fishguard)
- doughnut towns (e.g. Milford Haven)
- satellite towns (e.g. Caldicot)
- niche towns (e.g. Hay-on-Wye)

The Health and its Determinants in Wales report²⁶⁰ provides an overview of the health and well-being of the population of Wales. The report outlines the main areas of health need and presents the complex picture of health in Wales. It demonstrates the gains made but it also highlights the significant challenges faced both now and in the future. The headlines are:

Wales has an ageing population which is expected to result in an increasing number of age-related conditions.

- Wales, like the rest of the UK, has an ageing population. Relative to the rest of the UK, Wales has more older people and fewer people of working age as a proportion of the population.
- The total population of Wales is expected to increase to 3.3m by 2039 if current trends continue. The population aged 65-84 years is expected to increase from 554,000 in 2016 to 703,000 in 2039 (27% increase) and the population aged 85+ years is expected to increase from 81,000 to 183,000 (127% increase).

People are living longer and spending longer in good health, but the number of years spent living with poor health is also increasing.

- Average life expectancy in Wales is 78 years for men and 82 years for women. However, men and women are likely to spend on average 17 and 20 years respectively living in poor health which will impact on their quality of life and use of services.
- Life expectancy has risen in Wales by 4.6 years over the last 26 years and remains comparable to the other UK nations.

There remain intractable gaps in the experience of health between more and less deprived areas.

- There are stark differences in life expectancy and healthy life expectancy across Wales which have shown no sign of reducing over the past 10 years. Men and women in the most deprived areas of Wales spend approximately 19 and 18 years less in good health respectively, and die on average 9 and 7 years earlier respectively, than those living in the least deprived areas.

There is considerable variation in levels of socio-economic factors that affect health, such as poverty, poor housing and poor education.

- Overall a quarter of children in Wales live in poverty, but in some areas this rises to 64%.
- Young people leaving school in the most deprived areas were half as likely to leave with skills and qualifications (level 2) as those from the least deprived areas. For comparable educational outcomes, children in Wales fare less well than in other UK nations.

Interviewees



Interviewees

Tom Crick, Professor of Digital Education and Public Policy, Swansea University, and Independent Member, Abertawe Bro Morgannwg University Health Board

Beverley Davies, Senior Programme Manager, Aneurin Bevan Health Board

Joanna Dundon, National Clinical Informatics Lead (Public and Service), NHS Wales Informatics Service

Nikki Ellery, Senior Project Manager – Informatics, Abertawe Bro Morgannwg University Health Board

Adam Hesselden, Manager, Woffington House Care Home, Tredegar

Huw George, Deputy Chief Executive, Public Health Wales, and Chair, Workstream One (information for You)

Andrew Griffiths, Director and Chief Information Officer, NHS Wales Informatics Service

Helen Hughes-Tait, Head of Clinical Futures – ICT, Aneurin Bevan Health Board

Andrew Jacobs, Head of Financial and Digital Inclusion, Welsh Government

Ann Jones, Public Library Representative, CILIP Cymru Wales (The Library and Information Association)

Lesley Jones, Head of Clinical Education, Cwm Taf University Health Board

Peter Jones, Deputy Director – Digital Health and Care, Welsh Government

Hamish Laing, Medical Director and Chief Clinical Information Officer, Abertawe Bro Morgannwg University Health Board (now Professor of Enhanced Innovation, Swansea University)

Kimberley Littlemore, Partner, Pocket Medic eHealth Digital Media Ltd

Nesta Lloyd-Jones, Policy and Public Affairs Manager, Welsh NHS Confederation

Leah Morantz, Director of Communications, Public Health Wales

Alun Prescott, Operations Manager, Regeneration Investment & Housing, Newport City Council (Chair, Society of Chief Librarians Wales)

Anna Prytherch, Project Manager, Rural Health and Care Wales

Rachel Rahman, Director of Centre of Excellence in Rural Health Research, Aberystwyth University

Catherine Sharp, Research Officer, Bangor University

Tanya Strange, Divisional Nurse – Primary Care and Networks, Aneurin Bevan University Health Board

Dave Street, Corporate Director Social Services & Housing, Caerphilly County Borough Council

Chris Subbe, Consultant in Acute, Respiratory and Critical Care Medicine, Bangor University

Alyson Thomas and Clare Jenkins, Joint Chief Officers, Board of Community Health Councils in Wales

Iwan Williams, Communities, Local Government and Well-being Lead, Older People's Commissioner (now Policy Lead, Social Care Wales)

Olwen Williams, Consultant in Sexual Health and Future Hospitals Lead, Betsi Cadwaladr University Health Board

NHS Wales User Needs and Experience Focus Group

Jo Dundon, NHS Wales Informatics Service; Leanda Wynn, Board of CHCs in Wales; Sean Newton, Diabetes UK Cymru; Ann Jones CILIP Wales; Trevor Davis, Bevan Commission; Matt Lloyd, Digital Communities Wales; Alex Percival NHS111; Cecilia Jones Engagement Lead NHS Wales Informatics Service

References



References

- ¹ Delivering digital inclusion: a strategic framework for Wales. Welsh Government <https://gov.wales/docs/dsjlg/publications/comm/160316-digital-inclusion-strategic-framework-en.pdf>
- ² Digital Communities Wales <https://www.digitalcommunities.gov.wales/>
- ³ Delivering digital inclusion <https://gov.wales/docs/dsjlg/publications/comm/160316-digital-inclusion-strategic-framework-en.pdf>
- ⁴ Digital inclusion re-contact survey <https://gov.wales/docs/caecd/research/2015/150527-national-survey-wales-2013-14-digital-inclusion-recontact-survey-en.pdf>
- ⁵ Lloyds Bank UK consumer digital index www.lloydsbank.com/banking-with-us/whats-happening/consumer-digital-index.asp
- ⁶ National Survey for Wales 2017-18 <https://gov.wales/docs/statistics/2018/180822-national-survey-wales-2017-18-internet-use-digital-skills-en.pdf>
- ⁷ National Survey for Wales 2017-18 <https://gov.wales/docs/statistics/2018/180822-national-survey-wales-2017-18-internet-use-digital-skills-en.pdf>
- ⁸ Digital inclusion progress report and forward look <https://gov.wales/docs/det/publications/180418-digital-inclusion-progress-report-and-forward-look-2018-en.pdf>
- ⁹ National Survey for Wales 2016-17 <https://gov.wales/docs/statistics/2017/170831-national-survey-2016-17-internet-access-online-public-services-en.pdf>
- ¹⁰ Digital exclusion heatmap. Tech Partnership <http://heatmap.thetechpartnership.com/>
- ¹¹ About the digital exclusion heatmap <http://heatmap.thetechpartnership.com/about-heatmap/>
- ¹² Consumer Data Research Centre <http://indicators.cdrc.ac.uk/digital/iuc/>
- ¹³ The great British geography of internet use and engagement. CDRC <http://indicators.cdrc.ac.uk/stories/iuc/>
- ¹⁴ CDRC maps <https://maps.cdrc.ac.uk/#/geodemographics/iuc18/default/BTTTTT/11/-3.8958/51.6953/>
- ¹⁵ Lloyds Bank UK consumer digital index www.lloydsbank.com/banking-with-us/whats-happening/consumer-digital-index.asp
- ¹⁶ Delivering digital inclusion: a strategic framework for Wales <http://gov.wales/docs/dsjlg/publications/comm/160316-digital-inclusion-strategic-framework-en.pdf>
- ¹⁷ UK Government digital inclusion strategy <https://www.gov.uk/government/publications/government-digital-inclusion-strategy/government-digital-inclusion-strategy>
- ¹⁸ Improving people's lives through digital technology: digital inclusion progress report and forward look <https://gov.wales/docs/det/publications/180418-digital-inclusion-progress-report-and-forward-look-2018-en.pdf>
- ¹⁹ Digital inclusion in Wales: perspectives on why it matters and what still needs to be done <http://wales.coop/wp-content/uploads/digital-inclusion-in-wales.pdf>
- ²⁰ Evaluation of the Communities@One programme <https://gov.wales/statistics-and-research/evaluation-communities-one-programme/?lang=en>

- ²¹ Superfast broadband <https://gov.wales/topics/science-and-technology/digital/infrastructure/super-fast-broadband/?lang=en>
- ²² Welsh Government plans digital pilots for the Valleys <https://www.computerweekly.com/news/252440077/Welsh-government-plans-digital-pilots-in-the-Valleys>
- ²³ Swansea Bay City Deal <http://www.swanseabaycitydeal.wales/>
- ²⁴ Work could start on major £200m well-being village <https://www.walesonline.co.uk/news/local-news/work-could-start-major-200m-14420935>
- ²⁵ National Assembly for Wales. Digital infrastructure in Wales <https://www.assembly.wales/laid%20documents/cr-ld11185/cr-ld11185-e.pdf>
- ²⁶ Welsh village residents dig 15 miles of trenches for faster wi-fi <https://www.theguardian.com/uk-news/2018/jun/27/welsh-village-residents-dig-15-miles-trenches-faster-wifi-michaelston-y-fedw>
- ²⁷ Digital Merthyr <http://www.digitalmerthyr.org.uk/>
- ²⁸ I'm a very simple man. Kate Vogelsang blog <https://www.birdsongconsultancy.co.uk/blog/2018/8/14/thedigitaldivide>
- ²⁹ 21st century schools <http://21stcenturyschools.org/?lang=en>
- ³⁰ Digital Competence Framework <http://learning.gov.wales/resources/browse-all/digital-competence-framework/?lang=en>
- ³¹ Welsh Government digital action plan 2017-20 <https://gov.wales/docs/det/publications/171020-digital-action-plan-17-20-en.pdf>
- ³² Digital first. Welsh Government <http://gov.wales/docs/det/publications/150421-digital-first-en.pdf>
- ³³ Strategy for older people 2013-23. Welsh Government <https://gov.wales/docs/dhss/publications/130521olderpeoplestrategyen.pdf>
- ³⁴ Strategy for older people: delivery plan. Welsh Government <https://gov.wales/docs/dhss/publications/141002strategy-olderen.pdf>
- ³⁵ Older People's Commissioner for Wales <http://www.olderpeoplewales.com/en/Home.aspx>
- ³⁶ Ageing Well in Wales www.ageingwellinwales.com/en/home
- ³⁷ Health and Well-being Check for Over 50s www.wales.nhs.uk/sitesplus/888/page/70345
- ³⁸ Add To Your Life <https://addtoyourlife.wales.nhs.uk/intro.cfm>
- ³⁹ Age Cymru – Add To Your Life <https://www.digitalcommunities.gov.wales/blog/2015/10/06/age-cymru-add-to-your-life-atyl/>
- ⁴⁰ Well-being of Future Generations Act (Wales) Act 2015; The essentials <https://gov.wales/docs/dsjlg/publications/150623-guide-to-the-fg-act-en.pdf>
- ⁴¹ Future Generations Commissioner for Wales <https://futuregenerations.wales/>
- ⁴² Public Service Boards <https://gov.wales/topics/improvingservices/public-services-boards/?lang=en>
- ⁴³ Future Generations Framework for Service Design <https://futuregenerations.wales/documents/future-generations-framework-service-design/>

- ⁴⁴ Why the South Wales town that forged the NHS now points to its future
<https://www.theguardian.com/healthcare-network/2018/may/22/south-wales-town-forged-nhs-points-future-tredegar>
- ⁴⁵ Parliamentary Review of Health and Social Care in Wales
<https://gov.wales/docs/dhss/publications/180116reviewen.pdf>
- ⁴⁶ Well-being of Future Generations (Wales) Act <http://www.legislation.gov.uk/anaw/2015/2/contents/enacted>
- ⁴⁷ Social Services and Well-being (Wales) Act 2014 www.legislation.gov.uk/anaw/2014/4/contents
- ⁴⁸ A Healthier Wales: Our Plan for Health and Social Care
<https://gov.wales/docs/dhss/publications/180608healthier-wales-mainen.pdf>
- ⁴⁹ Regional Partnership Boards <https://socialcare.wales/hub/sswbact-regional-partnership-boards>
- ⁵⁰ Primary Care Clusters <http://www.primarycareone.wales.nhs.uk/primary-care-clusters>
- ⁵¹ Less reliance on hospitals, more care closer to home
<https://gov.wales/newsroom/health-and-social-services/2018/longterm/?lang=en>
- ⁵² £100m plan to transform health and social services in Wales
<https://gov.wales/newsroom/health-and-social-services/2018/plan/?lang=en>
- ⁵³ Prudent Care <http://www.prudenthealthcare.org.uk/>
- ⁵⁴ Informing healthcare: transforming healthcare using information and IT
http://www.wales.nhs.uk/documents/A5_English.pdf
- ⁵⁵ Informed health and care: a digital health and care strategy for Wales
<https://gov.wales/docs/dhss/publications/151215reporten.pdf>
- ⁵⁶ Informatics systems in Wales .Wales Audit Office
http://www.audit.wales/system/files/publications/NHS_-_Informatics-2018%20-%20English.pdf
- ⁵⁷ www.boxuk.com
- ⁵⁸ ABMU Health Board digital strategy
<http://www.wales.nhs.uk/sitesplus/documents/863/4%20%28iv%29%20Digital%20Strategy.pdf>
- ⁵⁹ Digital inclusion, NHS Wales and ABMU <http://www.wales.nhs.uk/sitesplus/documents/863/July%202018%203iv%20Digital%20Inclusion%20NHS%20Wales%20&%20ABMU.pdf>
- ⁶⁰ Aneurin Bevan University Health Board. Integrated Medium-Term Plan 2018/19 – 2020/21
www.wales.nhs.uk/sitesplus/documents/866/4.1%20Draft%20IMTP%20for%20January%20Board%20v%207.1.pdf
- ⁶¹ <https://gov.wales/about/cabinet/cabinetstatements/2018/BCUHB/?lang=en>
- ⁶² Cardiff and Vale University Health Board. Caring for people: keeping people well. Integrated Medium-Term Plan 2018-21 <http://www.cardiffandvaleuhb.wales.nhs.uk/sitesplus/documents/1143/Public%20Boardbook%20March%202018%20vol%202.pdf>
- ⁶³ Cwm Taf University Health Board. Digital health strategy
<http://cwmtaf.wales/wp-content/uploads/2017/05/2-3-1-Appendix-1-Digital-Health-Strategy-UHB-31-May-2017.pdf>
- ⁶⁴ Delivering the benefits of digital healthcare in Hywel Dda University Health Board 2016-19
www.wales.nhs.uk/sitesplus/documents/862/FOI-098-17a.pdf

- ⁶⁵ Powys joint ICT strategy 2018-20. Powys Teaching Health Board and Powys County Council <https://powys.moderngov.co.uk/documents/s25394/ICT%20Strategy%20Appendix%201.pdf>
- ⁶⁶ Powys Teaching Health Board. Integrated Medium Term Plan 2017/18 – 2019/20 www.powysthb.wales.nhs.uk/sitesplus/documents/1145/Powys%20THB_IMTP%202017-20.pdf
- ⁶⁷ Public Health Wales Integrated Medium Term Plan 2017-20 <http://www.wales.nhs.uk/sitesplus/documents/888/Integrated%20Medium%20Term%20Plan%202017-2020%20v1.pdf>
- ⁶⁸ Welsh Government. Digital baseline of local authorities <https://gov.wales/docs/caecd/research/2017/170411-digital-baseline-local-authorities-en.pdf>
- ⁶⁹ Digital RCT: our 2020 digital vision <https://www.rctcbc.gov.uk/EN/Council/CouncillorsCommitteesandMeetings/Meetings/Cabinet/2017/06/22/Reports/Agendatem5CouncilsDigitalStrategy201718to201920.pdf>
- ⁷⁰ Newport digital city. Digital strategy 2015-2020 <http://www.newport.gov.uk/documents/About-Newport/Digital-City/Digital-Strategy-2015-2020.pdf>
- ⁷¹ Swansea Council. Aspiring to a digital business 2020 <https://www.swansea.gov.uk/digitalstrategy>
- ⁷² City of Cardiff Council. Digital strategy <https://foi.cardiff.gov.uk/eng/Documents/FOI08579/FOI08579%20-%20City%20of%20Cardiff%20Council%20Digital%20Strategy%202016.pdf>
- ⁷³ Blaenau Gwent Council helps people get online to combat social isolation <https://www.digitalcommunities.gov.wales/case-studies/blaenau-gwent-council-helps-people-get-online-to-combat-social-isolation/>
- ⁷⁴ New company for technology enabled care http://newsroom.carmarthenshire.gov.wales/2018/01/new-company-for-technology-enabled-care/#.XEsrns_7TUK
- ⁷⁵ Tudor Hart, J. The inverse care law (1971) *Lancet* 297 (7696) 405-412 [http://dx.doi.org/10.1016/S0140-6736\(71\)92410-X](http://dx.doi.org/10.1016/S0140-6736(71)92410-X)
- ⁷⁶ Laing, H. Happy birthday NHS: what are you wishing for? <http://www.everyonesbusiness.coop/en/2018/07/05/happy-birthday-nhs/>
- ⁷⁷ National Health Service Bill. Official Report of House of Commons (Hansard) 1946. April 30: cols 45, 49.
- ⁷⁸ Case studies. Digital Communities Wales <https://www.digitalcommunities.gov.wales/case-studies/>
- ⁷⁹ Digital Inclusion Charter <https://www.digitalcommunities.gov.wales/>
- ⁸⁰ Training overview. Digital Communities Wales <https://www.digitalcommunities.gov.wales/training-overview/>
- ⁸¹ Learning resources. Digital Communities Wales <https://www.digitalcommunities.gov.wales/training-materials/>
- ⁸² Supporting digital inclusion in the health care sector <https://www.digitalcommunities.gov.wales/workshop-descriptions/course-title-supporting-digital-inclusion-in-the-health-care-sector/>
- ⁸³ Learn My Way <https://www.learnmyway.com/>
- ⁸⁴ Learn My Way; improving your health online <https://www.learnmyway.com/subjects/improving-your-health-online/>
- ⁸⁵ Citizens Online. Digital Gwynedd <https://www.citizensonline.org.uk/digitalgwynedd/>
- ⁸⁶ Port Talbot hosts Google Digital Garage workshops <https://www.bbc.co.uk/news/av/uk-wales-38096330/port-talbot-hosts-google-digital-garage-workshops>

- ⁸⁷ Google offer free digital skills training in Cardiff
<https://www.walesonline.co.uk/business/business-news/google-offer-free-digital-skills-12219092>
- ⁸⁸ Our partnership to launch Eagle Lab in Cardiff <https://www.legalandgeneralgroup.com/media-centre/press-releases/our-partnership-with-barclays-to-launch-eagle-lab-cardiff-helps-welsh-entrepreneurs-to-take-flight/>
- ⁸⁹ Lloyds Bank skills and support near you
<https://www.lloydsbank.com/help-guidance/get-skills-and-support-near-you/>
- ⁹⁰ End of school year report on Digital Heroes <https://www.digitalcommunities.gov.wales/blog/2018/07/31/the-youth-of-today-end-of-year-school-report-on-digital-heroes/>
- ⁹¹ Digital Heroes help people get online around Wales https://www.youtube.com/watch?v=jgMuZSrF_o8
- ⁹² South Wales Care home achieves digital first <https://www.youtube.com/watch?v=eK1SP7Vhve4>
- ⁹³ Cardiff care home residents have been motivated to get online by school children
<https://www.digitalcommunities.gov.wales/case-studies/cardiff-care-home-residents-have-been-motivated-to-get-online-by-school-children/>
- ⁹⁴ Skills for Care <https://www.skillsforcare.org.uk/Home.aspx>
- ⁹⁵ National Assembly for Wales Inquiry into Loneliness and Isolation
<http://senedd.assembly.wales/mglIssueHistoryHome.aspx?lId=16359>
- ⁹⁶ Loneliness as bad for health as long term illness. Guardian <https://www.theguardian.com/society/2017/oct/12/loneliness-as-bad-for-health-as-long-term-illness-says-gps-chief>
- ⁹⁷ Combating loneliness one conversation at a time. Jo Cox Commission on Loneliness
https://www.jocoxloneliness.org/pdf/a_call_to_action.pdf
- ⁹⁸ Using technology to tackle isolation amongst housebound people in Llangefni
<https://www.digitalcommunities.gov.wales/case-studies/using-technology-to-tackle-isolation-amongst-housebound-people-in-llangefni/>
- ⁹⁹ Friend of Mine / Ffrind i Mi www.ffrindimi.co.uk/
- ¹⁰⁰ Dementia action plan for Wales 2018-22. Welsh Government
<https://gov.wales/docs/dhss/publications/180214dementiaen.pdf>
- ¹⁰¹ Technology improves care and support for day centre users with dementia and complex needs
<https://www.digitalcommunities.gov.wales/case-studies/mardy-park/>
- ¹⁰² Book of You www.bookofyou.co.uk/
- ¹⁰³ Digital Communities Wales kit used to support people with dementia (Book of You)
<https://www.digitalcommunities.gov.wales/blog/2015/09/18/digital-communities-wales-kit-used-to-support-people-with-dementia/>
- ¹⁰⁴ VR technology triggers happy memories and new experiences for people with dementia (Swansea Social Services)
<https://www.digitalcommunities.gov.wales/case-studies/vr-technology-triggers-happy-memories-and-new-experiences-for-people-with-dementia/>
- ¹⁰⁵ Together for mental health: a strategy for mental health and well-being in Wales
<https://gov.wales/docs/dhss/publications/121031tmhfinalen.pdf>
- ¹⁰⁶ Together for mental health delivery plan 2016-19
<https://gov.wales/docs/dhss/publications/161010deliveryen.pdf>

- ¹⁰⁷ Psychological therapies in Wales: research briefing. National Assembly for Wales
<http://www.assembly.wales/Research%20Documents/16-050-Psychological-Therapies/16-050-Web-English.pdf>
- ¹⁰⁸ Transforming mental health services consultation. Hywel Dda Health Board/Carmarthenshire County Council (2018) <http://democracy.carmarthenshire.gov.wales/documents/s19694/Report.pdf>
- ¹⁰⁹ Improved access to digital technology helps to improve people's health and well-being
<https://www.digitalcommunities.gov.wales/case-studies/improved-access-to-digital-technology-helps-to-improve-peoples-health-and-well-being/>
- ¹¹⁰ Digital inclusion support for people in Bridgend living with mental ill health
<https://www.digitalcommunities.gov.wales/blog/2016/04/19/digital-inclusion-support-for-people-in-bridgend-living-with-mental-ill-health/>
- ¹¹¹ Mental Health Matters Wales provides access to health information online
<https://www.digitalcommunities.gov.wales/case-studies/mental-health-matters-wales/>
- ¹¹² Mental Health Matters Wales Case Study https://www.youtube.com/watch?v=TeMkm7NA_Ek
- ¹¹³ Mind Monmouthshire helps service users to get online <https://www.digitalcommunities.gov.wales/case-studies/mind-monmouthshire-help-service-users-to-get-online/>
- ¹¹⁴ How we helped mental health charity embrace digital inclusion <https://www.digitalcommunities.gov.wales/blog/2016/11/15/how-we-helped-mental-health-charity-embrace-digital-inclusion/>
- ¹¹⁵ Vale of Clwyd Mind trained its volunteers to become digital champions
<https://www.digitalcommunities.gov.wales/case-studies/vale-of-clwyd-mind/>
- ¹¹⁶ Mental health charity Gofal is helping users find health information online
<https://www.digitalcommunities.gov.wales/case-studies/gofal/>
- ¹¹⁷ A profile of long term and chronic conditions in Wales. Welsh Assembly
http://www.wales.nhs.uk/documents/profile-long_term-chronic-e.pdf
- ¹¹⁸ Hamish Laing. Patients with long term conditions stand to gain the most from digital health developments in Wales https://www.youtube.com/watch?v=YyWjn7_MIT4
- ¹¹⁹ Training boosts capacity of RNIB Cymru
<https://www.digitalcommunities.gov.wales/blog/2016/09/09/training-boosts-capacity-of-rnib-cymru-project/>
- ¹²⁰ Support helps more deaf people communicate online in North Wales
<https://www.digitalcommunities.gov.wales/blog/2016/08/25/support-helps-more-deaf-people-to-communicate-online-in-north-wales/>
- ¹²¹ PocketMedic <http://pocketmedic.org/>
- ¹²² PocketMedic. Diabetes Research Unit Cymru <http://www.diabeteswales.org.uk/en/pocket-medic.htm>
- ¹²³ Patients Know Best <http://www.patientsknowbest.com/>
- ¹²⁴ Bridgend hospital trials medical records app for patients
<https://www.bbc.co.uk/news/uk-wales-45221255>
- ¹²⁵ Patients in Wales to take control of medical records. Patients Know Best
<https://blog.patientsknowbest.com/2017/06/20/patients-in-wales-to-take-control-of-medical-records/>
- ¹²⁶ Patients Know Best. BBC Wales <https://vimeo.com/285905475>

- ¹²⁷ Digital inclusion can support people in Wales to manage their health online <https://www.youtube.com/watch?v=PR-PvITgetk>
- ¹²⁸ Bevan Commission <http://www.bevancommission.org/en/index>
- ¹²⁸ Profile of rural health in Wales <http://www.wales.nhs.uk/sitesplus/documents/888/RuralProfile.pdf>
- ¹³⁰ Recharging rural: creating sustainable communities to 2030 and beyond <http://www.princescountysidefund.org.uk/research/recharging-rural-2>
- ¹³¹ Mid Wales Healthcare Study http://wihsc.southwales.ac.uk/media/files/documents/2014-10-23/MWHS_Report_-_WIHSC_for_Welsh_Government.pdf
- ¹³² Rural health and care in Wales. NHS Confederation <http://www.nhsconfed.org/resources/2018/04/rural-health-and-care-in-wales>
- ¹³³ Rural Health and Care Wales <https://ruralhealthandcare.wales/>
- ¹³⁴ Future Hospital development site. Betsi Cadwaladr University Health Board <https://www.rcplondon.ac.uk/projects/outputs/future-hospital-development-site-betsi-cadwaladr-university-health-board>
- ¹³⁵ Rural response: telehealth in North Wales <http://www.csp.org.uk/frontline/article/rural-response-telehealth-north-wales>
- ¹³⁶ Virtual Clinics in Betsi Cadwaladr <https://www.facebook.com/bcuhealthboard/videos/2004782922895210/>
- ¹³⁷ Williams, O et al The use of telemedicine to enhance secondary care: lessons from the frontline <http://futurehospital.rcpjournals.org/content/4/2/109.full.pdf>
- ¹³⁸ Virtual ward <http://www.powysthb.wales.nhs.uk/virtual-ward>
- ¹³⁹ Bevan Commission health technology exemplars <http://www.bevancommission.org/en/health-technology-exemplars-2018>
- ¹⁴⁰ Technology enhanced care services <http://ruralhealth.aber.ac.uk/research/technology-enhanced-care-services/>
- ¹⁴¹ Rahman, R. & Keenan, J. Patient and professional acceptability of telehealth to monitor COPD and diabetes www.researchgate.net/profile/Rachel_Rahman/publication/311859478_Patient_and_professional_acceptability_of_telehealth_to_monitor_COPD_and_diabetes/links/59036ccca6fdccd580cff9ba
- ¹⁴² Role of digital health wearables in the well-being and quality of life of older people and carers. Northern Ireland Assembly Knowledge Exchange Seminar http://www.niassembly.gov.uk/globalassets/documents/raise/knowledge_exchange/briefing_papers/series7/minocha140318.pdf
- ¹⁴³ Activity trackers help people learn new digital skills while improving fitness <https://www.digitalcommunities.gov.wales/case-studies/activity-trackers-help-people-learn-new-digital-skills-while-improving-fitness/>
- ¹⁴⁴ Aneurin Leisure Trust <https://aneurinleisure.org.uk/>
- ¹⁴⁵ Aneurin Leisure Trust improves essential digital skills <https://www.digitalcommunities.gov.wales/case-studies/aneurin-leisure-trust/>
- ¹⁴⁶ HAPI Hub Fitness Project. <https://www.digitalcommunities.gov.wales/case-studies/hapi-hub-fitbit-project/>
- ¹⁴⁷ Fitness project in Neath boosts digital and fitness confidence <https://www.digitalcommunities.gov.wales/blog/2016/12/01/fitbit-project-in-neath-boosts-digital-and-fitness-confidence/>

- ¹⁴⁸ Neath-Port Talbot stroke group uses Fitbits to get healthy <https://www.digitalcommunities.gov.wales/case-studies/neath-port-talbot-stroke-group-use-fitbits-to-get-healthy/>
- ¹⁴⁹ Melin Homes Fitbit project improves digital skills <https://www.digitalcommunities.gov.wales/case-studies/melin-homes-fitbit-project/>
- ¹⁵⁰ Martha Lane Fox sets out key digital proposals for the NHS <https://www.england.nhs.uk/2015/12/martha-lane-fox/>
- ¹⁵¹ Welsh health board given £3.5m for wi-fi improvements <http://www.nationalhealthexecutive.com/QIPP-ef-ficiency-savings/welsh-health-board-given-35m-for-wi-fi-improvements>
- ¹⁵² Time with Hamish Laing <https://www.drdoctor.co.uk/blog/time-hamish-laing/>
- ¹⁵³ "Encouraging" survey suggests increase in Welsh language speakers <https://www.bbc.co.uk/news/uk-wales-45611374?SThisFB>
- ¹⁵⁴ Cymraeg 2020: million Welsh speakers <https://gov.wales/docs/dcells/publications/170711-welsh-language-strategy-eng.pdf>
- ¹⁵⁵ Digital Inclusion Strategic Framework: Welsh Language impact assessment <https://gov.wales/docs/dsjlg/publications/comm/160316-digital-inclusion-welsh-ia-en.pdf>
- ¹⁵⁶ Connected communities: ICT use and connectivity of minority communities in Wales <https://ahrc.ukri.org/documents/project-reports-and-reviews/connected-communities/ict-use-and-connectivity-of-minority-communities-in-wales/>
- ¹⁵⁷ Mentrau Iaith Welsh language initiatives <http://cymraeg.gov.wales/events/Societies/Mentrau-Iaith-Cymru/?lang=en>
- ¹⁵⁸ NHS Direct Wales <https://www.nhsdirect.wales.nhs.uk/default.aspx?locale=cy>
- ¹⁵⁹ Dewis <https://www.dewis.cymru/home>
- ¹⁶⁰ Health information resources. Public Health Wales <http://www.wales.nhs.uk/sitesplus/888/tudalen/95947>
- ¹⁶¹ https://cy.wikipedia.org/wiki/Wicipedia_Cymraeg
- ¹⁶² Wici-lechyd (Wiki-Health): improving online access to Welsh language health information <https://blog.library.wales/?p=15756>
- ¹⁶³ Latest CIPFA figures reveal 'catastrophic' scale of library closures <https://www.thebookseller.com/news/cipfa-library-figures-687596>
- ¹⁶⁴ Connected and ambitious libraries; quality framework of Welsh public library standards 2017-20 <https://gov.wales/docs/drah/publications/170331-connected-and-ambitious-libraries-en.pdf>
- ¹⁶⁵ Libraries Connected <https://www.librariesconnected.org.uk/>
- ¹⁶⁶ Universal health offer. <https://www.librariesconnected.org.uk/universal-offers/health>
- ¹⁶⁷ Reading Well <https://reading-well.org.uk/>
- ¹⁶⁸ Universal digital offer <https://www.librariesconnected.org.uk/universal-offers/digital>
- ¹⁶⁹ Getting people online libraries session <https://www.digitalcommunities.gov.wales/workshop-descriptions/course-title-getting-people-online-%C2%BD-day-libraries-session/>

- ¹⁷⁰ Pembrokeshire Libraries <https://www.digitalcommunities.gov.wales/case-studies/pembrokeshire-libraries/>
- ¹⁷¹ Digital Fridays <https://www.digitalcommunities.gov.wales/case-studies/flintshire-library-service/>
- ¹⁷² NHS Wales Planning Framework 2018-21
<https://gov.wales/docs/dhss/publications/171013nhswales-planning-frameworken.PDF>
- ¹⁷³ Prudent healthcare <http://www.prudenthealthcare.org.uk/>
- ¹⁷⁴ Promoting the principles of prudent healthcare <http://www.bevancommission.org/en/prudent-healthcare>
- ¹⁷⁵ Making a difference: investing in sustainable health and well-being for the people of Wales.
Public Health Wales
www.wales.nhs.uk/sitesplus/documents/888/PHW%20Making%20a%20difference%20ES%28Web_2%29.pdf
- ¹⁷⁶ Investing in sustainable health and well-being for the people of Wales: supporting evidence.
Public Health Wales
www.wales.nhs.uk/sitesplus/documents/888/Making%20A%20Difference_Evidence%28finalE_2018%29web.pdf
- ¹⁷⁷ Stay Well in Wales survey <http://www.wales.nhs.uk/sitesplus/888/page/95004>
- ¹⁷⁸ Social prescriptions should be available from GP surgeries
<https://www.nesta.org.uk/news/social-prescriptions-should-be-available-from-gp-surgeries-say-four-in-five-gps/>
- ¹⁷⁹ Social prescribing evidence map. Public Health Observatory [http://www2.nphs.wales.nhs.uk:8080/PubHObservatoryProjDocs.nsf/0/d8aba77d02cf471c80258148002ad093/\\$FILE/Social%20prescribing%20summary%20report%20v1%20GROUPWARE.pdf](http://www2.nphs.wales.nhs.uk:8080/PubHObservatoryProjDocs.nsf/0/d8aba77d02cf471c80258148002ad093/$FILE/Social%20prescribing%20summary%20report%20v1%20GROUPWARE.pdf)
- ¹⁸⁰ Social prescribing. Primary Care One <http://www.primarycareone.wales.nhs.uk/social-prescribing>
- ¹⁸¹ Social prescribing Cymru <https://sites.google.com/view/socialprescribingwales/home>
- ¹⁸² Funding available for social care pilots
<https://www.wcva.org.uk/what-we-do/policy-latest/2017/12/funding-available-for-social-prescribing-pilots>
- ¹⁸³ Social prescribing in Torfaen https://gallery.mailchimp.com/a694bc0ff1d9dd94b05ccd0d/files/2dad2075-38ec-4d6b-ac49-daf02eca071e/Social_Prescribing_in_Torfaen_2017_18_FINAL.pdf
- ¹⁸⁴ Well-being 4 U: Social prescribing in Cardiff and Vale of Glamorgan Impact Report https://gallery.mailchimp.com/a694bc0ff1d9dd94b05ccd0d/files/c15a01e2-d555-4173-9f07-0f6408880f6d/Social_Prescribing_Impact_Report_2018.pdf
- ¹⁸⁵ Community hubs <http://www.poblseiriol.co.uk/community-hubs/4592255571>
- ¹⁸⁶ New health site Illustrates Medrwn Môn commitment to the Digital Inclusion Charter
<https://www.digitalcommunities.gov.wales/blog/2016/05/23/new-health-site-illustrates-medrwn-mons-commitment-to-the-digital-inclusion-charter/>
- ¹⁸⁷ Social prescribing digital skills. Good Things Foundation
<https://drive.google.com/file/d/1rzG019EccLR9UbTbXJcx9IPNgUnsRW4w/view>
- ¹⁸⁸ New digital apprenticeships schemes in health informatics <https://www.uwtsd.ac.uk/news/press-releases/press-2018/new-digital-apprenticeship-schemes-in-health-informatics-launched.html>
- ¹⁸⁹ Head of clinical education to study how technology can improve care
<http://cwmtaf.wales/head-clinical-education-study-technology-can-improve-care/>

- ¹⁹⁰ Building a digital ready workforce. Health Education England
<https://hee.nhs.uk/our-work/building-digital-ready-workforce>
- ¹⁹¹ Martha Lane Fox sets out key digital proposals for the NHS
<https://www.england.nhs.uk/2015/12/martha-lane-fox/>
- ¹⁹² NHS Digital Academy
<https://www.england.nhs.uk/digitaltechnology/info-revolution/nhs-digital-academy/>
- ¹⁹³ Making IT work: harnessing the power of health information technology to improve care in England
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/550866/Wachter_Review_Accessible.pdf
- ¹⁹⁴ PG Diploma in Digital Health Leadership <http://www.imperial.ac.uk/study/pg/medicine/digital-health-leadership/>
- ¹⁹⁵ Digital inclusion guide for health and social care
<https://digital.nhs.uk/about-nhs-digital/our-work/digital-inclusion>
- ¹⁹⁶ The digital age: new approaches to supporting people in later life to get online
<https://www.ageing-better.org.uk/publications/digital-age>
- ¹⁹⁷ Digital inclusion analysis package. Welsh Government
<https://gov.wales/statistics-and-research/digital-inclusion-analysis-package/?lang=en>
- ¹⁹⁸ Digital inclusion: economic and social benefits for individuals and wider society. Welsh Government
<https://gov.wales/docs/caecd/research/111215-digital-inclusion-economic-social-benefits-en.pdf>
- ¹⁹⁹ The economic case for digital inclusion. Price Waterhouse Cooper <http://ict-industry-reports.com.au/wp-content/uploads/sites/4/2013/10/2009-Economic-Case-for-Digital-Inclusion-PWC-UK-Oct-2009.pdf>
- ²⁰⁰ Valuing digital inclusion. BT
<https://www.btplc.com/Purposefulbusiness/Connectivity/Beingonlineisgoodforsociety/Valuing-Digital-Inclusion.pdf>
- ²⁰¹ The economic impact of digital inclusion in the UK. Cebr for Good Things Foundation
<https://www.goodthingsfoundation.org/research-publications/economic-impact-digital-inclusion-uk>
- ²⁰² Government Digital Service Digital Efficiency Report
<https://www.gov.uk/government/publications/digital-efficiencyreport/digital-efficiency-report>
- ²⁰³ Health and digital: reducing inequalities, improving society. Tinder Foundation
https://nhs.tinderfoundation.org/wp-content/uploads/2016/07/Improving_Digital_Health_Skills_Report_2016.pdf
- ²⁰⁴ Digital participation and social justice in Scotland. Carnegie UK Trust
<https://www.carnegieuktrust.org.uk/publications/role-digital-exclusion-social-exclusion/>
- ²⁰⁵ Inquiry into Loneliness and Isolation. National Assembly for Wales
<http://www.assembly.wales/laid%20documents/cr-ld11310/cr-ld11310-e.pdf>
- ²⁰⁶ Tackling loneliness and digital inclusion in a digital society. Good Things Foundation
<https://medium.com/goodthingsfoundation/tackling-loneliness-and-digital-inclusion-in-a-digital-society-3ebc6fce49a6>
- ²⁰⁷ Chief Medical Officer for Wales Annual Report 2016-17 (2018) Gambling with health
<https://gov.wales/docs/phhs/publications/cmo-report2017en.pdf>

- ²⁰⁸ Personalised health and care 2020: using data and technology to transform outcomes for patients and citizens <https://www.gov.uk/government/publications/personalised-health-and-care-2020>
- ²⁰⁹ Five Year Forward View <https://www.england.nhs.uk/five-year-forward-view/>
- ²¹⁰ Good Things Foundation <https://www.goodthingsfoundation.org/>
- ²¹¹ Widening Digital Participation Phase 1 <https://nhs.goodthingsfoundation.org/>
- ²¹² Digital Health Lab <https://digital-health-lab.org/>
- ²¹³ Guide to digital inclusion for health and social care <https://digital.nhs.uk/about-nhs-digital/our-work/digital-inclusion>
- ²¹⁴ Empower the person roadmap. NHS England <https://www.nhs.uk/transformation/>
- ²¹⁵ Scotland's digital health and care strategy: enabling, connecting and empowering <https://www.gov.scot/Publications/2018/04/3526>
- ²¹⁶ Scotland's Digital Participation Charter <https://digitalparticipation.scot/>
- ²¹⁷ SCVO Digital <https://scvo.org/digital/>
- ²¹⁸ Digital inclusion: a Scotland perspective <https://digitalinclusion.blog.gov.uk/2015/01/07/digital-inclusion-a-scotland-perspective/>
- ²¹⁹ Tackling digital exclusion in Scotland. SCVO <https://storage.googleapis.com/digital-participation-charter/tackling-digital-exclusion-in-scotland-a4.pdf>
- ²²⁰ Rapid review of evidence for basic digital skills. SCVO https://storage.googleapis.com/digitalparticipation/reports/Tackling_Digital_Exclusion_Literature_Review.pdf
- ²²¹ Digital Champions Network <https://www.digitalchampionsnetwork.com/content/learn-share-change-lives>
- ²²² Digital Participation Charter Fund <https://scvo.org.uk/digital/participation/charter-fund>
- ²²³ Scots to benefit from £220,000 funding for charities offering digital inclusion help <https://scvo.org/post/2018/08/01/scots-to-benefit-from-220000-funding-for-charities-offering-digital-inclusion-help>
- ²²⁴ Digital Age Project <http://linkinggenerationsni.com/our-work/digital-age-project/>
- ²²⁵ eHealth strategy for Ireland <http://www.ehealthireland.ie/Knowledge-Information-Plan/eHealth-Strategy-for-Ireland.pdf>
- ²²⁶ Getting Citizens Online <https://www.dccae.gov.ie/en-ie/communications/topics/Digital-Strategy/getting-citizens-online/Pages/Citizens-and-Training.aspx>
- ²²⁷ When small is beautiful: lessons from highly innovative small countries. Nesta <https://media.nesta.org.uk/documents/when20small20is20beautiful20final.pdf>
- ²²⁸ Digital planet 2017: how competitiveness and trust vary in digital economies across the world. Tufts University <https://sites.tufts.edu/digitalplanet/dei17/>
- ²²⁹ Global lessons from Estonia's tech-savvy government <https://en.unesco.org/courier/2017-april-june/global-lessons-estonia-s-tech-savvy-government?language=en>

- ²³⁰ The digital divide in Estonia and how to bridge it
http://pdc.ceu.hu/archive/00001056/01/PRAXIS_policy_analysis_no_1.pdf
- ²³¹ e-Estonia e-identity <https://e-estonia.com/solutions/e-identity/>
- ²³² e-Estonia health care <https://e-estonia.com/solutions/healthcare/e-health-record/>
- ²³³ Digital government blueprint. Smart Nation Singapore
https://www.smartnation.sg/docs/default-source/default-document-library/dgb_booklet_june2018.pdf
- ²³⁴ Factsheet: overview of digital inclusion. IMDA Singapore
https://www.imda.gov.sg/-/media/imda/files/inner/about-us/newsroom/media-releases/2016/0421_senior-smart-phone-workshop/factsheet-for-the-overview-of-digital-inclusion-programmes.pdf?la=en
- ²³⁵ Silver Infocomm Initiative <https://www.imda.gov.sg/community/consumer-education/digital-inclusion/silver-infocomm-initiative>
- ²³⁶ Global digital health index: New Zealand http://index.digitalhealthindex.org/country_profile/NZL
- ²³⁷ New Zealand on new Global Digital Health Index
<http://www.scoop.co.nz/stories/GE1806/S00049/new-zealand-on-new-global-digital-health-index.htm>
- ²³⁸ NZ vision for health technology
<https://www.digital.health.nz/content/digital-health/en/home/technology-vision/overview.html>
- ²³⁹ New Zealand digital health strategy <https://www.digital.health.nz/content/digital-health/en/home.html>
- ²⁴⁰ Health literacy NZ <http://www.healthliteracy.co.nz/page/about-health-literacy/>
- ²⁴¹ Health Navigator NZ <https://www.healthnavigator.org.nz/>
- ²⁴² Digital divide map NZ <https://digitaldivide.nz/>
- ²⁴³ New Zealanders fully participating in the digital world <https://2020.org.nz/>
- ²⁴⁴ New Zealand digital manifesto
<https://2020.org.nz/wp-content/uploads/2017/08/Digital-Inclusion-Manifesto.pdf>
- ²⁴⁵ New Zealand digital inclusion map <https://digitalinclusion.nz/>
- ²⁴⁶ Ministerial Advisory Group for the Digital Economy and Digital Inclusion. New Zealand Government
<https://www.mbie.govt.nz/info-services/digital-economy/dedimag>
- ²⁴⁷ Digital Inclusion Alliance Aotearoa <https://digitalinclusionalliance.nz/>
- ²⁴⁸ Catalan digital literacy program trains 900 unemployed citizens in 3 months
<https://all-digital.org/catalan-digital-literacy-program-trains-900-unemployed-citizens-3-months/>
- ²⁴⁹ Vincles project: reducing social isolation using digital inclusion
<https://uk.tunstall.com/resources/case-studies/connected-care/vincles/>
- ²⁵⁰ Safe, seamless and secure: Australia's national digital health strategy
https://conversation.digitalhealth.gov.au/sites/default/files/adha-strategy-doc-2ndaug_0_1.pdf
- ²⁵¹ Digital inclusion: understanding Australia's digital divide. Telstra
<https://exchange.telstra.com.au/digital-inclusion-understanding-australias-digital-divide/>
- ²⁵² Leep: <https://leep.ngo/>

- ²⁵³ Good Things Foundation Australia <https://www.goodthingsfoundation.org.au/home>
- ²⁵⁴ Be connected programme launched for older Australians
<https://www.goodthingsfoundation.org/news-and-blogs/news/be-connected-programme-launched-older-australians>
- ²⁵⁵ Africa calling: mobile phone revolution <https://www.theguardian.com/world/2016/aug/08/africa-calling-mobile-phone-broadband-revolution-transform-democracies>
- ²⁵⁶ Digital Life:Kenya. Good Things Foundation <https://www.goodthingsfoundation.org/node/1780>
- ²⁵⁷ Resolution on digital health. WHO http://apps.who.int/gb/ebwha/pdf_files/WHA71/A71_ACONF1-en.pdf
- ²⁵⁸ Wales in summary <https://gov.wales/statistics-and-research/wales-summary/?lang=en>
- ²⁵⁹ Exploring Welsh towns. Carnegie UK Trust
<https://www.carnegieuktrust.org.uk/blog/exploring-welsh-towns/>
- ²⁶⁰ Health and its determinants in Wales. Public Health Wales
[http://www2.nphs.wales.nhs.uk:8080/PubHObservatoryProjDocs.nsf/85c50756737f79ac80256f2700534ea3/93cea84901926a258025820b0059c112/\\$FILE/Health&determinantsinWales_Summary_Eng.pdf](http://www2.nphs.wales.nhs.uk:8080/PubHObservatoryProjDocs.nsf/85c50756737f79ac80256f2700534ea3/93cea84901926a258025820b0059c112/$FILE/Health&determinantsinWales_Summary_Eng.pdf)



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