Digital Healthcare Transformation
in Wales

GIG CYMRU NHS WALES | Iechyd a Gofal Digidol Cymru
Digital Health and Care Wales

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Foreword by Simon Jones
Chair, Digital Health and Care Wales

Making the claim that we are at a crossroads or in the foothills of a revolution in healthcare is a bold and often overworked statement. But it is difficult to deny this is the case in the application of digital solutions to health and care service design and delivery and the way in which people will access and receive and, in many ways, relate to their health and care in the future.

Think about any digital application that is in use at the moment in any walk of life and you will find a way, or many, many ways, it is being applied in health and care.

As the chart shows, the volume of data we are now collecting and the rate at which this volume is growing. Data collected from many sources can be corralled together and, using Artificial Intelligence through sophisticated algorithms, conclusions drawn about what you are interested in or what you would like to buy.

Apply that same approach to designing health and care services based on huge amounts of data collected across many platforms and the result is far more informed decisions on what services we need, where we need them, when we need them and what capacity is needed to meet demand.

Apply that same approach to targeting drug therapies based on data collected from many people with similar diagnoses and the potential for better, safer and more effective outcomes is huge.

Apply increasingly sophisticated 3D printing techniques to a healthcare environment and you have developments such as 3D printing of customised medical equipment or creating a 3D model of a cancerous organ to better plan surgery. Both of which can be patient specific extending even further our understanding of personalised care.

The benefits for the collection, storage and transfer of information using digital platforms between clinicians involved in an individual's care pathway are only really constrained by imagination rather than current and future technologies.

Much of this use of digital technologies will never be seen by the patient but the opportunities to support one's own health and wellbeing through digital applications, again, will only grow further and faster.

The benefits go beyond health and wellbeing, beyond effective and efficient health and care, they extend to our economy and our environment. Where new digital applications are developed, where the employment and wealth that goes with this is not determined or constrained by geography or topography but rather by the things which we can do something about in Wales; education, training, connectivity, partnership and more.

Our vision in Digital Health and Care Wales is clear, we want to make Wales a world leader in digital health and care. To achieve this, we need to have the policies, strategies, partnerships and, most importantly, sustainable resources in place which will underpin our ability to achieve the vision.

In this supplement contributors have set out in more detail what the vision looks like, some of the critically important things we will need to consider on the road to achieving this vision and some examples of the many digital solutions already in use or in development in healthcare in Wales.

Growth in database volume (TB) over 12 months
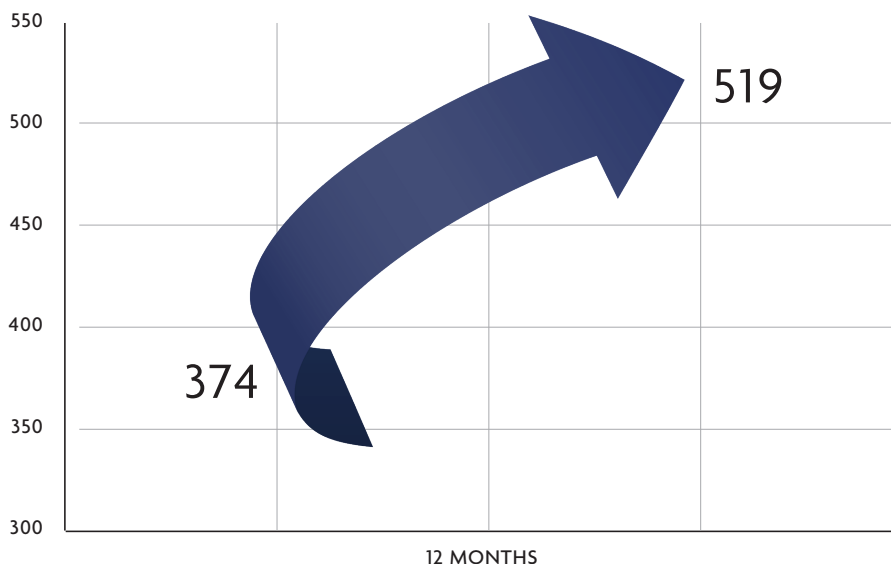
Lessons from the digital response
to the Covid-19 pandemic

Ifan Evans, Executive Director of Strategy, Digital Health and Care Wales looks at how the digital response to the pandemic can shape health care now and in the future.

During the pandemic, we learned a lot about how to use digital to help meet pressing health and care challenges. New approaches were an essential part of the response to the pandemic. Among other things, we delivered an all-Wales contact tracing system, which we developed and delivered in six weeks, and an all-Wales vaccine management system.

The Welsh Pandemic Record, which we used to share testing and vaccination data, including with England, was set up and enabled data from mixed sources and of varying quality to be handled appropriately, for example to be used on an urgent basis for contact tracing or 'cleaned and filtered' before being written permanently to the Welsh Digital Health and Care Record. And we implemented Microsoft Teams for over 100,000 people across NHS Wales, with remote access for GPs to their desktop systems, video consultation into all health settings, and network improvements to cope with much greater demand.

All these services were delivered through DHCW working closely with NHS Wales, Welsh Government, local authorities and other key partners. We could not have responded to the pandemic in the way that we did without sharing data. Sharing data enabled us to plan and deliver the response, for example we were able to have an all-Wales 'joint data controller' arrangement for contact tracing, providing a common data platform across all local authorities and NHS Wales. We created a Shielded Patient List which was used to prioritise access to health and care services, vaccine, and other important services. Our real time Covid Dashboards, combining data from multiple sources, helped us to better understand the spread of the virus,

rates of infection and variant types, and was used to inform policy choices by Welsh Ministers.

What have we learned that we can use to drive future digital transformation and make our health and care services sustainable? A great deal! Bringing together senior digital leaders to make collective decisions, in real time, kept pace with delivery. When we considered risks and opportunities, we looked weeks not years ahead. We also found out immediately if things were not working as expected so we could change our approach quickly.

New digital services were funded centrally and delivered nationally, enabling work to start immediately at no cost to local organisations, which was key to very rapid all-Wales adoption. We agreed joint data control arrangements and a shared data record but didn't cut corners on data protection or privacy. We did innovative things with data, which benefitted the clinically vulnerable especially. We targeted vaccine and treatments to those

who needed it most. The NHS made operational decisions using real time data, which also helped Ministers make policy decisions.

Digital services were developed and hosted in the cloud and were the same for everyone, everywhere, meaning we could use webinars to train hundreds a day and redeploy teams around Wales to support surges in demand. Live user feedback meant we could make improvements quickly.

Health and care services are under extreme pressure. Digital transformation is a major part of the answer – it will help to improve health and care services, leading to better outcomes. We need to reduce complexity and give our staff the tools and the information they need. Investing in digital and data is key to achieving this. We also need to target our services to those who most need them, when they need them, in ways which deliver the most benefit and the best outcomes. In today's health and care system, we will only do this using data and digital technologies.

Doing healthcare differently
in 2098

Mike Emery, Chief Digital and Innovation Officer (Health and Care) for NHS Wales and Welsh Government and Siwan Menez , Head of Value in Health at Welsh Government, say the future of healthcare is digital.

'Nia, please sit and do your exercises and then have a cup of tea' said Alexa…

…And in that one interaction Nia avoided the a potential fall and admission to hospital due to dehydration – Alexa had identified her movements, monitored her vital signs which suggested a range of risks.

Ten minutes later, Bethan popped round. Bethan was a member of her care circle that had been notified it might be worth checking she was okay. No clinicians or care workers were involved but this one preventive community intervention avoided a potential ambulance call and stay in hospital.

Pressures on the system continue to increase, one in four will be over 65 and nearly 14% over 75 by 2038. We urgently need to think differently about how we deliver health and care.

Wacky ideas of the future of health and care are no longer the stuff of science fiction. Twenty years ago who could imagine we could map the human genome and design tailored medicines to cure cancer; use holograms to train staff and AI to review and identify possible conditions? Or that drones would be used to transport blood products to hospitals in Rwanda and Ghana or to transport a kidney in the USA? Or that a minimally invasive robotic system would assist surgeons in life saving surgery? Online consultations are old news, but are all these initiatives delivering value?

The increasing use of technology and digital solutions will only be effective if their use is designed well, involves users, and focuses on what we need to solve. We need to assess the value and impact of new innovations quickly using qualitative and quantitative data. Joining up data and using data collected from medical devices and clinical systems is an imperative

and the way AI can be used to lever the potential of big data will be essential in the future. It is also critical to ensuring we are not creating new inequities.

Excitingly, Wales is part of a large, international population survey which will give us information for the first time about the experiences, lifestyles and health literacy of patients over 45.

A fundamental shift is underway in how we use the large amount of health data collected. It's a well-kept secret that Wales is a world leader in moving towards Value in Health. This means using digital technology and data to transform the health service with the focus always on getting best outcomes whilst using resources well. This means collecting information from patients about the outcomes they want and being very sophisticated with data.

An example of this is Swansea Bay UHB's Value Heart Failure redesign, "Not Accepting Failure". It collects information about what matters to patients and has

improved rehabilitation and end-of-life-care at home. GPs now use an affordable blood test to check if symptoms were likely due to heart failure, leading to a reduction of inappropriate referrals to the heart failure clinic from 34% to 0% and a reduced length of stay for emergency admissions to a dedicated Cardiology Unit from 14.35 days to 11.37 days and, more importantly, outcomes improved.

We need an open-mind and willingness to embrace science, innovation, technology and data, and challenge who can do what. We must be mindful of unintended consequences so we need to ensure that we get the regulatory and ethical frameworks right.

Whilst we explore new technologies we must also be doing what needs to be done to continue to deliver Aneurin Bevan's vision of a safe and accessible health service designed to reduce health inequalities and support all for another 75 years.

PROMs and PREMs and the impact on NHS Wales

Dr Sally Lewis

Dr Sally Lewis, Director of the Welsh Value in Health Centre, explains how patient-reported outcomes and experiences are driving investment in vital services.

We achieved a major milestone in the world of patient-reported outcome measures and patient-reported experience measures (PROMs and PREMs) last month. For the first time, data analysis on PROMs and PREMs can be directly linked to an increase in funding for a service – this is a major step forward for NHS Wales.

If we all agree that it is a good idea to ask patients to self-report their outcomes and their experiences, the question then moves on to how do we use that data to make a difference to our patients?

Nearly two years ago, Welsh Government announced a £5 million package of support to our health boards to help them set up long-Covid services. It is called the Adferiad (recovery) programme, and is a new suite of patient pathways combined with new or expanded primary and community rehabilitation services to support people with long-Covid.

As with most things during the pandemic, long-Covid was something new, something we had not experienced before as a population. These people needed support of course, but what impact would that support have on them? How would it benefit them? Were we offering the right services? These questions are where the Welsh Value in Health Centre (WVIHC) and our colleagues at Cedar Healthcare Technology Research Centre came in. It was decided, by Welsh Government, to review the programme every six months. WViHC funded the original data collection of PROMs and PREMs, with Cedar undertaking additional data collection, data analysis and reporting to provide a fully independent evaluation of the programme.

People using the various long-Covid services in Wales were asked questions around their general health, whether they were admitted to hospital as a result of Covid-19 and if they visited their GP due to Covid-19. Specifically, they were also asked about their experience of the Adferiad services they used in their health board area, while providing a snapshot of their symptoms now and their health in general.

Report number four was released in March 2023 and found that Adferiad services across Wales continue to support people suffering from long-Covid, with patients reporting a better quality of life at service discharge than at referral. This came from the PROMs and PREMs, meaning we were able to provide an evidence-based assessment of the services.

If you are a policy maker asking the question, here we are funding services for £5 million, is that working for our patients? Then you need PROMs and PREMs, you need those analysed and presented to enable policy makers to see what is needed in the system, what is working, what is providing our patients with the best possible outcome.

That is what happened here. When Eluned Morgan MS, Minister for Health and Social Services, announced an increase in funding for Adferiad from £5 million to £8.3 million, the findings of the fourth report by Cedar were part of the decision to give health boards extra support, in other words more money.

Understanding our outcomes is important. Rather than measuring outcomes as a dataset with which to reward or penalise providers of healthcare, they are arguably far more valuable as a set of information through which we begin to understand the needs of our patients and understand how we may direct our resources more effectively to meet those needs.

"It's not just sticking a label on a box…"

Dan Hallett, a prescriber at an independent pharmacy in Cardiff and part-time clinical lead with Digital Health and Care Wales for the Choose Pharmacy digital platform, explains how digital technology is transforming patient access to pharmacy services.

In the dim and distant past, prescriptions were handwritten and dispensed with pre-printed labels and tinctures and potions were mixed and unguents compounded. Then computers started to be utilised and things started evolving. Printed prescriptions saved the ambiguity of the deciphering of GP handwriting.
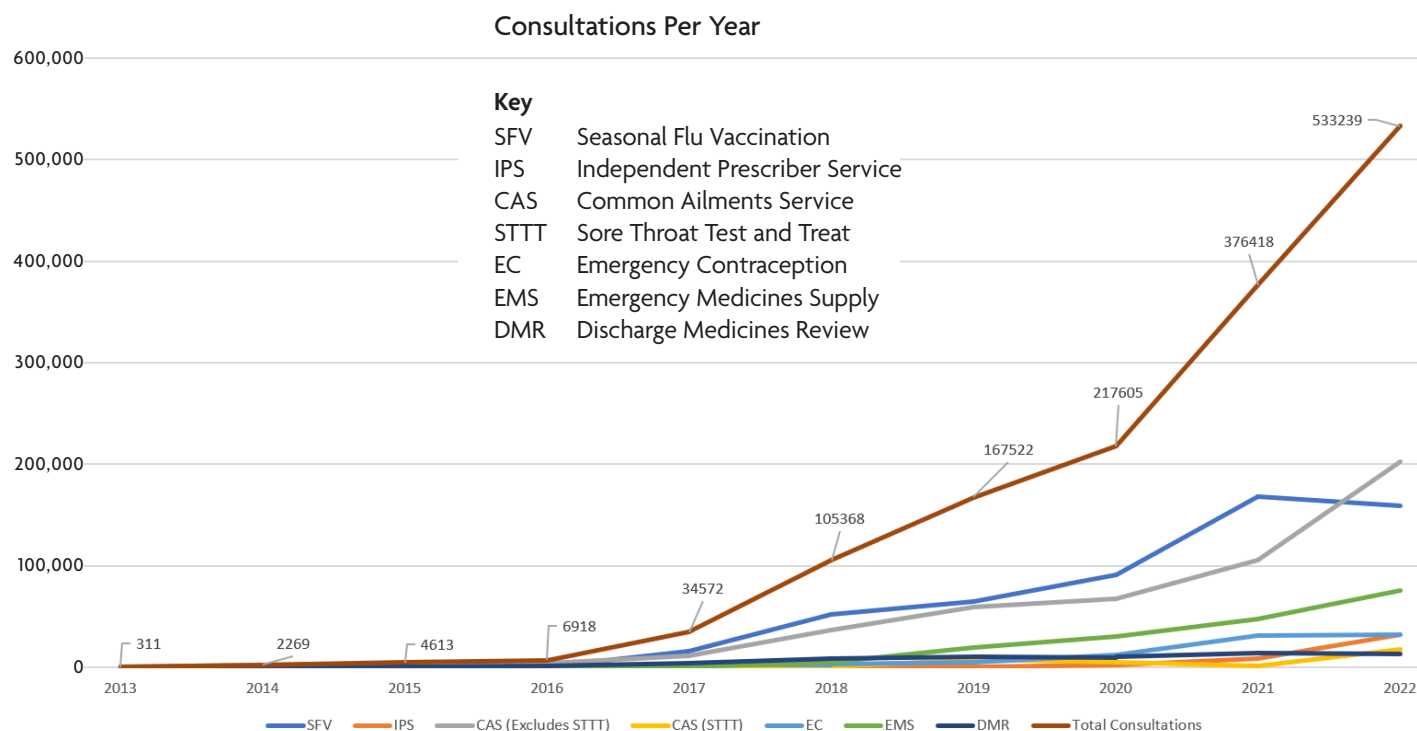
Bespoke labels for boxes of tablets with directions and advisory information could be produced, and the pallet knife and compounding slab removed from the dispensary. This evolved further to

2D barcodes on prescriptions that increased safety and accuracy; next will be electronic transfer of prescriptions. Pharmacists are (mostly) happy to change and adapt to the ever changing world of the profession, and continues to do so. As the role of the pharmacist becomes more clinical and service focused, the technology must evolve and adapt too.

Back in 2013, NWIS (now DHCW) created, with the help and support of Andrew Evans (Chief Pharmaceutical Officer), a platform to enable community pharmacists to record a consultation, provide treatment for various common ailments and (importantly for the contractor) get paid via NHS Wales Shared Services Partnership (NWSSP).

This platform was trialled in Cwm Taf University Health Board and Betsi Cadwaladr University Health Board then rolled out across Wales. This was an innovative and ground-breaking service. The Common Ailment Service is now the cornerstone of the pharmacy contract. The evolution of the Choose Pharmacy Common Ailment Service has been both extensive and transformative. I can now provide seasonal flu vaccinations, Discharge Medicines Reviews, Independent Prescriber services, provide an emergency supply of medicines, provide emergency hormonal contraception and a bridging supply of contraception. All through one platform – Choose Pharmacy.

Choose Pharmacy consultations per year 2013-2022

Consultations Per Year

Key

SFV	Seasonal Flu Vaccination
IPS	Independent Prescriber Service
CAS	Common Ailments Service
STTT	Sore Throat Test and Treat
EC	Emergency Contraception
EMS	Emergency Medicines Supply
DMR	Discharge Medicines Review

Through this platform I have access to a huge amount of information that helps my clinical decision making. I can see the summary of the patients' GP records in all relevant modules. I can receive an electronic Discharge Advice Letter which enables my technician or myself to provide the Discharge Medicines Review which contains the details of the patient's medication on discharge from hospital so we can ensure there are no ongoing problems or issues with their medication.

With the Common Ailments Service and Independent Prescriber Service, we can access the Welsh GP Records to make a more rounded and clinically safe decision on what, or even if, we need to prescribe.

I can now follow up with a patient requiring contraception (my clinical area for independent prescribing) by reviewing the consultation from six months ago, or a consultation done by another pharmacist in another pharmacy. It's all there, on one platform. No ringing around to try and find information or hoping the patient hasn't forgotten to inform you of a vital piece of information.

For the winter months I can provide a flu vaccine to an eligible patient and send a summary of the consultation to their GP with the correct code to input into the patient's record. In 2022/23 season there have been more than 160,000 NHS flu vaccines administered by community pharmacy. I no longer have to have stacks of paperwork to send to various GP surgeries, now it is all done via Choose Pharmacy.

In the summer months, have you come on holiday and forgotten to bring your medication? No problem! I can access your GP records (if you are registered in Wales) and check your medication, and if appropriate give you an emergency supply.

Choose Pharmacy is helping the community pharmacy teams to show it's not just sticking a label on a box.

Seasonal Flu Vaccinations
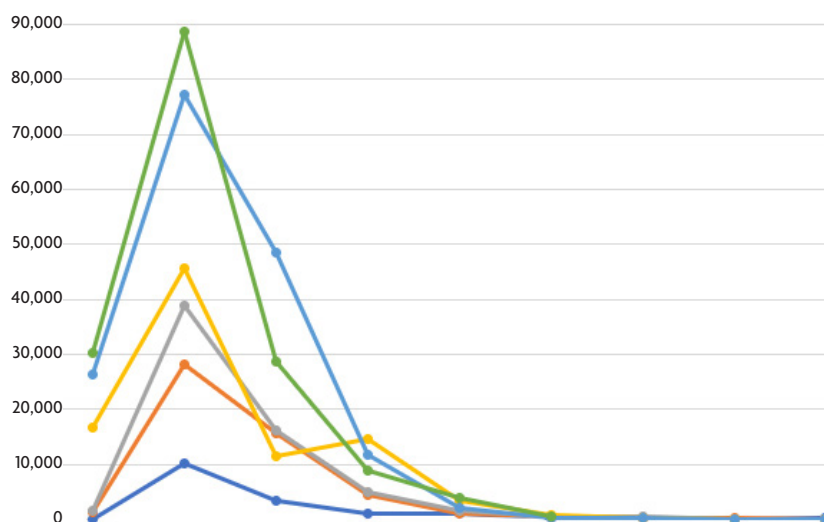
	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
2017/18	45	10,092	3,299	926	1,071	203	290	18	102
2018/19	1,197	28,240	15,532	4,407	1,106	573	208	184	0
2019/20	1,652	38,914	16,225	4,965	1,405	442	481	0	0
2020/21	16,537	45,534	11,564	14,615	3,359	739	161	4	0
2021/22	26,319	77,285	48,586	11,631	1,971	326	303	41	0
2022/23	30,347	88,699	28,559	8,732	3,783	508			

Patient actions if Choose Pharmacy Common Ailments Service not available, Jan. – Dec. 2022
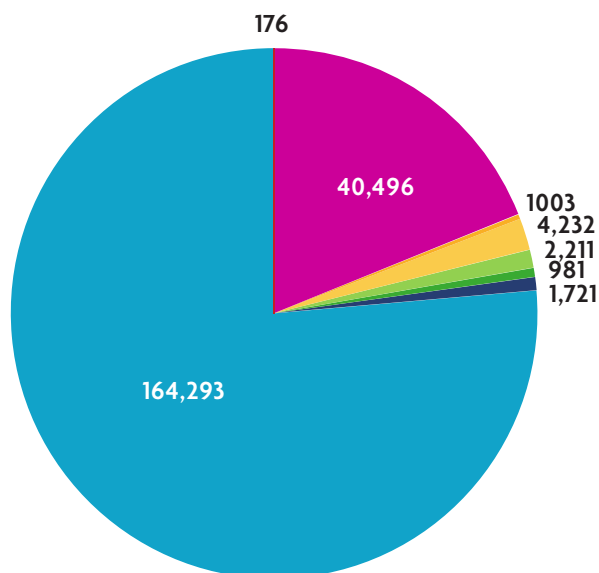
- 176 Attended the accident and emergency department at Hospital
- 40,496 Bought medication from the Pharmacy
- 1003 Called NHS Direct on NHS 111 for advice
- 4,232 Done nothing
- 2,211 Made an appointment to attend the out of hours service
- 981 Made an appointment with a nurse or health visitor
- 1,721 Made an appointment with another healthcare professional (e.g. dentist or optometrist)
- 164,293 Made an appointment with a GP

Data on 'patient actions' taken from responses given by patients after their Choose Pharmacy consultation and recorded from a drop-down list of options available in the system.

NHS Wales – One Digital Team

Digital Health and Care Wales' products and services are supporting every step of a patient's journey. Two examples – the digital kidney transplant waitlist and the Welsh Clinical Portal on air ambulances – show how digital is helping to save lives.

Digital Health and Care Wales (DHCW), launched in April 2021, is an NHS Wales strategic health authority, with an important mission to change the way health and care services are delivered.

Wales is taking big steps to transform patient care using technology and data. There's a digital health record for each of the 3.1 million people in Wales, and a digital service supporting every step of the patient's journey. DHCW products and services are constantly evolving to meet user needs as health and care in Wales reshapes and renews.

The organisation was named UK's best place to work in IT by the British Computer Society and is taking the lead on large scale developments that will make a major difference to the people of Wales. The NHS Wales App will offer citizens of Wales convenient access to a range of health and care services through smartphones, tablets, and personal computers. The Welsh Clinical Portal provides access for healthcare professionals to patient information from many sources, creating a digital health record.

The Welsh Nursing Care Record provides digital records at the bedside, for nurses to use on digital devices – freeing up time for patient care, and the NDR is a world-leading national data resource, improving the way data is collected, shared and used.

In 2022, the Digital Medicines Transformation Programme was

Wales is taking big steps to transform patient care using technology and data.

launched, making the prescribing, dispensing and administration of medicines everywhere in Wales, easier, safer, more efficient and effective, for patients and professionals through digital. And the Microsoft Centre of Excellence is a recent addition, developing digital products, apps and automations that solve clinical and operational challenges in all health boards and trusts.

Digital dashboard for kidney transplant waitlist

A new dashboard developed by a collaborative of NHS Wales teams is making it quicker and easier for clinicians and laboratory staff to view information about patients in south, west and mid Wales who are waiting for a kidney transplant.

Developed to improve the speed and accuracy of information sharing between health boards, the dashboard gives the Welsh Transplantation and Immunogenetics Laboratory (WTAIL) and other authorised NHS Wales users a regularly updated view of approximately 250 patients on the kidney and pancreas transplant waiting list.

It transforms the previous approach to sharing waiting list information, whereby service users received a monthly report that had the potential to become quickly out of date. Now, data is updated by WTAIL twice a day and made instantly available through the dashboard, giving service users a more accurate overview to support their decision making.

The dashboard also calculates the amount of time since a last blood sample was taken for routine patient monitoring. It then colour codes and filters patient information to let users know whether the next sample is due. In the two months since this has been implemented, the team has seen a 65 per cent reduction in the number of overdue samples, ensuring that more patients have up-to-date laboratory results. This improves the speed and efficiency of the process of checking compatibility when a donor offer is received.

The solution was created using Microsoft 365 products including Power BI and is the result of a successful collaboration between the specialists at WTAIL, the Welsh Blood Service's digital team, and the NHS Wales Microsoft 365 Centre of Excellence hosted by Digital Health and Care Wales.

Felicity May, Clinical Specialist Histocompatibility & Immunogenetics Digital Lead at WTAIL said: "The Kidney Transplant Dashboard has been a game changer for us – not only for improving the way we manage our potential transplant recipients, but also highlighting the potential for digital solutions to improve our services and patient care."

Dr James Chess, Consultant Nephrologist in Morriston Hospital, said: "The dashboard allows me to securely view which of my patients are active on the transplant waiting list, their transplant details & whether their tissue typing bloods are due."

Dr Laszlo Szabo, Consultant Transplant Surgeon in University Hospital of Wales, said: "This dashboard gives us, the transplant team, up-to-date information on our patients waiting for kidney or pancreas transplantation. We can quickly check if we have potential recipients for an organ offer."

Flying medics use Welsh Clinical Portal

When the flying medics on board the Wales Air Ambulance are called for help, the crew on board are ready to deal with life and death situations. They take their skills straight to the scene, making rapid and critical decisions that determine the care and treatment needed in an emergency.

Until 2017, the air ambulance medics relied on paper, radio and phones to gather information about the health or medical history of the patient. When every second counts, this process could be time-consuming and delay critical decisions about the patient's care. But new technology in the shape of electronic patient records is now speeding up the process, making care safer and helping to save lives.

Thanks to collaborative work between The Emergency Medical Retrieval & Transfer Service (EMRTS) Cymru, Swansea Bay University Health Board Digital services and Digital Health and Care Wales the air ambulance has instant access to a patient's single medical record and medical history through the Welsh Clinical Portal, enabling faster, better informed decisions.

Mark Craven, Critical Care Hub Clinician for the Air Ambulance Service spoke about the impact of the Welsh Clinical Portal.

"Some accident scenes can be quite complex cases and you need to piece together information quickly. For myself, or the critical care practitioner, the Welsh Clinical Portal provides an aid to decision making so that we can get a full background history and medication review of a patient before springing to action.

"The Welsh Clinical Portal has formed an integral part of what The Emergency Medical Retrieval and Transfer Service (EMRTS) does. It can be really difficult to provide the best care possible when you don't know anything about the patient. However, the portal provides a holistic approach to patient treatment and informs EMRTS on the way that we work and practice."

The system can be accessed directly from scene via mobile devices such as iPads, in the control room, or back at base. Air ambulance medics report that the Welsh Clinical Portal is easy to navigate and also provides an accessible way to follow up on a patient, as part of their aftercare service. It enables the team to provide patients relatives with timely updates. This is based on rapid feedback on interventions and interactions at this scene. This vital information and feedback is also used to inform development of the service, and in terms of clinical governance, how the service is improved through mortality reviews, incident investigations and clinical audits.

Mark explained: "This is really important as it ensures best practice and also enables us to give live feedback on a patient's progress." The Welsh Clinical Portal is a digital workspace, making it easy to access information about each patient where and when it is needed.

Looking through the eyes
of the user

Harriet Green

Harriet Green, joint CEO at Centre for Digital Public Services, asks how people in the public sector can change how they think, work and act so that services work better for the people who use them.

The Centre for Digital Public Services (CDPS) is an arm's length body of Welsh Government. We've been set up to support the public sector to design and delivery better public services. Together with the Chief Digital Officers in Health and Care, Welsh Government and Local Government, we're responsible for delivering Mission 1 (Public Services) of the Digital Strategy for Wales.

This strategy recognises that people now run a lot of their lives online. The Minister who launched this strategy, Lee Waters, has a really great mantra which is "we can do things differently – so let's". We try to live by that in CDPS. We partner with public sector organisations to deliver specific modernisation projects to public services, but each project is about wider, lasting change.

Last year we entered a partnership with Digital Health and Care Wales with the aim to create better outcomes for patients and healthcare professionals. As part of this work, we have supported the Digital Medicines Transformation Portfolio to understand the challenges and risks of removing paperwork in electronic prescription services. We've also started looking at how we can support the Digital Maternity Cymru programme with a new all-Wales digital system for maternity services.

When we partner with an organisation to look at a service, our first job is to understand the end-to-end user journey – from their first step all the way through to completing the task they set out to do. This isn't just about technology systems. User journeys are made up of online, paper, telephone and in-person steps. During our

research on electronic prescribing, we worked with Cardiff and Vale University Health Board, Swansea Bay University Health Board and Hywel Dda University Health Board to observe, shadow and interview service users in a real-life hospital setting.

We completed hours of interviews with pharmacists, doctors and nurses and our analysis has allowed us to gain an insight into what is working well and what has not worked well. We've also mapped the medicines management process which, along with the insights, have been sense checked with other health boards in Wales. What we have found is that health boards have strong similarities in terms of what people do around medication prescribing and administration, but they are using different software systems and will have their own challenges adjusting to any new software or process introduced.

Our approach is in keeping with the remarks by Eluned Morgan MS, Minister for Health and Social Services, about the future of electronic prescribing in Wales: Doing first hand research with users

"We want to make sure services deliver the best outcomes for citizens, and are designed around how citizens and service providers want to use and manage those services."

reduces the risk of wasting time and money building something that does not get used or creates bigger problems for users. Learning about the people who use your service shifts the perspective from focusing on specific solutions, to focusing on the real problems that need solving. It helps make evidence-based decisions about the simplest and most cost-effective ways to meet user needs.

We can already start to see that by doing things differently, seeing things through the eyes of the user, we can start to create public services founded upon the needs of the actual people who use them.

A Healthier
Mid and West Wales

Prof. Huw Thomas, Director of Finance at Hywel Dda University Health Board and honorary professor at Aberystwyth University, outlines how digital is driving change.

If the history of the NHS has been largely one that has focused on delivering episodic care. Over its 75 years, the NHS has experienced a change in the needs of our service users – with more people living longer and an increase in chronic conditions – leading to greater consumption of our resources. Healthcare is now increasingly delivered more as a continuum: where the historic boundaries between the NHS and social care provision, between clinical pathways and between professions becomes increasingly blurred.

Alongside this, the long-term demographic trends in our communities are becoming increasingly apparent. A growing elderly population in West Wales is matched by a reduction in our available workforce. These are some of the challenges that underpinned our case for change and were at the forefront of our thinking in 2018 while developing our long-term strategy for "A Healthier Mid and West Wales". The pandemic further highlighted the need to adapt our approach and accelerate our use of digital solutions across health and care as a key enabler of our whole-system strategy.

Our digital response has been developed across four pillars. The first is citizen engagement, allowing individuals or carers to have a single digital front door through which to access and interact with health and care services. This will enable members of our communities and their carers to manage their own condition, receive tailored and personal information and interact with services. The second is health and care co-ordination and collaboration, ensuring that colleagues across health and care services have access to data, schedules

and actionable work. This enables colleagues to refer, request and track patients and service users across services, collaborate across the system and access the right information at the right time.

The third pillar is the digital operations and control centre, supporting new models of care through scaled remote monitoring, availability of resources and regional case and system management. This enables us to release and direct scarce resources to deliver services appropriately, supporting the direction of the right care at the right time with the right resources, and establish a foundational element of integrated health and care delivery. Fourthly, the regional data fabric, supporting integration and interoperability and improving data-sharing through an integrated health and care record. This enables us to drive insight into service delivery and population health, direct improved service outcomes and create a bridge between current and new solutions for improving health and care across our region.

Alongside this, our operational and clinical teams are working under immense

and immediate pressures, challenging our ability to plan effectively and bring clarity to the link between the decisions we take and the outcomes they create. While we have a huge amount of data, it is often fragmented and unconnected. We are working on our data science overlay to our digital response. With key commercial partners, our response utilises machine learning and artificial intelligence solutions to create a computational twin that:

- Minimises administrative tasks for users by surfacing data from our systems in a way which users can understand;
- Play forward and rewind the state of our system, to understand what is likely to happen and allow better short, medium and longer term planning;
- Understand the drivers of change by unpicking the root causes of the drivers of performance;
- Use simulations to find the optimal allocation of resources; and
- Support continuous service improvements by allowing ex post evaluations of decisions.

We cannot deliver this ambitious programme on our own, and we are developing a route to market to attract partners to support our transformation journey. We want to create an exciting place in West Wales to be an exemplar in whole-system digitally-enabled transformation, offering exciting new roles to the workforce of the future.

While we cannot change the context within which we operate, our digital response is crucial in supporting colleagues to be targeted, focused and risk-based in delivering care. This will, ultimately, lead to better, more timely interventions and improved outcomes to support our population to live healthier and more independent lives for longer.

In Conversation...

Simon Jones, Chair of Digital Health and Care Wales, in conversation with Marilyn Bryan Jones, an Independent Member on the Board of DHCW since August 2022.

Marilyn Bryan Jones has extensive experience in Equality, Diversity and Inclusion and provides support to a wide range of organisations across the public, private and third sectors.

Simon Jones (SJ) Thanks, Marilyn, for taking the time to talk to me about equality, diversity and inclusion (EDI) in the context of DHCW's work and culture. Your expertise in this area is a really important addition to the Board. A big one to start, what does an organisation look and feel like that has truly embraced EDI?

Marilyn Bryan Jones (MBJ) It's not just about legal obligations, an organisation that has embraced ED Inclusion must be able to assure itself it has also encompassed the moral case for ensuring everyone is given the opportunity to flourish. This might mean changing working practices such as acknowledging a diverse range of cultural and religious festivals.

We must look at ourselves to ensure we have the support in place for staff with diverse needs.

As a service provider we should be doing all we can to have in place excellent communication and engagement mechanisms across all the communities of Wales. Without these we just won't know what people's various needs are to get the most out of new digital applications such as the NHS Wales App.

And we need to think very hard about how we work with others to deliver alternatives for those who can't or don't want to use digital.

SJ: As you know I have been insistent that for us inclusion should always be an intended consequence of our work, not exclusion being an unintended one, how do we test that we are getting it right?

MBJ: Development of any new system or service should always be done in collaboration with the people who need to access and use them. This approach leads to a stronger sense of ownership and understanding if difficulties arise.

It's important we communicate with all the stakeholders and give them an opportunity to ask questions about and test out developing systems based on their lived experiences. This is as important for NHS staff who will be using new digital applications in their working lives as it is for the people of Wales who will be using them to support their health and care.

We must test what we are told against what is possible and come up with sensible, practical and inclusive solutions. Then it is about reviewing and adapting. It's inevitable that we won't get it 100% right first time, but people will accept that if they know and can see us committed to putting right what didn't work first time.

SJ: There is evidence that Artificial Intelligence approaches can fall into the trap of reflecting the characteristics and life experience of the people developing them. I am sure this is just people not knowing what they don't know. What would be your advice to help us avoid this trap?

MBJ: This issue will always present more of a challenge than others as it takes us into the arena of addressing unconscious bias. People are often not aware of the things that are informing and impacting on the way they are working or the decisions they are making. We need to expose ourselves to the greatest number of diverse variables and entertain a large number of possible outcomes. In this way our application of AI, or indeed any of our other digital applications in the future will not choose or default to what is viewed by some but not all as a society norm.

SJ: Thank you, Marilyn, one last question, when you look back at your time on the Board what do you hope to see that you will be most proud of?'

An exemplar, an inclusive organisation that has used lived experience and partnership to develop applications and a culture that are responsive and reflective of the people who need to use them.

Percentage of people who are digitally excluded

All adults	**7%**
Social housing residents	14%
People with a limiting long term illness	12%
Aged 75+	32%

Source: Digital inclusion in Wales, March 2023, Audit Wales. Analysis by Audit Wales of data from Welsh Government's National Survey for Wales 2021-22.
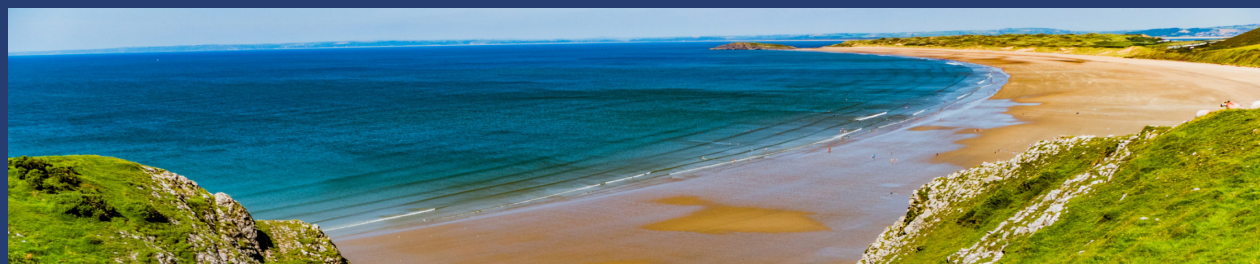
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Digital innovation –
an example from Scotland

John Jeans CBE, a non-executive Director and mentor who chairs the digital health and social care innovation at Strathclyde University, describes how Scotland is taking forward digital innovation in health.

The historic imbalance between the supply of health and social care and service demand has become even more challenging in the post-Covid era. Technological solutions are sometimes touted as a panacea to address this issue, but often by those without an understanding of the practical difficulties of adoption and dissemination of such solutions in the real world.

To be effective, any transformative technology will change the way in which care is delivered and this is especially true in the application of digital technology. However, real change is notoriously difficult to implement in all fields of human endeavour but perhaps nowhere more so than in health and social care. Across the continuum of prediction, prevention, intervention and recovery, innovations involving digital solutions offer opportunities to radically improve quality and effectiveness, so why has it been so difficult to harvest their benefits? It was to address this question that an innovation centre was established in Scotland 10 years ago.

The Digital Health and Social Care innovation centre (DHI) is one of Scotland's seven innovation centres. It is a national resource and world-leading collaboration between the University of Strathclyde and Glasgow School of Art (GSA), funded by Scottish Government agencies including the higher education funding council. A key activity is the facilitation of innovation clusters involving academic, industry, public and third sector partners to create collaboration opportunities and co-designed solutions, for example Scotland's Healthy Aging Innovation Cluster and a Digital Mental Health Innovation Cluster. It also oversees a European Commission funded Hospital at Home

A unique approach to process design has been pioneered with the GSA and is linked to the novel DHI Exchange, a cloud-based infrastructure that supports person centred data sharing.

Digital Innovation Hub which supports international sharing of best practice.

A unique approach to process design has been pioneered with the GSA and is linked to the novel DHI Exchange, a cloud-based infrastructure that supports person centred data sharing. This facilitates the integration of new digital capabilities into health and care services in real world environments. Working with industrial companies from start-ups to multinationals this approach creates partnerships that can explore commercial opportunities in the large and rapidly growing international market for digital technology.

In supporting the development of the health and social care workforce, DHI identifies emerging opportunities for future skills, supports talent pipelines and engages with higher education institutions to influence curricula. It also works with primary and secondary education across Scotland and internationally to reach out to the citizens of the future.

Everything the DHI does is demand led, with partners often providing funding and establishing agreed routes to adoption. This has led to the development of an extensive project portfolio with several examples of successful deployment at scale. For example, the Scottish Capsule Programme (SCOTCAP) is an integral part of

the national redesign of outpatient gastroenterology services as it enables early and effective screening in the community, avoiding unnecessary referrals for hospital outpatient appointments. It was a service, technical and business transformation programme to support the national scale up of Colon Capsule Endoscopy (CCE) as a GI Diagnostic Test in Scotland. National roll out of CCE is well underway in NHS Scotland under the leadership of the Centre for Sustainable Delivery (CfSD) and is actively contributing to the reduction of waiting times for Bowel Cancer Diagnosis.

The DHI was commissioned to support the Scottish Government's national response to the challenges presented by the Covid-19 pandemic. It developed six Covid-19 projects to produce solutions that were deployed into live service. This required close working relationships with key partners across Scotland, including the Digital Directorate, NHS Scotland Digital, NES and TEC as well as national and territorial health boards, the Digital Office for Local Government and key third sector and independent sector organisations. Several academic and industry partners were engaged to support the work, including Scottish SMEs and Scottish Enterprise. The success of these projects was a testament to DHI partners collaborating and co-designing in real time.

Digital records
transforming nursing

The Welsh Nursing Care Record is a new digital way of working, replacing paper documents and giving nurses back more time to care for patients. Digital devices such as tablets are being used at the bedside to securely assess, record, store and share patient information. It's available in all seven health boards in Wales, and at Velindre trust. By March 2023 it was being used in 239 wards across 41 hospital sites – accounting for 66 per cent of eligible wards in Wales, and it continues to grow.

Nurses, healthcare professionals and patients have all spoken about the positive impact of the WNCR as these examples and the images show:

"It's become such a fantastic way forward for nursing, in that it's clear, concise documentation. There's no room for error. It highlights all the risk assessments that we need."

Christine Evans, Ward Manager, Swansea Bay University Health Board.

"It definitely saves time, and I think it's better for patient care, because it means we can spend more time with them, rather than completing paperwork."

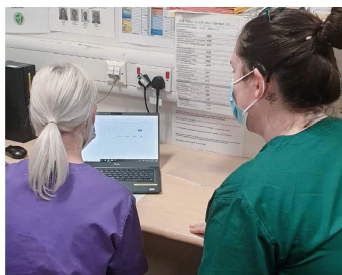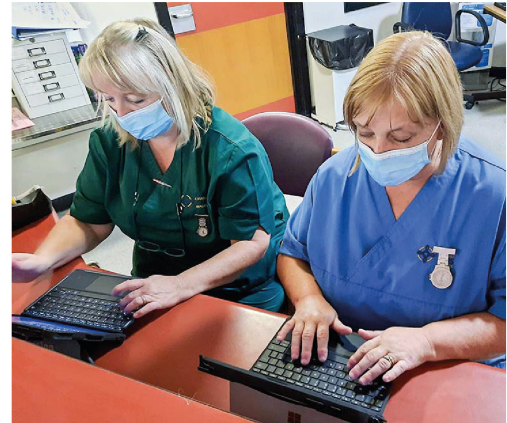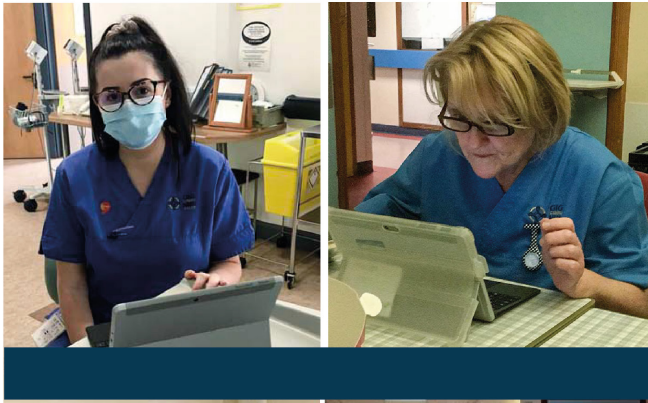**Stacie Hall, Staff Nurse, Hywel Dda University Health Board.**

"I like the way the assessments are graded in a traffic light scheme, so you can see which have been started, which are completed, and which need some work doing to them."

Peter Davies, Staff Nurse, Powys Teaching Health Board.

"It's been a really useful tool for us all. I think all the nurses would agree that it's really simple to use, and it's really for us all to share information and work together."

Naomi Jones, Student Nurse, Cwm Taf Morgannwg University Health Board.

documentation *going* digital

Croeso I Welcome to Ward 6

Croeso I Welcome to Ward 3

Patient's Feedback

The nurses are fun and caring

Welsh Nursing Care Record
(Hospital)

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Digital Health and Care Wales