



CELTIC ADVANCED LIFE SCIENCE
INNOVATION NETWORK
CALIN
RHWYDWAITH GELTAIDD
ARLOESI GWYDDORAU
BYWYD UWCH



DEVELOPING DIGITAL HEALTH INNOVATION IN WALES



A brief guide to support
successfully launching
a digital health
innovation project





Acknowledgements

The work was undertaken by the Celtic Advanced Life Science Innovation Network (CALIN), an Ireland Wales 2014–2020 Programme Part Funded by the European Regional Development Fund through the Welsh Government. Grant and operational case number 80855.

Booklet developed by Dr Lucy Bryning, Nicky Jones, Dr Catherine Macleod, Dr Ian Davies Abbott (CALIN, Bangor University).

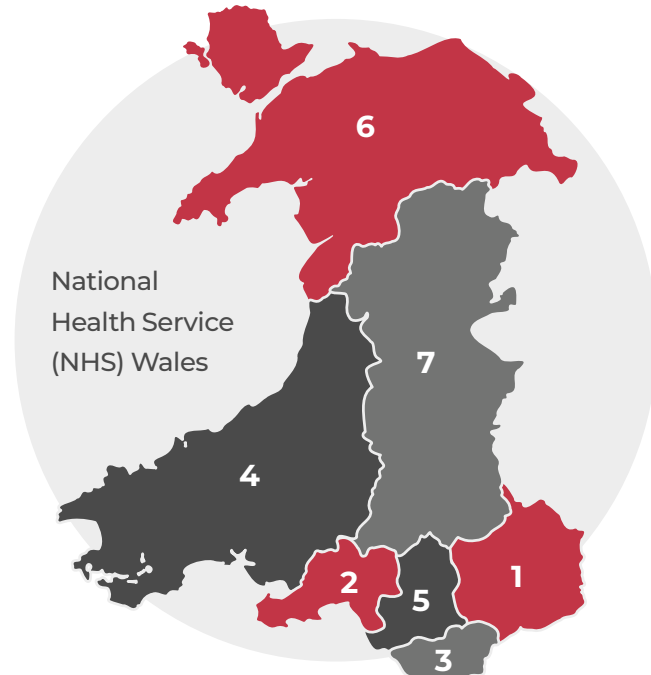
Information, resources, and links included in this booklet were correct at time of production (May 2023) but may change over time.



Healthcare in Wales

Healthcare in Wales is mainly provided by National Health Service (NHS) Wales. Health is a matter that is devolved to Wales, and differences exist between the public healthcare systems in the different countries of the United Kingdom.

In the NHS most healthcare is provided free at the point of access and paid for from general taxation. Though the public system dominates healthcare provision there are alternatives for those willing to pay for health services including private health care and a wide variety of alternative and complementary treatments.



There are 7 Local Health Boards (LHBs) in Wales.

1. **Aneurin Bevan Health Board**
2. **Swansea Bay University Health Board**
3. **Cardiff & Vale University Health Board**
4. **Hywel Dda Health Board**
5. **Cwm Taf Morgannwg Health Board**
6. **Betsi Cadwaladr University Health Board**
7. **Powys Teaching Health Board.**

There are currently 3 NHS Trusts in Wales.

These are the Welsh Ambulance Services Trust for emergency services, Velindre NHS Trust offering specialist services in cancer care and a range of national support services and Public Health Wales which functions as the National Public Health Service, Wales Centre for Health, Welsh Cancer Intelligence & Surveillance Unit, Congenital Anomaly Register & Information Service for Wales, and Screening Services Wales all with a nationwide remit. Each of the NHS trusts operates across the whole of Wales.

More information about the trusts can be accessed here:

- [Welsh Ambulance Services NHS Trust](#)
- [Velindre NHS Trust](#)
- [Public Health Wales](#)





Primary care in Wales

Primary care services are one of the first points of contact to help us stay healthy. They are provided by General Practitioners (GPs), pharmacists, dentists, opticians, nurses, health visitors and physiotherapists amongst other healthcare professionals in the community. Across Wales, primary care is organised into 64 primary care clusters. The number of clusters within each health board varies. In addition, the size of each cluster and the geographical area that it covers is determined by each health board. In 2019 Betsi Cadwaladr University Health Board reported fourteen clusters with Powys Teaching Health Board consisting of three clusters.

Secondary and tertiary care in Wales

There are 16 major A&E unit hospitals in Wales, 27 minor injury units and nearly 100 other hospitals including day hospitals and community clinics. www.wales.nhs.uk/ourservices/directory/hospitals

There are a wide range of services that operate within the community in Wales including Pharmacy, Community Mental Health, Community Midwifery, School Nurse, Sexual and Reproductive Health clinics, and Community & District Nursing services.





Contextual factors for developing health innovation in Wales

Rurality

In Wales, 1 in 3 people live in a rural area, and this can impact access to healthcare, with distance to hospitals and availability of ambulances an important factor. Key determinants of health such as income, housing, education, access to services and deprivation in general all have an impact on rural health. The population living in rural areas is changing, there is an ageing population which is increasing more rapidly in rural areas compared to cities, in part due to a trend for outward migration of young people and inward migration of older people. There is increased demand for healthcare services in rural populations yet there is a challenge of limited access to services.

Cross-border healthcare

Responsibility for the NHS in Wales is devolved to the Welsh Government. This means that it is separate from the NHS in England. In Wales and England, there is a cross-border protocol which sets out an agreement for the care of patients living along the border who reside in one country but are registered with a GP practice in the other country – in these cases a choice of secondary healthcare and services provided in England is offered.

Welsh Language

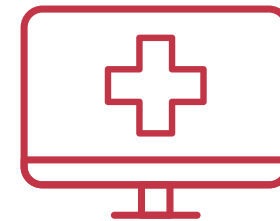
When people need healthcare, it's important for them to feel comfortable in their own language. According to the 2021 census, 17.8% of the population of Wales speak Welsh. However, regional variation exists with 64% of Gwynedd county residents, in North West Wales, using the language compared with less Welsh language use in other parts of the country. Welsh Government research showed that in many cases when people could get help in Welsh, health outcomes improved, and overall experience was better. The Active Offer in Wales aims to make it easier for people to access services in Welsh and overcome some of the barriers to accessing healthcare in Welsh.



Working within digital health systems in Wales

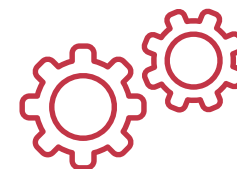
Digital technology is a rapidly advancing area within the NHS in Wales. The Covid-19 pandemic increased the demand for health innovation that reduced the face-to-face contacts between patients and health professionals. Many GP services went online to provide video consultations and a national contact tracing platform was mobilised to help manage the spread of Covid-19 in Wales.

In Wales there are several different systems (see Glossary below for an overview), however not all systems are digital and there is limited integration of some systems. Digital Health and Care Wales (DHCW) is the special health authority supporting the digital transformation of NHS Wales. DHCW have been advancing the development of digital systems that improve access to patient records, accuracy of patient outcomes and improving communication between health professionals responsible for patient care.



Process for developing digital health research in Wales

- **Step 1:** Identifying the right stakeholders across the digital health community at an early stage can help overcome some of the barriers and challenges to implementation and scaling up of health innovation. It is important to consider the processes involved in scaling up at an early stage as there may be transferability issues between health boards as each may have different local priorities and operate different systems.
- **Step 2:** Identify research collaborators and suitable clinicians, in addition to the healthcare systems highlighted above there are many research institutes and Universities operating within Wales.
- **Step 3:** Identify and secure funding to deliver your research project, funding to support collaborating bodies can ensure their on-going input into the project.
- **Step 4:** Consider the ethical implications of your research. Contact the relevant NHS Research & Development (R&D) teams that can advise you on the process for securing necessary approvals for conducting service evaluation projects and research within Wales digital health systems.
- **Step 5:** Start with a pilot project, proving your concept and testing key elements of the innovation to aid improvement. Involving patients and public representatives alongside other stakeholders is essential for ensuring that the research will be acceptable for patient groups and increase the likelihood of successful implementation in the future .



Glossary of useful organisations and digital systems



The **Children and Young Persons Integrated System (CYPriS)** provides an online record of a child's health and care from birth to school leaving age, supporting Welsh Government's Healthy Child Wales programme, the national immunisation programme and statutory reporting requirements.

dhw.nhs.uk/systems-and-services/in-the-community/child-health

The **Choose Pharmacy** platform is integrated with the NHS Wales network. Through this pharmacists have access to the medication details within the patient's Welsh GP Record to help them make informed decisions.

dhw.nhs.uk/systems-and-services/in-the-community/choose-pharmacy

Digital Health and Care Wales (DHCW) is the national organisation building and designing digital services for health and care in Wales.

dhw.nhs.uk

Digital Health Ecosystem Wales (DHEW) brings together industry, clinicians, policy makers, academics, innovators and funders to create an environment of digital innovation in Welsh healthcare. The Ecosystem is a collaboration between Life Sciences Hub Wales and Digital Health and Care Wales (DHCW) which are funded through the Welsh Government. DHEW works to increase access and open up NHS Wales systems and data to developers through a platform of APIs, reducing development time and ensuring products are better suited to NHS Wales needs.

digitalhealth.wales/dheiw

The **Digital Medicines Transformation Portfolio** brings together the programmes and projects that work towards a fully digital prescribing approach in all care settings in Wales

dhw.nhs.uk/systems-and-services/digital-medicines-transformation-portfolio

The **Digital Services for Patients and Public (DSPP)** programme is leading the development of the NHS Wales App

dhw.nhs.uk/systems-and-services/for-patients-and-citizens-of-wales/digital-services-for-patients-and-public

Electronic Test Requesting (ETR) allows clinicians in secondary care to request pathology tests (blood science and microbiology tests) via the Welsh Clinical Portal (WCP).

dhw.nhs.uk/coronavirus/digital-support-updates-for-healthcare-professionals/secondary-care/electronic-test-requesting-etr

The **GP test requesting (GPTR)** system allows staff at GP practices to request blood tests for their patients electronically, and gives GPs a fuller picture of their patients.

dhw.nhs.uk/systems-and-services/primary-care/electronic-test-requesting-in-gp-practices

HaemBase Cymru is a data solution for haematological malignancies that accurately gathers data during a patient's cancer treatment starting from the first clinic visit.

dhw.nhs.uk/systems-and-services/secondary-care/haembase-cymru

My Health Online allows patients to book GP appointments and request repeat prescriptions online using their mobile, tablet or computer.

dhw.nhs.uk/my-health-online

The **National Data Resource (NDR)** provides an all-Wales health and social care data capabilities in a governed, secure and ethical manner.

digitalhealth.wales/national-data-resource

The **NHS Wales Video Consulting Service (VCS)** enables users to provide healthcare services to patients in a safe and secure way via a video appointment. In secondary care Outpatient Video Consultations and a new digital 'outpatient continuation sheet' allow clinicians to record appointment outcomes online, without needing to use a paper form. This enables consultants to remotely use the Welsh Clinical Portal to access their clinic list, review the patient record, record the details of the consultation and capture the decision to support the complete virtual outpatient appointment. A report is generated to enable health records staff to track the patient and retrospectively update the Patient Administration System to ensure that the patient pathway is kept up date.

dhcw.nhs.wales/coronavirus/digital-support-updates-for-healthcare-professionals/primary-care/nhs-wales-video-consulting-service

The **Patient Administration System for Wales (WelshPAS or WPAS)** holds patient identification details, and records details of patients' hospital visits, including waiting list management, medical records, inpatient treatment, outpatient appointments and emergency visits. In 2018 there was no single Patient Administration System (PAS) across Wales with Cardiff & Vale University Health Board operating an in-house PAS called PMS (Audit Wales, 2018). There are efforts across Wales to implement a single Welsh PAS to streamline information sharing across health systems and within health boards. "Welsh Referral, Activity & Patient Pathway Enterprise Repository (WRAPPER) functionality in WelshPAS is working towards offering a single view of PAS data across Wales. WRAPPER provides real-time patient data for clinicians and health care colleagues at the point of care and supports decision making by enabling users to review all the relevant administrative information about the patient from across Wales" (DHCW, 2022).

dhcw.nhs.wales/news/latest-news/betsi-cadwaladr-uhb-west-welsh-patient-administration-system-wpas

The **Welsh Clinical Portal (WCP)** is a product that gives NHS health professionals in Wales access to patients' digital health records.

dhcw.nhs.wales/systems-and-services/secondary-care/welsh-clinical-portal

The **Welsh GP Record (WGPR)** enables health professionals involved in patient care to access a summary of important health information held in the full GP record.

dhcw.nhs.wales/systems-and-services/for-patients-and-citizens-of-wales/welsh-gp-record

The **Welsh Immunisation System (WIS)** is an information system for the management, distribution and reporting of the COVID-19 Vaccination Programme.

dhcw.nhs.wales/coronavirus/digital-support-updates-for-healthcare-professionals/primary-care/welsh-immunisation-system

The **Welsh Intensive Care Information System (launching 2023)** aims to enable continuous patient monitoring through a digital solutions replacing hand-written paper charts, automatically collecting real-time information from monitoring medical equipment

dhcw.nhs.wales/systems-and-services/secondary-care/welsh-intensive-care-information-system

The **Welsh Nursing Care Record (WNCR)** is a digital system that enables nurses to record, store and access patient information

dhcw.nhs.wales/systems-and-services/secondary-care/digital-nursing

The **Welsh Community Care Information System (WCCIS)** provides a Digital Community Care Record is being introduced in Wales to help health and social care professionals work together to provide care closer to people's homes

dhcw.nhs.wales/systems-and-services/in-the-community/digital-community-care-record



About CALIN

The Celtic Advanced Life Science Innovation Network (CALIN) connects business, academia and healthcare with experts from six leading universities across Ireland and Wales. It offers enterprises the opportunity to engage with leaders in health and wellbeing, advanced medical and pharmaceutical science, nanotechnology and biotechnology. The network provides access to technology, scientific expertise, and a network of life science innovators to support the development of products, processes and services.

Bangor University leads on the health and wellbeing theme for CALIN and looks to support small to medium enterprises (SMEs) working in the life sciences or health and wellbeing fields.

Find out more calin.wales

Contact us calin@bangor.ac.uk

