

NHS Wales Informatics Service

Annual Review



Delivering information
and technology for
better patient care



GIG
CYMRU
NHS
WALES

Gwasanaeth
Gwybodeg
Informatics
Service



It's a pleasure to be able to present to you a summary of our achievements during the past year.

As you will read in the following pages, our remit is wide, covering new developments to support the redesign of healthcare and 77 operational services, which are crucial to the daily running of the NHS in Wales and the treatment of patients. These services are maintained around the clock, ensuring vital systems are available 24/7.

This year we have seen earlier work to put in place a common technical architecture reach fruition, with truly all-Wales' solutions going live across health boards to join up care. We know that care does not stop at regional boundaries and neither should the systems supporting it.

On a personal level, I have found it rewarding to hear first-hand from health professionals about the impact national systems can make in helping to deliver safer, quality care, focused on personalised services for patients.

Test results are now available for clinicians, no matter where in Wales the tests were taken, making it safer for clinicians to make crucial decisions and saving patients from duplicate tests. Referrals from GP to consultant have been streamlined, supporting service redesign.

One early example is a 30% reduction in the number of people needing to see a cardiologist

in Cardiff. Use of our new digital referral service, together with a redesign of clinics, has made a real impact.

A key focus this year has been to take forward workstreams identified in the Digital Health and Social Care Strategy for Wales. These focus on providing:

- health professionals with the digital services they need to support care in hospitals, GP practices and in the community
- patients with new online services to connect with care and look after their own well being
- improvement and innovation to improve decision making and better use of data for service change and quality
- a planned future through collaboration

The achievements we have made this year have not happened overnight. They are the result of continuous and continuing effort. The diverse medical landscape and clinical workflows involved make the shift to modern digital services a complex task, and one that will continue as technology and new demands emerge.



Ultimately, our aim is to see that every task care professionals undertake is supported digitally, that records are created, held and accessed electronically and that all such services work seamlessly and commonly across organisations and sectors.

Last but by no means least, I would like to take this opportunity to thank every member of staff within our organisation for their work and dedication over the past year.

I would also like to express my appreciation to the many people in NHS Wales, Welsh Government, academia and industry whose collaboration and partnership is so critical to success.

I hope you enjoy reading this annual review as much as I have. Whether it's providing child immunisations, caring for patients with terminal illnesses or helping doctors and nurses provide specialist care in hospitals, I'm proud to say that our software and systems makes a difference.



Andrew Griffiths

Director, NHS Wales Informatics
Service Chief Information Officer,
NHS Wales.



We employ around 500 staff, mainly specialists in software and web development, networks, technical infrastructure, information, data analysis and project management. Our three main offices are in Cardiff, Swansea and Mold and we also have smaller 'satellite' offices in Pencoed and Pontypool.

DIRECTORS

Our directors bring together a depth of skills and experience including frontline healthcare and information technology know-how.



Andrew Griffiths
Director of Informatics
Services and Chief
Information Officer
for Health



Liz Waites
Director of NHS Information
Communication Technology (ICT)
Programmes



David Davies
Director of NHS
Engagement



Mike Flanagan
Director of Finance and
Business Assurance



Rhidian Hurle
Medical Director and
Chief Clinical Information
Officer for Wales



Gary Bullock
Director of Application
Development and Support



Carwyn Lloyd-Jones
Director of Information
and Communications
Technology



Helen Thomas
Director of Information
Services



OUR ROLE

As a national organisation our role is to deliver the information and technology services needed for modern patient care and to maintain critical operational services. We are funded by Welsh Government and other health bodies.

- We are at the forefront of many new digital services which support quality care and the redesign of health care in Wales
- We develop, build and manage the digital infrastructure and services that health professionals depend on, including privacy, security and confidentiality of data
- We analyse NHS Wales data and put vital information in the hands of the people who rely on it
- We deliver and support seventy-seven operational services, including datacentres and email, which are crucial to the daily running of the NHS in Wales and the treatment of patients
- We are working collaboratively to provide the digital services to join up health and social care, which will give health and care professionals access to the information they need
- We work with our partners to enable a digital future for health and care professionals, patients and service users, based on our commitment to the Once for Wales approach
- We play a vital role in the development of informatics staff and work collaboratively with universities and industry to nurture and promote professionalism



Our vision is to support the improvement of health and social care across Wales through collaborative provision of high quality information, systems and technologies.

Our mission is to create an integrated digital platform to support the delivery of health and social care across Wales, whilst maintaining the sustainability of current operational services.



STRATEGIC APPROACH

Our strategic approach responds to a number of national drivers for health and social care, including:

- Well-being of Future Generations (Wales) Act 2015
- Social Services and Well-being (Wales) Act 2014
- Health Inequalities
- Quality & Safety
- Prudent Healthcare
- Integration
- Health and Care Standards 2015
- Informed Health and Care: A Digital Health and Social Care Strategy for Wales
- The Digital Inclusion Strategic Framework for Wales
- NHS Wales Outcomes and Delivery Framework 2016-17

Additionally, we make sure our services relate to the Welsh Government NHS Wales Outcomes and Delivery Framework 2016-17, which aims to demonstrate annual improvement in the health and well-being of the people of Wales.





THE DIGITAL PLATFORM

Our approach is built around an integrated digital platform, known as the national architecture, which works across boundaries and sectors to provide a national view of the health and care information of the people of Wales. This is available wherever a patient requires consultation or treatment, whilst providing a common experience for NHS Wales' staff in their discipline, wherever they may work.

The national architecture is also designed to support citizens directly in accessing information about health and care services and about themselves, with the aim of maintaining good health and participating in their own care.

The national architecture is shaped by the analysis of care delivery and how it is best supported.

It has five elements:

- 1. Patient Record Services**
The technology that holds and makes available components of the patient record
- 2. National User Applications**
Supporting clinical and care tasks and providing access to the patient record
- 3. Supporting Technology**
Ensuring elements of the architecture work together safely, effectively and securely

4. Digital Services For Patients

Allowing patients to actively participate in their own care

5. Information Services

Providing accessible, robust, relevant and timely information for clinicians, managers and patients to ensure effective decision support

In delivering the national architecture the Informatics Service has adopted a Service Oriented Architecture approach, which enables the better use of digital technology and information for more effective healthcare.

The need for systems to interoperate in order to share information is at the heart of the Service Oriented Architecture. In achieving this we have adopted a series of principles and standards.

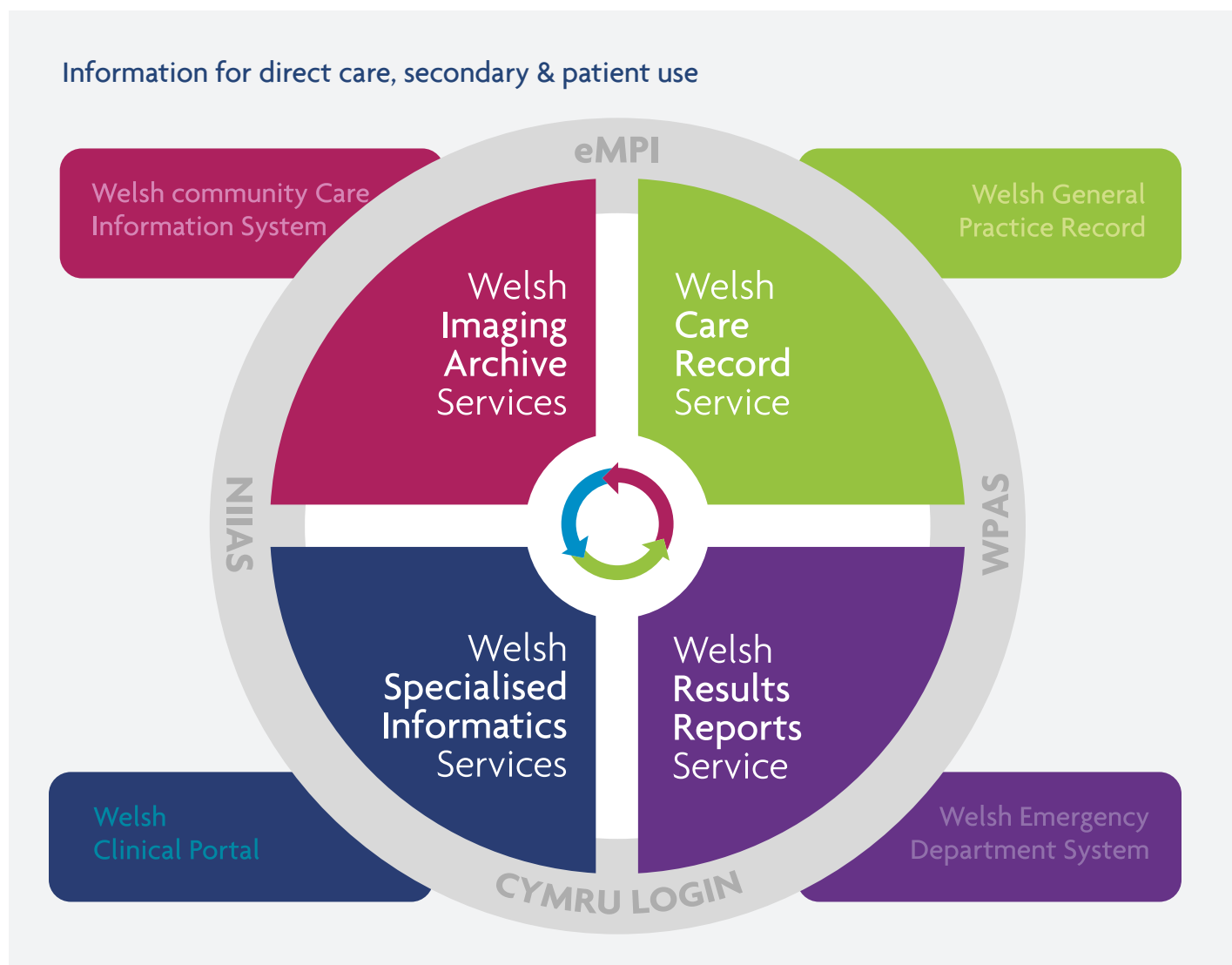
- The functions that one system needs to provide on behalf of another (e.g. obtain lists of patients, return certain health information, respond to a test request) are patient information services
- The communication between these services is via messages that have standard definitions
- The services themselves have no necessity for any knowledge between them other than the message definitions and service interfaces

Although the national architecture is technically complex, its purpose has simplicity; it aims to provide each user with high quality, applications that support their daily tasks in the delivery of health and care services, whilst also ensuring that any relevant information created about the citizen is available safely and securely, wherever they present for care.

The national architecture enables information originally gathered in one user application to

be reusable in another; it is designed, and supported to ensure that it is sustainable and able to meet the growing demands of the people of Wales. By supporting basic generic clinical and care processes across the health and care organisations of Wales, any pattern of care delivery, now or in the future, can be accommodated.

This diagram shows how information collected once is made available in multiple locations.






The **Welsh Clinical Portal** is the way health professionals in hospitals are able to view a range of information about the patient including a summary of the patient's GP Record, clinical documents, e.g. discharge and outpatient letters, diagnostic test results and images. It also supports key processes such as test requesting and patient discharge from hospital.

The **Welsh Community Care Information System** gives community nurses, mental health teams, social workers and therapists the digital tools they need to work better together.

In primary care the **Welsh GP Record** provides the information family doctors need to support care.

In emergency settings, the new **Welsh Emergency Department System** is being introduced to support patients admitted for unplanned care, capturing data and providing live tracking across departments.

Safety and security across national systems is managed through:

- a single user ID for every member of NHS Wales' staff 
- a cyber audit that spots any unauthorised access to patients' electronic records, or potential data breaches (National Intelligent Integrated Audit Solution) 
- An electronic master patient index  to keep patient data such as name, address, date of birth and sex, up to date and accurate

Access to diagnostic information is available to professionals providing care, when and where it's needed and regardless of where the test was produced. This vital information is available through the **Welsh Results Reporting Service** and the **Welsh Imaging Archive Service**.

As patient care is recorded in a number of ways in the healthcare system, many different

documents are generated which together build up a patient's records, such as, letters, referral requests, discharges, assessments, case notes and more.

The **Welsh Care Records Service** will largely replace the paper files and folders still used in our hospitals and will store the information previously held on paper documents as electronic 'forms'.



OUR WORK IN NUMBERS

4,000

locations have access to a common infrastructure and network



All general practice sites can access nationally hosted Primary Care Systems

448



90,000

unique user logons

and **60,000** devices are registered and managed via the National Active Directory



448

All practices have access to the patient portal "My Health Online" for online appointments and prescriptions

7,000,000

Over emails in and out of the NHS per month and over ten times that number of internal e-mails are handled



60,000

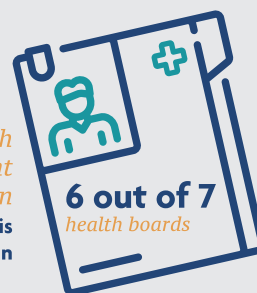
Around GP e-referrals are sent *per month* (and growing) from practices to hospitals including cross border referrals

The Child Health System is supporting in excess of

680,753

electronic record

The *Welsh Patient Administration System* is implemented in



6 out of 7 health boards

with **30,613** registered users.

Transactions per year range from **89 million** for the smallest health board to 790 million for the largest health board



Our national, local and the primary care Service Desks managed around

17,000

calls per month with the average first time fixes on incidents around **44%**.

The Welsh Laboratory Information Management System has **3623** active users.

In one month alone (April 2017)

2,396,162

tests were requested and processed

Customer Satisfaction Survey for March 2017 was **91%**





WELSH CLINICAL PORTAL

Key achievements include new services available through the Welsh Clinical Portal. The portal is the digital work space used by hospital doctors to support their daily tasks. It has been developed by the NHS Wales Informatics Service in collaboration with healthcare professionals.

1. Welsh Results Reporting Service

This service makes test results available for clinicians, no matter where in Wales the tests were taken, making it safer for clinicians to make crucial decisions and saving patients from duplicate tests.

Palliative Care Consultant Dr Victoria Wheatley has reported that it is helping to make crucial decisions about the care of patients. “If a patient tells me they had a blood test in such-and-such a hospital 3 days ago I can look that up on the computer and I can find it out and it helps me make decisions, it also prevents me having to take blood again so it’s much sleeker, it’s much smoother, its presented in a way that’s really easy to use, so it’s really making a difference.”

2. Welsh Care Record Service (WCRS).

Population of and content indexing of documents into the core clinical records database, known as the Welsh Care Records Service, has made significant progress towards the Welsh Government’s aim to create a virtual single patient record. Five health boards now have their primary care referrals visible within WCRS.

3. Welsh Patient Referral Service

A new digital referral service from GP to consultant. A consultant can carry out a number of electronic actions with each referral, including prioritising, returning to the GP (with an explanation), and redirecting to non-consultant services or clinics.

With the introduction of the referral service it is now possible to process a patient referral completely within a hour. In stark contrast to days or weeks for paper-based processed referrals.

Use of the digital referral service, together with a redesign of clinics, has made a real impact at a cardiology clinic in Cardiff. Care for around 30% of patients can now be managed without the patient needing to attend hospital to see a cardiologist - freeing up resources.

Full implementation across Wales is expected during 2017-18. Roll-out of the Patient Referral Service across the NHS in Wales brings with it substantial cost saving efficiencies.

4. Welsh GP Record

For the first time a summary of key information from a patient's record is available wherever they receive care in Wales outside the GP surgery, including outpatient appointments.

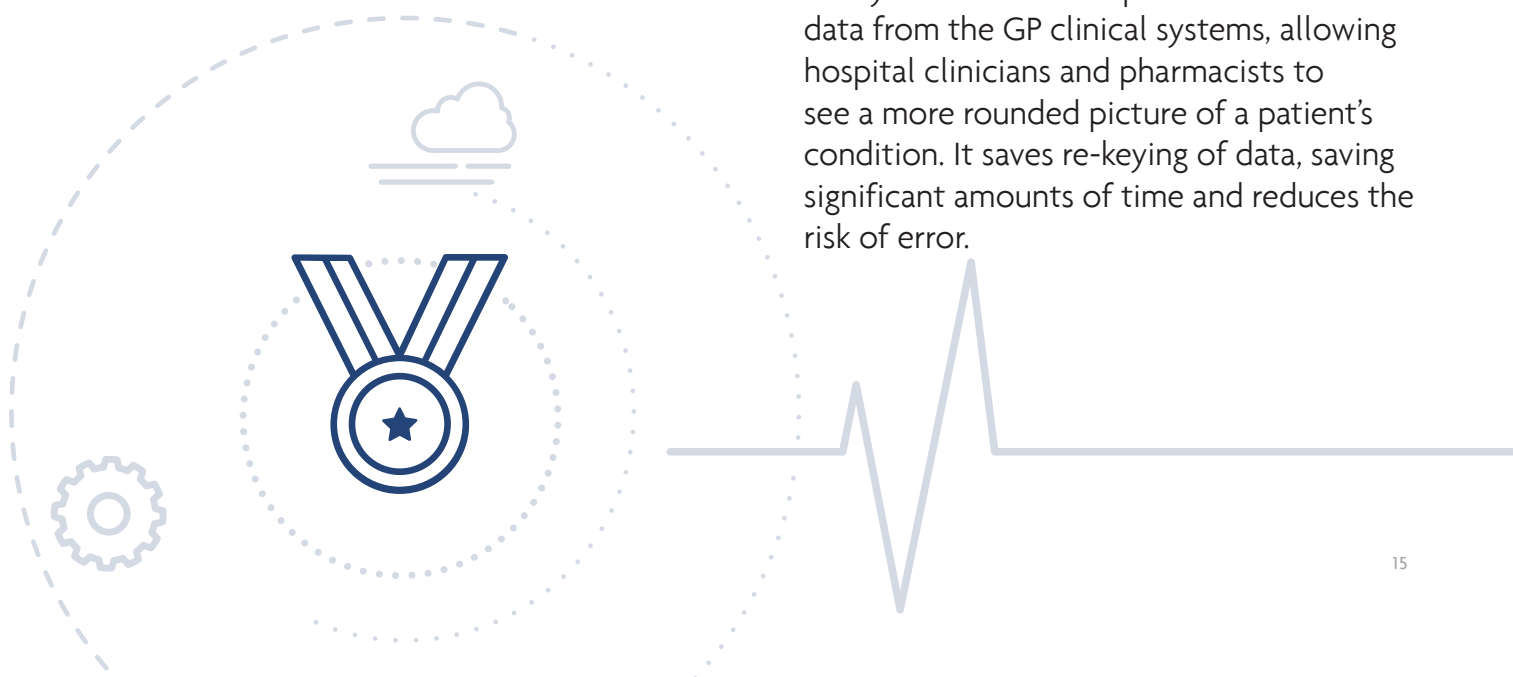
Dr Jake Tanguay a consultant oncologist based at Velindre Cancer Centre, has reported that it is helping him provide the best patient care. "It has certainly sped up my consultation times - you have access to everything that has gone before with a patient. Sometimes patients couldn't remember the names of conditions with complex medical names. Now, you can just look on the Welsh GP record and it is there for you to see."

5. Medicines Transcribing and eDischarge (MTeD).

This service is replacing a time consuming paper-based process that could mean the patient was discharged long before the discharge advice note reached the GP. It enables a new way of multidisciplinary working with the recording and sharing of electronic information from the point of hospital admission and then throughout the patient journey to post discharge.

The children's ward at Ysbyty Gwynedd has seen 96% of discharge information reach the GP within 7 days. Only 6% of paper discharges achieved the 7-day target.

Implementation of MTeD within Hywel Dda, Powys and Cardiff & Vale has completed. Roll out is underway in BCU. Additionally, the system can now import medications data from the GP clinical systems, allowing hospital clinicians and pharmacists to see a more rounded picture of a patient's condition. It saves re-keying of data, saving significant amounts of time and reduces the risk of error.





INFORMATION FOR YOU

Providing patients with the digital services they need to connect with care and look after their own wellbeing.

- **My Health Text.** The majority of practices (94%) in Wales are using My HealthText to send messages to patients to remind them of future appointments, clinics etc. Practices using the service have seen a reduction in patients missing appointments.
- **My Health Online** makes it easier for patients to make appointments with their GP or request repeat prescriptions. It is available to all GP practices, with 80% offering online booking and repeat prescription services. A new look for the homepage will be launched shortly to make the service easier to use on mobile devices. A new easier online registration will also be introduced.
- **Patient Recorded Outcome Measures (PROMs) and Patient Recorded Experience Measures (PREMs).** A proof of concept was successfully completed and is being developed as a national solution to support direct patient feedback on the care they receive. It is already used by several Health Boards and integrating with the Welsh Patient Administration System (WPAS).
- **Patient access to GP Medical Record.** Preparatory work to give patients access to their GP medical record has been made available within both GP systems, strongly supporting Welsh Government's commitment to co-production, enabling the people of Wales to actively participate in their own care.
- **NHS Wales Portal.** A pilot of a new digital web service, which will act as a common access point for all information on health and well-being for the people of Wales, has been completed. As part of this work, a Lung Cancer website was developed to go live in parallel with a TV awareness campaign in July 2016.



HELPING THE CARE PROFESSIONAL

SECONDARY CARE

These initiatives aim to increase efficiency, safety, care co-ordination and clinical decision making for NHS and social care staff.

Welsh Community Care Information System (WCCIS). Launched in Bridgend in 2016 the system is now live in Anglesey, Gwynedd, Ceredigion, Powys, Bridgend, Merthyr and Blaenau Gwent. In Powys both health and social care actively using the system in early adoption and other health areas will be joining local authority partners over the next 18 months.

The WCCIS gives community nurses, mental health teams, social workers and therapists the digital tools they need to work better together. It allows access to relevant information on the care provided to other professionals, to show where a patient is with their treatment.

When it is put into action across all of Wales it will overcome the obstacles posed when organisations use different IT systems by securely storing important information covering a range of activities such as community nursing, health and social care visits, mental health, learning disabilities, substance misuse, complex care needs or social care therapy.

"Five health boards now have their primary care referrals visible within Welsh Care Records Service."

Choose Pharmacy. Availability and functionality of the Choose Pharmacy service has increased significantly. Two new modules have been completed to support the supply of prescribed medicines to patients in an emergency and the development of the seasonal Flu Vaccination module. Choose Pharmacy is now being rolled-out across Wales.

Welsh Laboratory Information Management System (WLIMS). The Welsh LIMS is a clinical IT system used by pathology staff across Wales for storing, recording and exchanging information such as blood test results. It also links to the machines which conduct the tests and analyse the samples. Additional functionality has been added to the LIMS to support cytology and histology text analysis.

Screening. New Born Hearing and Blood Spot screening technology services have been delivered to Public Health Wales and since January 2017, all GP practises are receiving positive and negative test result notifications from Bowel Screening.

Welsh Patient Administration System (WPAS). The hardware, software and data migration of the Welsh PAS was delivered within Betsi Cadwaladr Health Board (Central), along with user authentication. This is a significant milestone in bringing the NHS in Wales up to a standard all-Wales PAS. The PAS holds patient ID details, outpatient appointments, letters and notes. It is also used to records details of patients' hospital visits, including waiting list management, medical records, inpatient treatment, outpatient appointments and emergency visits. The Welsh PAS is used in six out of seven health boards in Wales.





HELPING THE CARE PROFESSIONAL

PRIMARY CARE

These initiatives support GPs and the patient pathway:

- **GP Test Requesting and Reporting (GPTR)** is now available in several health boards across Wales, providing efficiencies in both cost and speed of requesting. Test Requesting (GPTR) allows staff at general practices to send test requests electronically. They are able to create a request by choosing from a list of tests available at their local laboratory and use patient and clinical information, which can be automatically populated into the request from the GP Record. The GPTR system prints a request form and labels to accompany the sample taken from the patient. The request will then be sent to the hospital laboratory.
- The GPTR system will also allow general practice staff to view patient test results as requested from general practices and hospitals. These results can also be 'downloaded' into the patient's GP record.
- **GP2GP.** The roll-out of the transfer of medical records between GPs is now underway. Digital transfers enable patients' electronic health records to be transferred



directly and securely between GP practices, when a patient registers with a new practice. It helps to improve patient care as GPs will usually have full and detailed medical records available to them for a new patient's first consultation. It is providing significant efficiencies and cost savings over the manual process in both primary and secondary care. Implementation is expected to complete by October 2017.

- **GP Audit+** This service was enhanced to enable General Practices to participate in national clinical audits (Diabetes, COPD and Chronic Kidney Disease) achieving 100% participation for Diabetes and being the only home country to work with the Royal College of Physicians to deliver the COPD audit. In addition to this, Audit+ supported a continuous quality improvement initiative with the Royal College of General Practitioners focusing on Diabetes care.



INFRASTRUCTURE & CYBER SECURITY

Infrastructure Services are the underlying components that make delivery of all health and care systems possible. Without a robust reliable infrastructure modern digital health services would not be available.

The delivery, development and maintenance of these essential services are at the heart of what we do and will increase in importance as more digital services are brought online.

To support this a **five-year Infrastructure Refresh** is in place to reflect the key requirements of maintaining the NHS Wales infrastructure in a sustainable and secure manner. The refresh plan underpins our commitment to patient safety and service availability.

We have developed a comprehensive **cyber security plan** to protect against cyber-attacks and keep digital systems in NHS Wales safe and our **networks firewall** was upgraded for enhanced security across national services.

Refresh of desktops and implementation of **Windows 10** for NHS Wales Informatics staff, GPs and other supported organisations has made significant progress and ensures that staff efficiency is not compromised by wasted time and effort due to out-dated equipment.

Remote access provision was enhanced to ensure that NHS Wales' staff can work from locations outside of their usual work base, such as at home

National Intelligent Integrated Audit Solution (NIIAS). This digital audit tool is now nationally available. NIIAS makes it quicker and easier for Health Boards and Trusts to spot any unauthorised access to patients' electronic records, or potential data breaches.