Digital Health &
Care Strategy

NHS
Greater Glasgow
and Clyde

Digital on demand

2023-28

eHealth

Contents

Message from the Interim Director of eHealth

During the development of this strategy I have been hugely impressed with the enthusiasm and input from our staff across all services in NHSGGC.

The previous strategy 2018-2022 was very well received and set out a range of programmes and innovation opportunities.

This new strategy, Digital on Demand, has been developed with staff and citizens and there has been extensive engagement to make sure that we have captured as many views as possible. The strategy builds on the investments made over the past 5 years and seeks to enable a range of transformation opportunities for the implementation of technology aligned to the Board's corporate aims and objectives and our transformation plans set out within Moving Forward Together.

Over the past five years there has been significant progress across all of the main programmes. The COVID-19 pandemic meant that digital implementations were accelerated and in some cases new developments were delivered. Our innovation programme has been well established and has started to scale up a number of what started as small scale research and innovation initiatives, delivering real benefits to patients.

The strategy focusses on the delivery of digital to support transformation, increase our "digital maturity" make digital tools as accessible as possible and support staff and citizens to adopt these new technologies.

The strategy will be supported with a detailed Digital Delivery Plan for the next 5 years and each of the major programmes will include a business case to ensure that investment is targeted appropriately.

We will continue to work closely with staff and the public and encourage continued involvement in the delivery of the benefits of digital.

Introduction

This Digital strategy presents our vision for “Digital on Demand”: the next phase in NHSGGC digital journey. The world has changed for everyone since the COVID-19 pandemic, and digital technologies supported people through that change. Now we look to how technology can help us meet the challenges of the coming years.

Recovering from the impact of COVID-19 and remobilising clinical services are the main challenges now facing NHSGGC. We need to:

- Continue to engage actively with citizens and patients to inform service improvements
- Replace paper processes with digital alternatives
- Modernise and enhance existing systems to be fit for the future
- Maintain our ability to respond to future challenges such as another pandemic
- Transition to “living with COVID-19”, focusing on prevention and early intervention
- Build digital approaches into our broader population health improvement effort
- Increase the use of technology to support patient care including virtual consultations
- Support blended working for our staff

Our shared vision is to connect citizens and staff, to deliver the best care possible. We will listen to and learn from citizens and staff to help deliver solutions now which are ready for the future, and provide robust, connected digital services which maximise the benefits of technology. And we will help citizens and staff access information to better inform decision making.

Our digital strategy will support and enable NHSGGC strategic plans including Moving Forward Together, Turning the Tide public health strategy, our Healthcare Quality Strategy and our corporate objectives. This strategy is aligned with key national strategic documents including Scotland’s Digital Health & Care Strategy, the National Workforce Strategy for Health and Social Care in Scotland and Scotland’s Digital Health and Care Data Strategy.

The COVID-19 pandemic accelerated many elements of the 2018-22 strategy including HEPMA (Hospital Electronic Prescribing and Medicines Administration), the digital support for the redesign of urgent care, and the provision of IT equipment and Microsoft Office 365 tools to support remote working practice. We rapidly created new processes and supported new facilities and systems to provide diagnosis, treatment, vaccination and monitoring. During this time, we have found new ways to introduce digitally enabled change at scale and pace, and we will carry these lessons into the future.

Major investments will support the introduction of key digital tools including a new Laboratory Information Management System, GP system modernisation and the unified electronic care record.

By giving our staff access to accurate, up-to-date information where and when they need it, we will support high quality decision making. Data capture and robust storage will be enhanced, working with our academic partnerships to ensure that data is securely used to maximise benefits for healthcare. There will be a focus on data quality and data visualisation to ensure information is accessible and as effective as possible.

We aim to support improvements in patient outcomes and care co-ordination, and decrease fragmentation for citizens as they move across services, by making information more easily available to those that require it at the right time and in the right place. Our vision is for an integrated health and social care system which will rely on technology to support new ways of working. Our rich and well established Digital Health & Care Record (DHCR) will be built upon to create an extended clinical record supporting clinical pathways.

Our vision is for citizens to access and contribute to their own health record online, while ensuring that people who cannot make use of these options always have appropriate alternatives. We want to empower people to access and use their personal data, and digital appointments, and actively manage their health and wellbeing.

Our staff need the skills and confidence to use technology to its fullest extent: digital literacy. We will engage with staff to ensure that they have the support and guidance they need, and embed digital skills in recruitment, induction and the learning and development process.

Significant digital changes across Primary Care will enable more integrated care and information sharing between professionals. Re-provisioning GP Clinical and Document Management systems will enhance MDT working for extended practice staff, help underpin improvement plans and be an enabler for patient-held records.

Clinical Portal access will continue to be extended for independent contractor groups, and support will be broadened for intra professional referrals for treatment and advice. For example, the expansion of Open Eyes Ophthalmology EPR Systems to community optometry will further enable shared care working, monitoring and treatment of stable patients within community care. The acute dental service will be further digitised through use of DHCR and a dental charting system.

A major programme to digitise the remaining inpatient paper notes has commenced. This will further increase the “digital maturity within NHSGGC hospitals.

Innovation is central to the ongoing transformational change that is necessary to support new models of care and prevention. NHSGGC has a strong track record of delivering transformational innovation to research, co-design, co-develop and deliver new innovative solutions. We will work with industry to create new tools, build on new ideas from clinical staff, and gather evidence to provide solutions aligned to the Board’s priorities.

Our Public Health and Health Improvement Teams will incorporate digital approaches when further expanding their programmes of delivery. They will work closely with Health and Social Care Partnerships and wider community partners, and will use collaborative methods with our diverse communities to further advance innovative practice. Better joined-up data at both the individual level and across systems will enable services to pro-actively identify and address inequalities in access and outcomes.

Our vision is to transform diagnostic services through delivery of digital solutions. Digitally enabled diagnostic services will be supported through the implementation of a new Laboratory Information Management System (LIMS) providing opportunities standardise tests and redesign services across Boards, regionally and nationally.

The safety and efficiency benefits of electronic prescribing will be spread by extending HEPMA to outpatient and day case areas, building a more complete picture of how we use medicines to deliver care. The eMedicines programme will replace paper-based medicines processes in community, primary care and hospital settings with electronic alternatives.

Existing capabilities will be built upon to deploy decision support tools for prescribing, diagnostic tests and beyond. We will work with national colleagues in the national decision support programme to restore and renew services in response to COVID-19, reduce stress for staff, and reduce unnecessary variation in practice.

Our previous digital strategy talked about “Digital as Usual”, and the last few years have seen us transform our use of technology to support aspects of health and care. The COVID-19 pandemic had a huge impact and required NHSGGC to accelerate many parts of our digital roadmap.

Our new strategy focuses on “Digital on Demand”: we will improve and extend the digital tools we provide, maximise the investment made to date and make these tools accessible to staff and citizens where and when they need them, and ensure that people have the skills and confidence required to use them to their full potential.

Our stakeholders

This strategy is intended for a wide range of stakeholders, who have different interests and perspectives about digital in NHSGGC. Because of the wide readership, we have taken extra care to explain the purpose of this strategy, who it is intended for and how they can benefit from it.

For citizens

Due to the nature of our work, some of the sections in the strategy contain technical phrases and acronyms that will be unfamiliar to you. These are necessary to explain to our staff and partners what we are looking to achieve over the coming years. Sections that might be of particular interest to our citizens are:

- What we mean by digital
- Our core principles
- Impact of our work
- Citizens
- Citizen Access
- Glossary of terms

For NHSGGC staff

- Five year vision
- Strategy engagement
- Staff
- Clinical
- Workforce digital literacy and skills

For partners

- Key drivers
- What we enable
- Partners

Of interest for any stakeholders are the strategic themes and priorities sections. However, we appreciate that some of the language used is specialist and therefore more relevant to certain types of staff roles and partners.

What we mean by Digital

Digital is a big topic that is difficult to explain without giving examples. To highlight some of the ways digital is improving care for people across Greater Glasgow & Clyde, please see the stories included throughout this strategy told from citizen and NHS staff perspectives.

Digital

Digital is a way of working where our staff and citizens are supported by data/ information, tools and technology. Digital isn't exclusive to the eHealth Directorate: everyone can benefit from digital processes and ways of working. This includes all types of staff in both health and social care as well as citizens, patients and their carers.

eHealth

eHealth is the Directorate within NHSGGC that designs, manages and maintains digital solutions for our citizens, staff and partners. This involves working with electronic health technologies and online solutions to deliver better care. In a broader context eHealth describes health and social care that is supported by digital technologies.

NHS Greater Glasgow and Clyde

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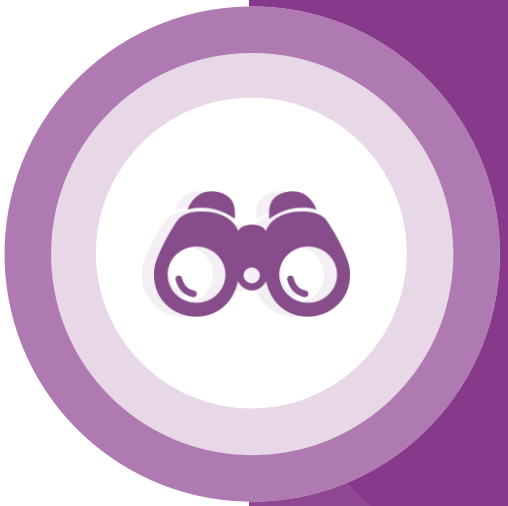

2023-28 Digital vision

eHealth

Section 2 - 2023-28 Digital vision

Shared vision

"Connecting citizens and staff, to deliver the best care possible."

Data-enabled care:

- Better joined-up data and information for citizens, staff and services
- Staff with the skills and access they need to make use of this information
- Staff enabled to deliver the best possible care to citizens through better information

The right tools for the job:

- Digital solutions that meet the needs of citizens and staff
- Simplified and consolidated Digital systems to help staff and citizens get maximum benefit
- Removing paper from the process wherever possible

Joined-up progress:

- Digital services that are secure, robust, and accessible
- Enabling organisation-wide joined up ways of working
- Transforming the way we deliver care while ensuring that no-one is left behind

Innovating for improvement:

- Working with partners to find novel solutions to problems
- Making innovations mainstream and spreading the benefits
- Delivering solutions now while anticipating future demands

Moving beyond COVID-19:

- Use what we've learned to accelerate progress
- Support NHSGGC recovery and remobilisation
- Prioritise Digital enablers of NHSGGC clinical strategy and corporate objectives

Meeting the financial challenge:

- Delivering value within the resources available
- Realistic planning
- Achievable efficiency improvements

Core principles

To guide delivery of this strategy, we have identified several core principles. They are foundational to our decision making and represent the behaviours we want to exhibit while delivering the strategy. These principles underpin all our digital activities, programmes and initiatives:

Listen to and learn from citizens and staff

People will always be at the heart of our digital work. We commit to understanding diverse needs and aspirations, to ensure that our digital services are fundamentally fit for people.

Provide robust, connected digital services

We recognise the ever-increasing reliance our society has on digital services. We will provide integrated, accessible, and secure digital health and social care solutions for everyone.

Enable better-informed decision making for citizens and staff

We will promote appropriate access to and use of data, to transform clinical and wider decision making. We want the right information in the right hands, at the right time, to support patient care.

Maximise the benefits of technology

We will innovate and exploit the potential for digital technology to transform service delivery, and measure the benefits to track our progress. We will achieve this while educating and up-skilling staff, to ensure they do not feel left behind.

Deliver solutions now and ready for the future

We will deliver digital services that are needed now, while anticipating future demand and capability, with a proactive and pragmatic approach.

Strategically align Digital through robust governance

Through robust governance we will ensure that every step in our Digital journey supports and enables NHSGGC strategic direction and priorities.

Benefits realisation

The table below shows the key benefits enabled and delivered by Digital On Demand, aligned with NHSGGC corporate objectives. These were identified in consultation with a multidisciplinary group including citizens, clinicians and other stakeholders.

Corporate objective	Related digital strategy benefit
Better Care	Digital Equality Citizen Access Digital health and care records Clinical Informatics Safer diagnostics Safer use of medicines Decision support
Better Value	Remote practice Innovation Patient Administration Transformation
Better Workplace	Digital literacy and skills Blended working Accessibility Clinical Informatics Governance

We will apply the Managing Successful Programmes approach to benefits realisation to establish benefits measurements, monitor benefits realisation, measure benefits during and after implementation, and monitor and report benefits realisation on an ongoing basis.

Evaluation of benefits realisation evidence will be scrutinised through Programme Board governance structures with oversight from eHealth Strategy Board. An annual benefits report will be presented to the Finance, Planning and Performance Committee.

How will we measure progress?

We will routinely build active benefits realisation into programme plans to track delivery of the key improvements we aim to achieve:

- Increasing adoption of electronic health and care records across our services, with reduction of paper-based processes
- Build a comprehensive and integrated shared record to support health and care multi-disciplinary teams working across acute, community and primary care sectors
- Ensuring people, over time, routinely have online access to personal health and care records and are able to make appointments electronically and interact with services using digital tools
- Ensuring that access to records and digital tools is simple and straightforward for our staff and that they have secure access to the information that they need when they need it
- Engage with services to ensure that there are robust design principles and business cases in place
- Measuring against the national Health & Social Care Digital Maturity Assessment

Risks

Digital on Demand presents an ambitious programme for digitally enabled health and care over the next five years. The impact of COVID is still being felt, and NHSGGC's priority is to remobilise services as we move into the future. The financial pressures on the NHS continue to increase, which will require ongoing reprioritisation of Digital activity to achieve maximum benefit from the investments we make.

The financial pressures and complexity of the overall digital programme will require close risk management across all major programmes. Any risk to delivery will be reported to the eHealth Strategy Board and then on to the Corporate Management Team.

The NHSGGC Board has invested in digital during the past 5 years and it is important that these assets are maximised to ensure value for money and ongoing benefit. A robust business case approach will be undertaken for major investments and all requirements will be assessed for fit with existing digital systems and tools to avoid any unnecessary costs.

A detailed Digital Delivery Plan will be developed to align with the strategic goals set out in this strategy, the corporate objectives and Board operational priorities. This will be overseen by the eHealth Strategy Board and the Corporate Management Team, reporting to the Finance Planning & Performance Committee and the Audit & Risk Committee.

Internal audit of the governance and delivery of the strategy will be included within the eHealth audit plan.

Risk	Mitigation
Insufficient funding to deliver the strategy	Maximise efficient use of available resources Ensure a business case approach to investment Explore additional funding sources Reprioritise delivery plan
External dependencies not delivered (e.g. national programmes)	Engage with external partners to ensure delivery Implement tactical solutions in NHSGGC until external dependencies delivered
Operational pressures require reprioritisation, delaying planned work	Ongoing review of delivery plan to ensure alignment with organisational priorities
Unable to recruit and retain staff with the required skills	Support existing staff to develop and progress Enhance recruitment and retention processes to make NHSGGC eHealth a more attractive place to work
Further COVID or other pandemics require planned work to be paused or cancelled	Build on existing tools to support clinical services through any future pandemic Reprioritise delivery plan

NHS Greater Glasgow and Clyde

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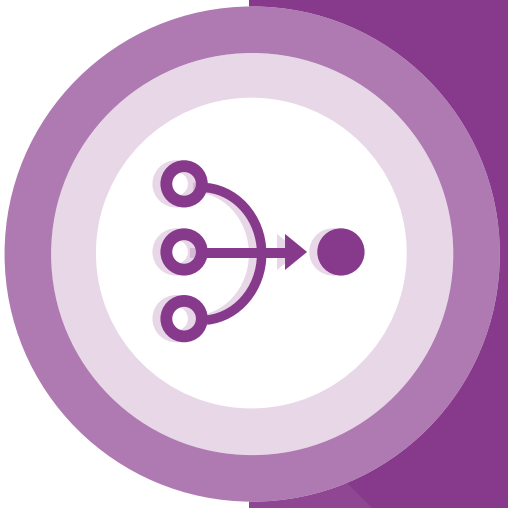


Essential context

eHealth

Section 3 - Essential context

Strategic drivers

When researching and engaging with stakeholders during production of this strategy, we have identified and adopted a series of important drivers and disruptive factors. This portion of the strategy explains the influences, relevant strategies, policies, frameworks and standards that have informed our approach and guided our thinking. Relevant drivers of note include (but are not limited to):

- National Digital Health & Care Strategy
- National Workforce Strategy for Health and Social Care in Scotland
- Fairer Scotland Duty
- Meeting the Requirements of Equality Legislation (2020-24)
- NHSGGC Stakeholder Communications and Engagement Strategy (2020-23)
- NHSGGC Healthcare Quality Strategy 2019/2023
- Scotland's Digital Health and Care Data Strategy (in development)
- NHSGGC Moving Forward Together (MTF) programme
- NHSGGC "Growing Our Great Community" Workforce Plan 2022-25
- NHSGGC Blended Working Guide
- NHSGGC Annual Delivery Plan

We have cross-checked our strategy against the Audit Scotland - NHS in Scotland 2021 report published in February 2022. In doing so we are confident that our plans align with national priorities and respond appropriately to pressures, including aspects of Workforce, Social care (including delayed discharges) and data & system integrations. Aligning with NHSGGC Workforce and Infrastructure planning, we will continue to effect change and represent many voices across NHSGGC and our communities who have diverse digital needs.

In addition, other factors are also important and have impacted our approach to developing this strategy. These include:

Moving Forward Together (MFT)

Launched in 2018, the NHSGGC Moving Forward Together programme is a whole-system approach to planning services covering acute hospital care, community services and primary care in order to improve care and outcomes.

The MFT Portfolio of Projects comprises a range of short, medium and longer term initiatives including development of new ways of working which provide safe, effective and patient-centred care. The Digital Strategy aligns with MFT over the coming five years, making best use of available resources and the opportunities created by innovation and technology.

MFT implementation strategy

NHSGGC is developing a whole-system infrastructure strategy with a 20–30-year outlook, building on the progress made by the Moving Forward Together programme.

The strategy will identify a programme of short-, medium- and long-term investment requirements designed to transform the NHSGGC infrastructure arrangements so that they better meet the challenges faced and support the transformation of clinical services.

Key strategic service changes that would deliver greatest impact for our population will be identified, along with how changes to our infrastructure can support this redesign over the longer term. This work will identify new innovations and digital opportunities coming onto the horizon since the COVID-19 pandemic, consider the impact of new national proposals for Diagnostic Hubs, explore how Community Hubs could help in coordinating care across a broad range of services, and make proposals for where complex specialist care is best located.

eHealth is contributing to the development of the MFTi strategy to ensure that the digital dimension is built in to short, medium and long-term plans. Alongside the MFTi strategy, this digital strategy will support and enable the wider transformational change sought over the short, medium and long term:

- New and innovative methods of delivering care to patients, for example remote consultations and virtual clinics
- New approaches to how and where we work
- Improving patient access to services and information while eliminating inequalities to that access
- Enabling self-diagnosis, treatment and care
- The move towards “smarter buildings”
- Transformation of how we use, manage and operate space

HSCP strategic plans

Several HSCPs including East Dunbartonshire, East Renfrewshire and Renfrewshire have recently updated their strategic plans. A consistent aim throughout is the ambition to maximise the benefits of digital technology to support the delivery of care. Several common themes have emerged, including:

- Citizen access to services and information
- Supporting virtual consultations
- Digital skills, equality and inclusion
- Preventing digital exclusion
- Enabling citizen independence and self-management
- Joining up processes, services and systems between social care and health

NHSGGC sustainability strategy

NHSGGC Sustainable Development and Net Zero transformation is driven by the Scottish Government’s ambitious targets, driven by the climate emergency, mandating the public sector to achieve Net Zero by 2045. NHS Scotland has gone one step further and tasked territorial Health Boards to become net zero by 2040 across all our scoped emissions and Net Zero in how we heat and power our buildings by 2038.

NHSGGC goal is to improve the environmental, financial and social performance of its assets and services for our patients, staff and visitors through continuous improvement, in turn achieving carbon reduction targets.

NHSGGC Communications and Engagement Strategy

This strategy describes a digital-first approach to engagement which will be used in addition to traditional non face-to-face methods, allowing NHSGGC to deliver a blended approach to tailoring engagement to best suit the needs of stakeholders. The digital strategy and delivery plan will support this digital-first approach.

COVID-19 pandemic

Expectations of citizens and staff regarding Digital have changed, in what some describe as a "paradigm shift" due to the pandemic. Remote working and remote consultation have cemented themselves as permanent fixtures as part of day-to-day healthcare and we now rely on them even more than before the COVID-19 pandemic. We have learned many lessons from the experience, which will inform our next five years of strategic focus.

National strategies

Scottish Government and COSLA have recently published Scotland's Digital Health and Care Strategy, *Enabling, Connecting and Empowering: Care in the Digital Age*. This presents the vision "To improve the care and wellbeing of people in Scotland by making best use of digital technologies in the design and delivery of services".

The strategy identifies the following key aims:

1. Citizens have access to, and greater control over, their own health and care data – as well as access to the digital information, tools and services they need to help maintain and improve their health and wellbeing
2. Health and care services are built on people-centred, safe, secure and ethical digital foundations which allow staff to record, access and share relevant information across the health and care system, and feel confident in their use of digital technology, in order to improve the delivery of care
3. Health and care planners, researchers and innovators have secure access to the data they need in order to increase the efficiency of our health and care systems, and develop new and improved ways of working

Other key national strategy documents include the National Workforce Strategy for Health and Social Care in Scotland, Scotland's Digital Health and Care Data Strategy (currently in development), and national and international sustainability strategies.

NHSGGC Healthcare Quality Strategy

The Pursuit of Healthcare Excellence identifies three quality ambitions:

- **Person centred**: mutually beneficial partnerships between patients, their families, carers and those delivering healthcare services which respect individual needs and values, and which demonstrate compassion, continuity, clear communication and shared decision making
- **Effective**: the most appropriate treatments, interventions, support and services will be provided at the right time to everyone who will benefit, and wasteful or harmful variations will be eradicated
- **Safe**: There will be no avoidable injury or harm to people from the healthcare they received, and an appropriate clean and safe environment will be provided for the delivery of healthcare services at all times

NHSGGC corporate objectives and operational priorities

The NHSGGC Corporate Objectives communicate the purpose, values, aims and corporate objectives upon which this digital strategy is built.

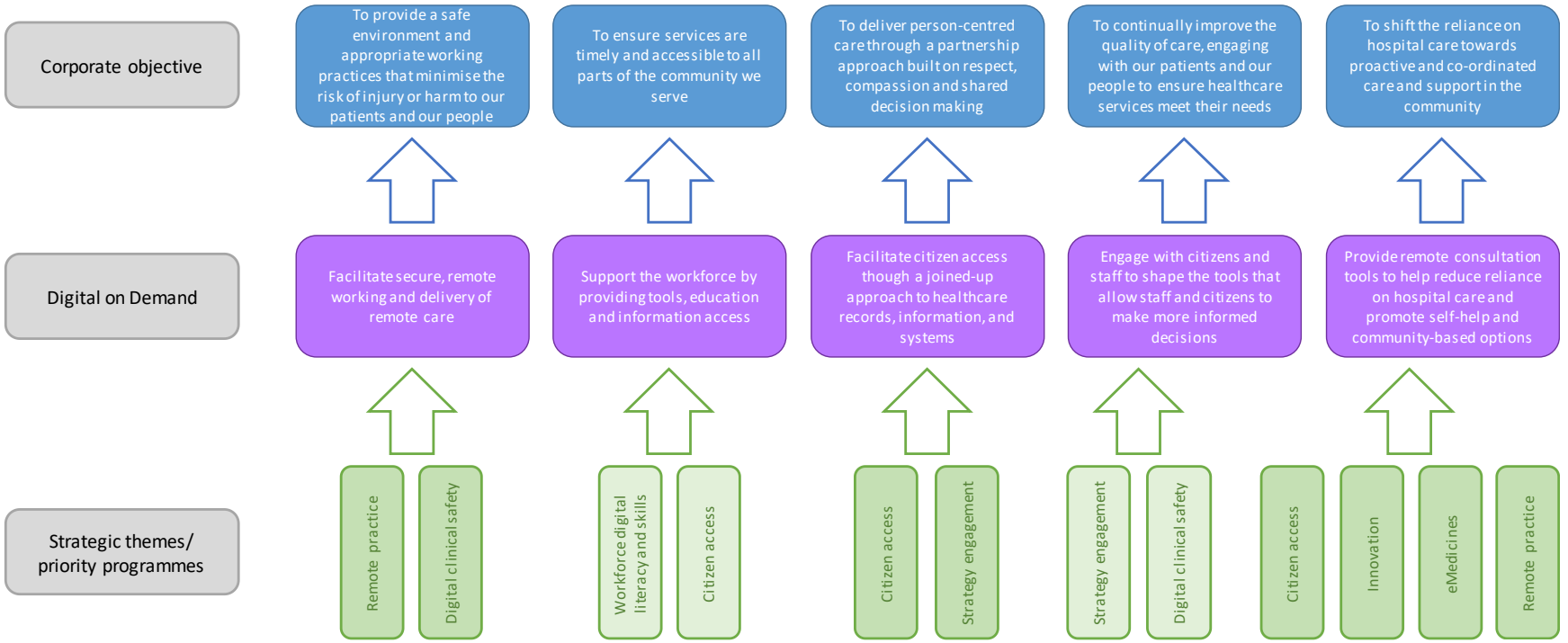
NHSGGC Digital operational priority is “to continue to provide resilient and secure eHealth systems for services with the necessary training and support for staff” and to “deliver the programmes within the eHealth Delivery Plan in support of the Board’s priorities”.

Key programmes include:

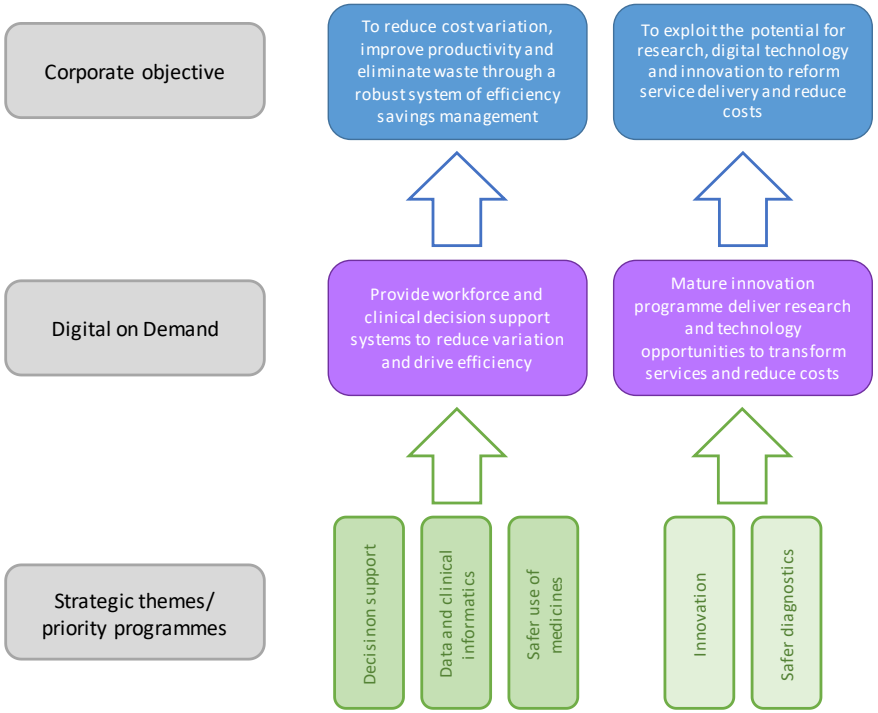
- Scaling up of virtual outpatient appointments and remote patient monitoring where appropriate
- Further implementation of hospital electronic prescribing and administration (HEPMA)
- Further digitisation of inpatient records
- Enabling service improvement and redesign through the use of digital tools

The eHealth Directorate has a significant role to play in supporting all NHSGGC corporate objectives. Highly relevant to our work is the corporate objective that states: “To exploit the potential for research, digital technology and innovation to reform service delivery and reduce costs”. The diagrams below show how eHealth supports and maps to the NHSGGC corporate objectives and operational priorities.

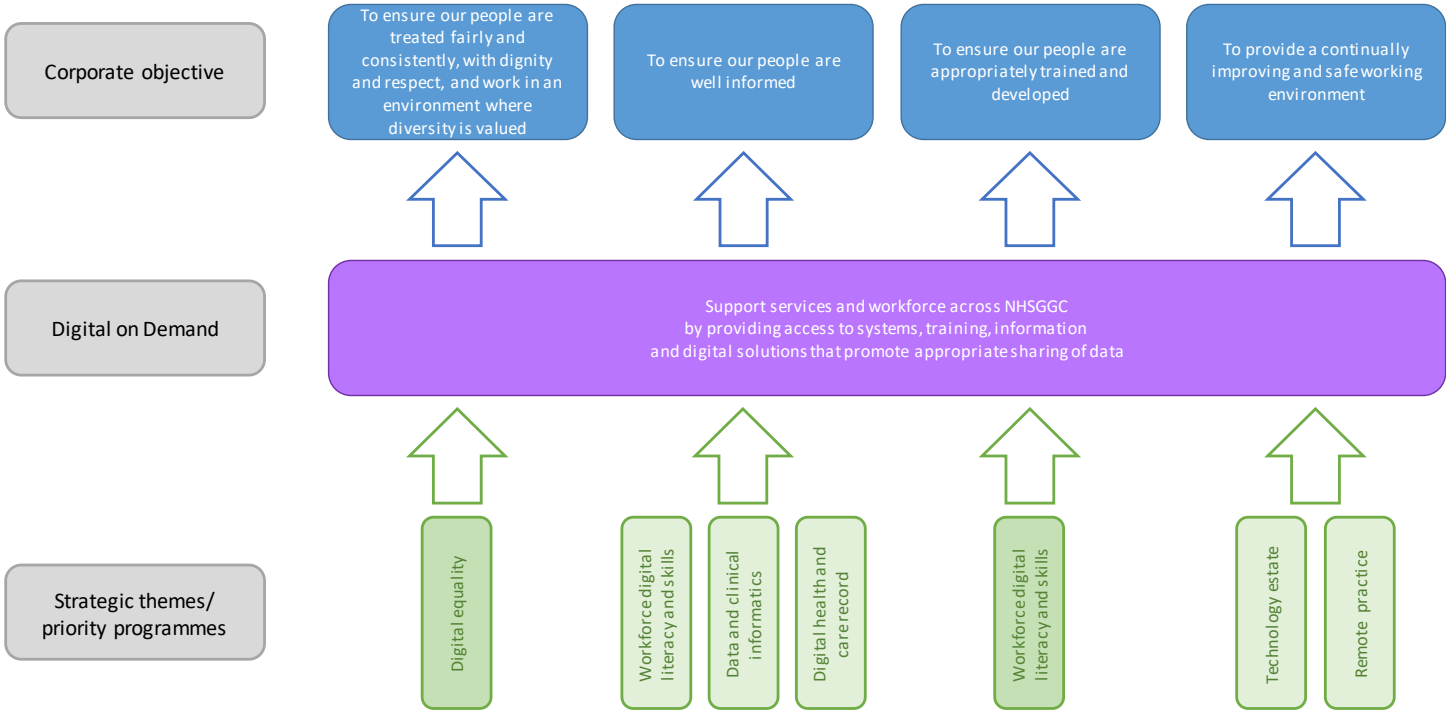
Better care


Corporate objective
Digital on Demand
Strategic themes/ priority programmes
To provide a safe environment and appropriate working practices that minimise the risk of injury or harm to our patients and our people
To ensure services are timely and accessible to all parts of the community we serve
To deliver person-centred care through a partnership approach built on respect, compassion and shared decision making
To continually improve the quality of care, engaging with our patients and our people to ensure healthcare services meet their needs
To shift the reliance on hospital care towards proactive and co-ordinated care and support in the community
Facilitate secure, remote working and delivery of remote care
Support the workforce by providing tools, education and information access
Facilitate citizen access though a joined-up approach to healthcare records, information, and systems
Engage with citizens and staff to shape the tools that allow staff and citizens to make more informed decisions
Provide remote consultation tools to help reduce reliance on hospital care and promote self-help and community-based options
Remote practice
Digital clinical safety
Workforce digital literacy and skills
Citizen access
Citizen access
Strategy engagement
Strategy engagement
Digital clinical safety
Citizen access
Innovation
eMedicines
Remote practice

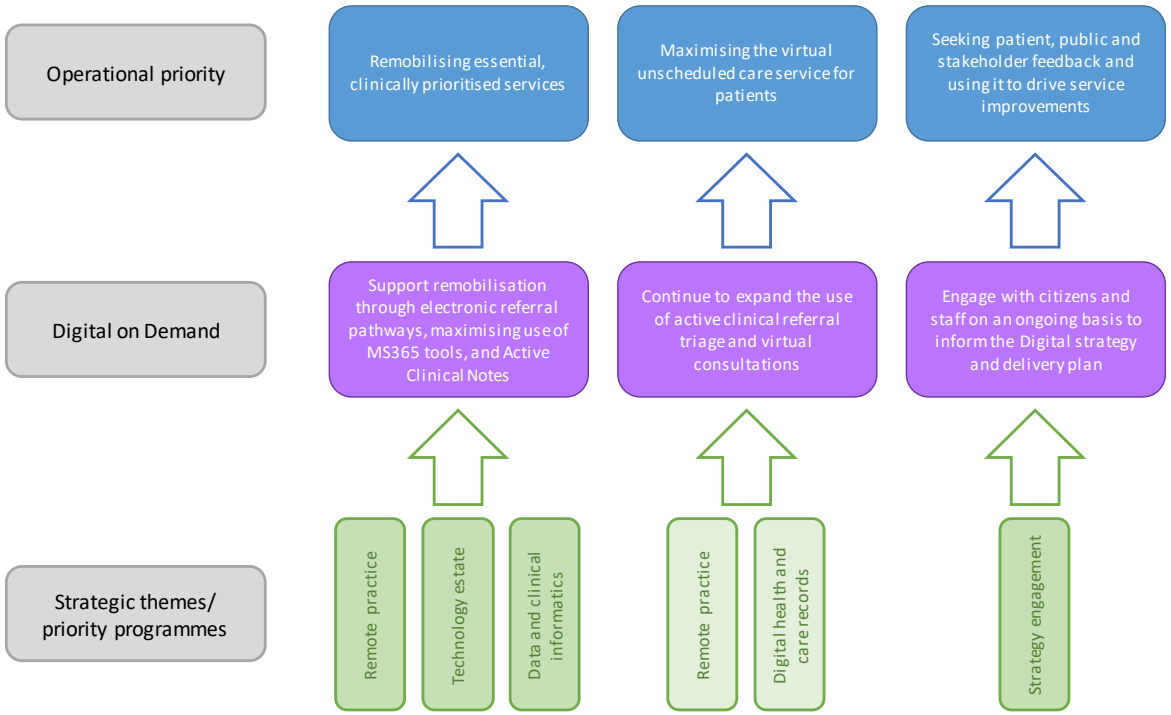
Better value



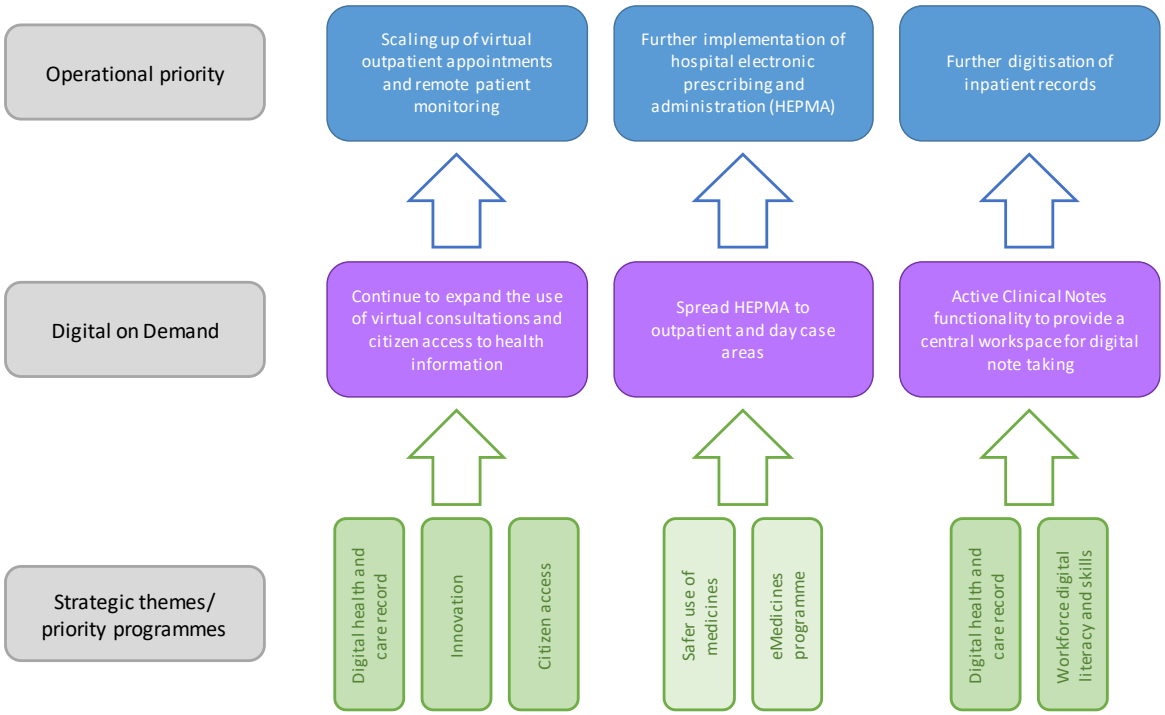
Better workplace



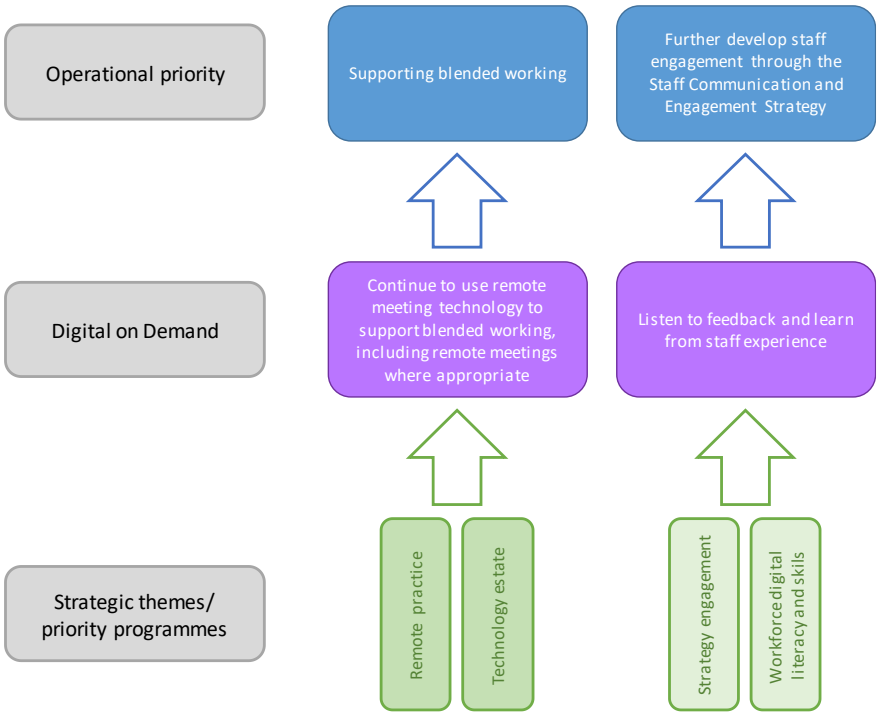
Better care

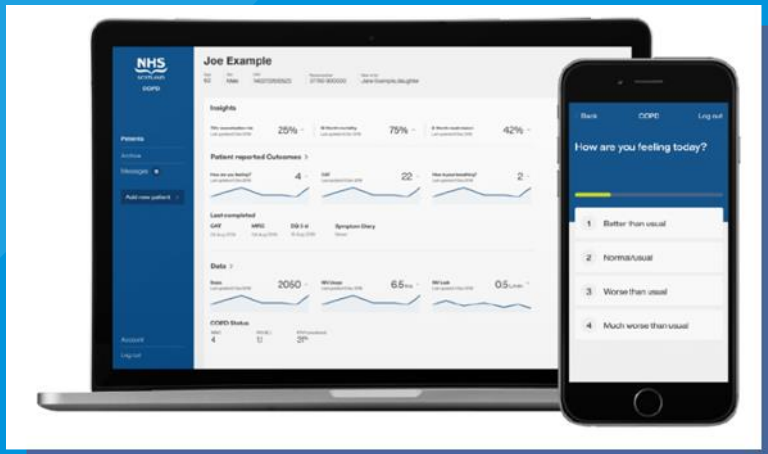

Operational priority
Digital on Demand
Strategic themes/ priority programmes
Remobilising essential, clinically prioritised services
Maximising the virtual unscheduled care service for patients
Seeking patient, public and stakeholder feedback and using it to drive service improvements
Support remobilisation through electronic referral pathways, maximising use of MS365 tools, and Active Clinical Notes
Continue to expand the use of active clinical referral triage and virtual consultations
Engage with citizens and staff on an ongoing basis to inform the Digital strategy and delivery plan
Remote practice
Technology estate
Data and clinical informatics
Remote practice
Digital health and care records
Strategy engagement

Better value



Better workplace



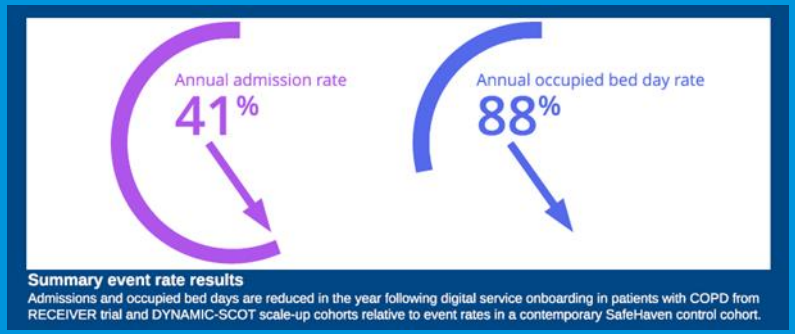


COPD

Chronic obstructive pulmonary disease (COPD) affects approximately 120,000 citizens in Scotland and is the second most common reason for emergency hospital admissions. Since May 2020, NHSGGC patients with COPD have been given the opportunity to monitor their symptoms at home by registering to use the NHSGGC COPD Digital Service.

Using their smartphones or other devices, patients have direct access to a range of self-management tools as well as notifications for daily patient reported outcomes. This enables the clinical team to proactively monitor patients remotely. It also enables patients to message their clinician and community respiratory response team in real-time, improving efficiency of daily care, particularly during COVID-19.

The Dynamic Scot project is a collaboration between NHSGGC, the West of Scotland Innovation Hub, Digital Health & Care Innovation Centre, Scottish Government and NHS National Services Scotland and has already seen success in NHSGGC, with over 550 patients regularly using the service and rollout planned for further Boards. Evaluation results have shown a marked decrease in the number of hospital admissions and attendances, as well as improved efficiencies for the clinical service.



Source: Dynamic-Scot Clinical team final report, November 2021, Carlin C. et al

In July 2021, the project was awarded the Artificial Intelligence in Health and Care Award by the UK Government. This aims to accelerate the testing, evaluation and increase the impact of AI-driven technologies to help solve clinical and operational challenges across the NHS and care settings, allowing innovation to remain at the heart of improving COPD treatment in Scotland.

Please refer to the Impact content section in the Appendix to learn how and why we have selected this content.

NHS Greater Glasgow and Clyde

NHS Greater Glasgow and Clyde

04

Strategy engagement

eHealth

Section 4 - Strategy engagement

Engagement summary

Development of this strategy has been guided by the digital strategy development group, comprising clinical and eHealth stakeholders.

To develop this strategy, we have engaged with many stakeholders over a six-month period, from citizens to clinicians and other essential stakeholder groups. Over 90 individuals have contributed, including over 40 in-person consultations.

90+ Persons engaged

40+ In-person consultations
(some involving 2 or 3 rounds)

15 Authors

35 Contributors

20+ Groups and events

100+ Documents collated and considered

30 Weeks of research and development

245 Citizens responded to survey

Tested with...

- Citizens and Patients
- Clinicians and staff from multiple services
- National Stakeholders & Partners

Citizens

The citizens of Greater Glasgow & Clyde have input heavily into our planning for the next five years, with hundreds of online responses, attendance at dedicated group events and in some cases filmed interviews to support our work.

We asked 245 citizens to rank our revised core principles in order of importance, either for themselves or for somebody they care for.

Citizens ranked our core principles as follows:

1. Listen to and learn from citizens and staff
2. Provide robust, connected digital services
3. Help citizens and staff access information to better inform decision making
4. Maximise the benefits of technology
5. Deliver solutions now and ready for the future

Citizens identified the following key topics:

- A personalised health and care service, powered by digital processes and platforms
- Joined-up systems which “talk to each other” to reduce repetition
- Making sure no-one is “left behind” if they are unable or unwilling to use Digital tools
- Improving communication between staff, patients and carers
- Reducing the administrative burden on clinical staff, enabling them to devote more time to direct patient care

Staff

NHSGGC is the largest employer in Scotland, with 44,000 staff. Highlights of our engagement with staff include:

- Improving implementation of large technology systems, being either new, replacement or updated technologies.
- Providing close and ongoing engagement with staff to help reduce any perceived ‘fear factor’ associated with digital change and new systems.
- Help to become more confident with digital by providing basic skills as well as training for specific or specialist systems.
- Link with local services such as libraries and other educators to provide more basic software skills training, such as MS Office – Word, Excel and PowerPoint.
- Continue to use remote meeting technology to support blended working, including remote meetings where appropriate.

Clinical

The annual NHSGGC eHealth Clinical Links Digital Future event was held virtually in 2021 and provided an opportunity to shape this Digital Strategy. It was attended by 88 representatives with an interest in digital health from across community, acute, regional services and HSCPs.

We asked clinical attendees to rate the importance of digital developments to them and their service. The top three ranked results were:

- Replace paper patient notes/records with digital
- Improve digital skills in the workforce
- Widen the use of structured clinical data

Clinicians focused on the need to remove and replace paper processes with digital alternatives, and emphasised the need for a joined-up single patient record and electronic prescribing. Improving digital skills in the workplace would help staff become more digitally confident and help get the most out of the technology available to them.

Better access to clinical data is needed and clinicians are enthusiastic about the benefits of “joined-up” data that is easier to digest and act upon using visualisation tools such as dashboards. Attendees highlighted the potential for Artificial Intelligence technologies to reduce burdensome and repetitive administration, to give clinicians more patient-focused time.

Partners

In NHSGGC we work with a range of partners including Glasgow Life Sciences hub, national bodies and government, NES Digital, small and medium-sized businesses, commercial and research, workforce partnerships (staff-side forums, unions), care delivery partners, voluntary sector, academia and commercial suppliers.

We seek to build constructive and positive partnerships with our many suppliers. As one of the largest healthcare organisations in the UK, our strategic approach is to welcome the experience and expertise that suppliers can bring, to help us achieve our goals. We work with suppliers to ensure that technology development roadmaps support NHSGGC aims, and seek opportunities to develop and improve digital tools based on the feedback our staff provide.

Essential to our innovation programmes are the many partners and partnerships across Innovation work streams. We will continue to progress digital innovation projects and a balanced portfolio of work addressing speed, scale, technical issues, engagement, risk and funding.

NHSGGC will continue to build on close relationships and partnerships which encourage innovation, including academic partners, Digital Health and Care Innovation, Scottish Government Chief Scientist Office and Scottish Health Industry Partnership, other NHS Boards, UKRI InnovateUK, Healthcare Improvement Scotland and NHS National Services Scotland, Centre for Sustainable Delivery, and major technology partners such as Microsoft, Apple, HP and others.

Pain management programme

Lynne, 61, has widespread pain that has persisted for 5 years. Her situation was made much worse by the pandemic and subsequent restrictions. Lynne was referred to the pain service in early 2021 where she attended a Pain Early Info Session (PEIS) and was subsequently referred to the Greater Glasgow and Clyde Pain Management Programme (GGC PMP). All encounters within the Pain Management Service have been virtual. She has therefore not needed to travel to her appointments, avoiding the significant pain and discomfort from being in the car. GGC PMP uses an evidence based supported self-management approach to help people live a better life with pain.

Pre-pandemic all GGC PMP groups and assessments were face to face, which were much longer in duration, to make the most of the patient's time when they visited. Due to COVID restrictions we reviewed the programme which wasn't going to be appropriate for patients such as Lynne, to sit for 2.5 hours during an online group session.

GGC PMP moved to virtual assessments and virtual group delivery. This included assessments via Near Me (Attend Anywhere video consultation). We took this opportunity to create more preparatory resources which patients could complete in their own time, at their own pace. We used a YouTube channel to share videos, and created worksheets and manuals using MS Sway. Group sessions became more interactive as pre-group preparatory work allowed for more discussion and exploration of topic. The service was fully remobilised virtually, with the same capacity as before the pandemic. Lynne told us she liked the flexible options to work offline and view the videos several times. During the online sessions she enjoyed chatting with others who share similar symptoms and challenges.

Benefits for staff included retaining full clinical commitments whilst working at home due to restrictions with access to work bases. The change has allowed greater involvement from voluntary organisations, who can easily join a virtual meeting for a few minutes to promote their work in supporting people with pain, thereby reducing the burden on them to travel to face-to-face groups.

Please refer to the Impact content section in the Appendix to learn how and why we have selected this content.

NHS Greater Glasgow and Clyde

05

2018-22 retrospective

eHealth

Section 5 - 2018-22 retrospective

What we have delivered

eHealth

COVID-19

3m+ Vaccinations recorded

283k+ Virtual consultations in 2 years

x8 Rapid establishment of Covid Community Assessment Centres

235 GP practices integrated with Clinical Portal

80k+ COVID Hub referrals (Since March 2020)

38k Device replacement and upgrades

40k+ Patients referred to COVID Community Assessment Centre (in 2 years)

18.5k Enabled remote access for staff

200+ Care & Nursing Homes Testing - Set-up & training

SOCIAL CARE

115k Accesses to social care records on Clinical Portal

Yearly

COMMUNITY

922,115 Patients on EMIS Web database

Yearly

354k Clinical letters

GP

22.9m+ Prescription items

Yearly

COMMUNITY PHARMACY

36.9m+ Medicines dispensed

NHS Greater Glasgow and Clyde

HOSPITAL

24.4m Medicines administered

3.3m Medicines prescribed

Yearly

2.1m Letters to GPs

~10% Reduction in missed doses

300k Prescribing decisions amended due to decision support

ACUTE HOSPITAL

4,320,987 Patients on TrakCare database

42m Lab test requests

109k Cardiology requests

1.2m Radiology imaging requests

Yearly

18m Clinical Portal logins

20,733 TrakCare users

Yearly

What we have delivered

The COVID-19 pandemic accelerated delivery against many elements of the 2018-22 strategy requiring rapid creation of new processes and support for new facilities and systems to support diagnosis, treatment, vaccination and monitoring.

The implementation of HEPMA (Hospital Electronic Prescribing and Medicines Administration) was brought forward to facilitate the COVID-19 response including remote prescribing. The redesign of urgent care introduced new electronic referral pathways and transformation of the GP Out of Hours service. Provision of IT equipment and Microsoft Office 365 tools significantly expanded to support the transformation of remote working practice necessitated by the pandemic.

During this time we have found new ways to introduce digitally enabled change at scale and pace, and we will carry these lessons forward both for planned work and any future pandemics or similar challenges.

COVID-19 response

COVID-19 vaccination

Vaccinations were delivered predominantly in community mass vaccination centres, all recorded via the TURAS VMT application. To maintain the lifelong GP record, all COVID-19 vaccination data was back-populated into GP systems.

COVID-19 Community Assessment Centre (CAC)

Over 40K patients referred, appointed and assessed over 2 years of operation. Rapid establishment of 8 COVID-19 Community Assessment Centres including Gateway protocols, RMC appointing, Assessment recording via bespoke Turas App, and PCR Testing.

COVID-19 Hub

Reviewing, monitoring and adapting COVID-19 systems, processes and pathways. The COVID-19 Hub handled more than 80K referrals since March 2020. GP OOH Service continues to receive COVID-19-positive patients and patients with key COVID-19 symptoms during the out-of-hours period.

Care homes testing, email / test results

Set up and training for HSCP sites to generate PCR test requests electronically for over 200 Care and Nursing Homes, and deliver results via NHSmail / 365 and MicroStrategy reports and dashboards.

Rapid implementation of Health Records Admin Hub to support Flow Navigation Hub

- To direct patients to appropriate services to reduce unnecessary pressures on Emergency Department
- Redesign of urgent care pathways
- The Admin Hub incorporates Phlebotomy booking as well as Staff Testing and CAC bookings
- 6,000 referrals are processed each month from NHS24
- 5,000 referrals are processed and booked for Phlebotomy per month
- 1,600 bookings per month are made into Community Assessment centres via the Admin Hub

Informatics and data analytics

- Reporting of positive results to support HSCP and care home management of COVID-19 tests
- Expanded Unscheduled Care Command Centre operational views of SATA and CAC and introduced overview of inpatient positive and pathway cases.
- Introduced collated daily COVID-19 KPI reporting covering activity, occupancy, absences, vaccinations, and prevalence figures.
- Cohort management and schedule processing to support COVID-19 and Flu vaccination programmes.
- Remobilisation planning and activity monitoring including reporting of all reprioritised waiting lists.
- Three million COVID-19 vaccinations recorded via the Vaccination Management Tool application

eHealth delivery plan

Redesign of urgent care

To support the Redesign of Urgent Care an electronic referral pathway was established to receive urgent care referrals from NHS 24. The pathway has been expanded to include Paediatrics. Electronic referrals from NHS 24 flow seamlessly into the Emergency Department TrakCare application.

The GP Out of Hours Service IT infrastructure has been upgraded to a managed hosting service, synchronising all OOHs clinicians and staff to the NHSGGC network, improving access to clinical applications, deploying voice recording functionality for remote workers and implementing barcoded electronic prescribing.

GP Portal summary

To complement Emergency Care Summary (ECS) and Key Information Summary (KIS), Clinical Portal has been integrated with 235 GP Clinical systems to make a summary of the patient's GP information available to appropriate non-GP users.

GP back scanning

Work has progressed to digitise the historic GP paper records, freeing up storage space to be reconfigured into operational workspace. Nearly 1 million paper record files (over 80M pages) are now part of the complete GP Primary Care Electronic Health & Care Record.

GP re-provisioning
NHSGGC has contributed significantly to the National GP Re Provisioning programme which will replace the existing core clinical system and move from local infrastructure to a cloud-hosted approach.

Safer use of medicines

Hospital Electronic Prescribing and Medicines Administration (HEPMA)
HEPMA is now live across all inpatient areas: 360 wards and theatres have recorded over three million prescriptions and 24 million administrations of medicines. The system is supporting remote prescribing across wards and theatres, and has reduced missed doses, increased allergy recording, and improved prescribing decisions via electronic decision support.

Medicines informatics
NHSGGC eMedicines Programme is delivering HEPMA dashboards to give clinical and managerial staff direct access to useful data to inform and improve clinical processes. Examples include missed doses, allergy recording and anti-microbial stewardship.

Integrated Electronic Health & Care Record

We used TrakCare to enable patients on the high-risk register to access required antiviral medication. Identified patients on the COVID-19 shielding list. Used icons on TrakCare to allow easy identification of COVID patients on ward floorplans.

Community phlebotomy hubs
Acute clinicians use TrakCare to electronically request tests while Community Phlebotomy hubs enable patients to have their blood taken in a setting closer to home.

Emergency Department signposting form
This Clinical Portal form records details of patients who are redirected to an appropriate service prior to an ED admission.

LDT (Laboratory Developed Tests) recording
Allows the results of LDTs to be recorded for asymptomatic patients on admission.

Clinical dialogue / advice
Digital Referrals been integrated with Board pager and telephony messaging to provide robust clinical communication between specialties for Neurosurgery referrals, ensuring essential information is available to clinicians via the DHCR.

GP Radiology Order Comms
GPs can now request agreed radiology investigations electronically.

Patient digital images
A pathway has been developed to allow transfer of patient digital images / photographs into Clinical Portal.

National ophthalmology
Scottish Government commissioned NHSGGC eHealth to progress the business case for a pan-Scotland Electronic Health Record systems for Ophthalmology services. The "Open Eyes" system will be used across Scotland to enable sharing across Acute Ophthalmology and Community Optometry services, reducing duplication and aiding shared care.

Self-care and remote care

Virtual consultations
Due to COVID-19, deployment of virtual consultations was greatly accelerated to allow remote patient consulting. Thousands of webcam bundles and laptops were deployed, over 1700 Near Me virtual waiting rooms created, and thousands of staff trained and supported remotely.

Over the past 24 months there have been approximately 330,000 Near Me consultations equating to 150,000 hours of online activity. We have further expanded virtual waiting rooms throughout 2021-22.

Innovation
Innovation activities were prioritised and accelerated to work with industry on co-developing and expanding solutions in Dermatology, COPD, Early Diagnostic Heart Failure and Neurology.

Workforce and business systems

Device replacement and virtual enablement
Most PCs and laptops have now been replaced or upgraded. To enable continued home and blended working, the ratio of laptops to PCs has increased from 25:75 to almost 50:50. To maintain performance and security, this replacement programme will continue to keep up to date.

Infrastructure and Microsoft Office 365
eHealth has provided a combination of user devices, wired/wireless network replacements and UPS (Uninterruptible Power Supply) to maintain service delivery. Email for all NHSGGC users has now been migrated to online hosting in Microsoft Office 365.

Specialist Learning Disability Services

Marie is a young lady with a learning disability who was living at home with her mother when the pandemic began. She lost all of her social activities and was terrified of dying from COVID-19. Marie had been due to move into her own supported accommodation before the pandemic. This had to be put on hold, but she didn't understand why, and blamed herself. Marie became increasingly anxious and low in mood, and by the time her mother contacted Specialist Learning Disability Services, she was not sleeping or leaving the house.

Marie was diagnosed with clinical depression and started treatment. Because Marie had Down syndrome, she was at high clinical risk from COVID-19 and that meant that every face-to-face contact put her at risk. Marie found it hard to express how she was feeling on the telephone, it was not possible to offer assessment or support by telephone.

After an initial face to face visit Marie, her mother and the Learning Disability Team were set up to use NearMe video consultation. This worked really well for Marie. She was comfortable talking over video consultation and the healthcare professional was also able to assess her mental health. Appointments were arranged via email with Marie's mother, and the healthcare professional was able to coordinate times that worked around both of their diaries.

As the pandemic progressed, video consultation was gradually augmented by increased face to face contact with Marie, but the patient's mother still found it easier to meet using video consultation. Marie was finally able to move into her own new home, and Microsoft Teams video was used to conduct multidisciplinary meetings between Marie, her mother, Psychiatry, Learning Disability Nursing, Psychology, Occupational Therapy, Social Services and her new support team. Marie is now on long term treatment and is no longer feeling depressed and anxious. Marie remains under review by the Learning Disability health team, and they are choosing to use a combination of video consultation, email and face-to-face contact.

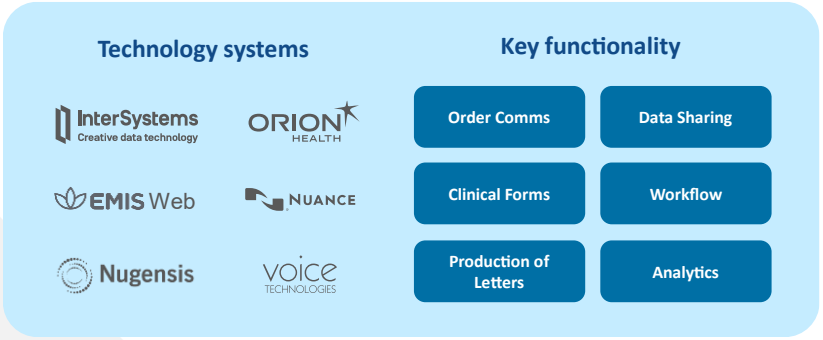
Please refer to the Impact content section in the Appendix to learn how and why we have selected this content.

Clinical systems review

Mid-way through the last strategy period we decided to undertake a strategic review of clinical system requirements, with clinical staff and led by Clinical eHealth Leads. The Clinical Systems Review concluded in late 2020 and provided a strategy and clear roadmap for NHSGGC core clinical systems.

The purpose of the review was to identify specific areas of key functionality of the 'cornerstone' clinical applications that support critical services across hospitals, community and primary care. NHSGGC assessed the best options for current and future requirements to ensure that investment in current systems is optimised.

The work involved development of Business Capability Models for each Care Setting, plotting system usage and identifying challenges. This applied across all of our core/cornerstone systems and six aspects of key functionality:



Following the review, we have begun to:

- Work with regional eHealth teams to develop plans for a unified care record across the West of Scotland region and in future linking to the East and North regions.
- Develop a roadmap building on existing systems to progress the unified care record.
- Build on this review to develop a detailed Target Architecture based on "composable architecture" principles.
- Develop an Outline Business Case for NHSGGC and West of Scotland Boards.

Digital maturity review

The purpose of the Digital Maturity Assessment (DMA) was to assess the level of readiness for digital transformation across health and social care services in Scotland. The outcomes allow Scottish Government to target future investment and to ensure that the necessary leadership, culture, skills, capability and infrastructure are in place to enable progress and improvement.

In April 2019, the Scottish Government, COSLA and partners developed a DMA in the form of an online questionnaire/self-assessment for completion by all Health Boards and Local Authorities by July 2019 in Scotland.

A series of assessments in relation to Health and Care were completed and included engagement and information sharing with HSCPs.

- Workshops and surveys including clinicians, service leads, directors, senior managers and subject matter experts
- HSCP representatives from all local authority partners were involved at all stages
- A staff survey was also issued
- eHealth Clinical Leads Group reviewed and endorsed the draft assessments

The results of the report were positive and showed NHSGGC to have scored highly across all 3 main areas of the assessment, Readiness, Capability and Infrastructure. NHSGGC's overall score was 78% while the NHS Scotland average was 61%.

The feedback session highlighted areas of maturity in relation to Strategic Alignment, Leadership, and Governance. In addition, the investment in acute systems and the use of the DHCR is reflected in high scores for Transfers of Care across acute and primary care responses.

Care setting scores were high in responses specifically relating to Acute, Community and Primary Care.

Key focus areas for further development include:

- Transfers of care – community
- Records, assessments & plans – mental health
- Medicines optimisation – acute, community & mental health
- Decision support – acute, community & mental health
- Digital channels for the citizen

Top Level Summary – By Theme

Digital Health & Care Scotland

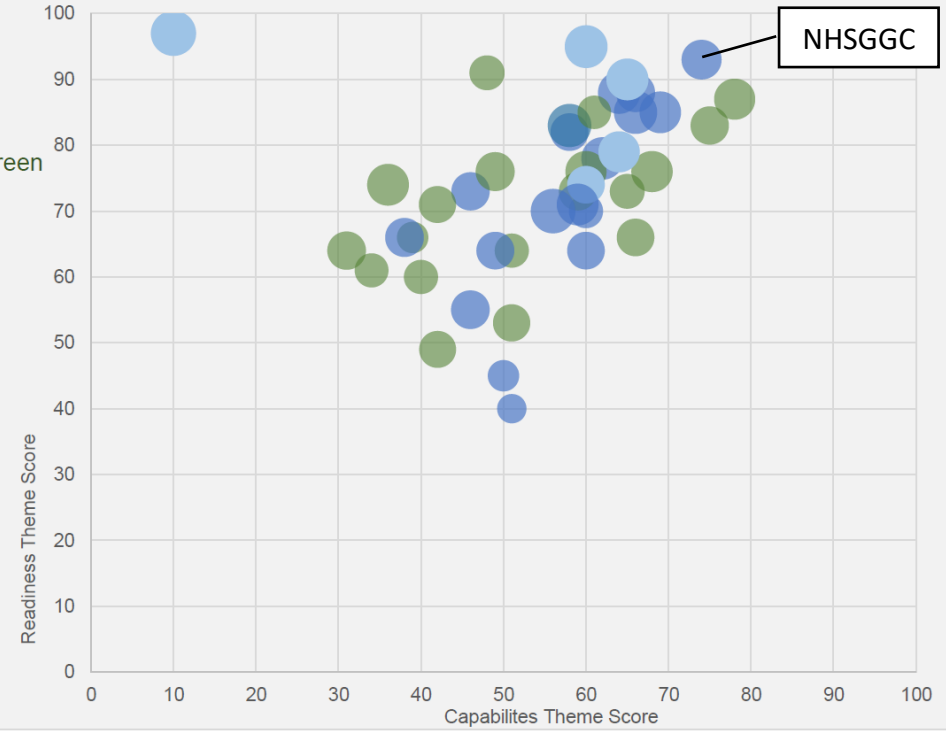
DHCS Digital Maturity Assessment
Theme Scores by Organisation

Bubble size indicates Infrastructure score; Territorial Health Boards shown in dark blue,
Special Health Boards in light blue, Local Authorities in green

Territorial Health Boards and Local Authorities have a similar distribution of scores.

Special Health Boards have disproportionately higher scores.

Several of the Capability sections were not relevant to some of the Special Boards. This accounts for one of the significant outliers.

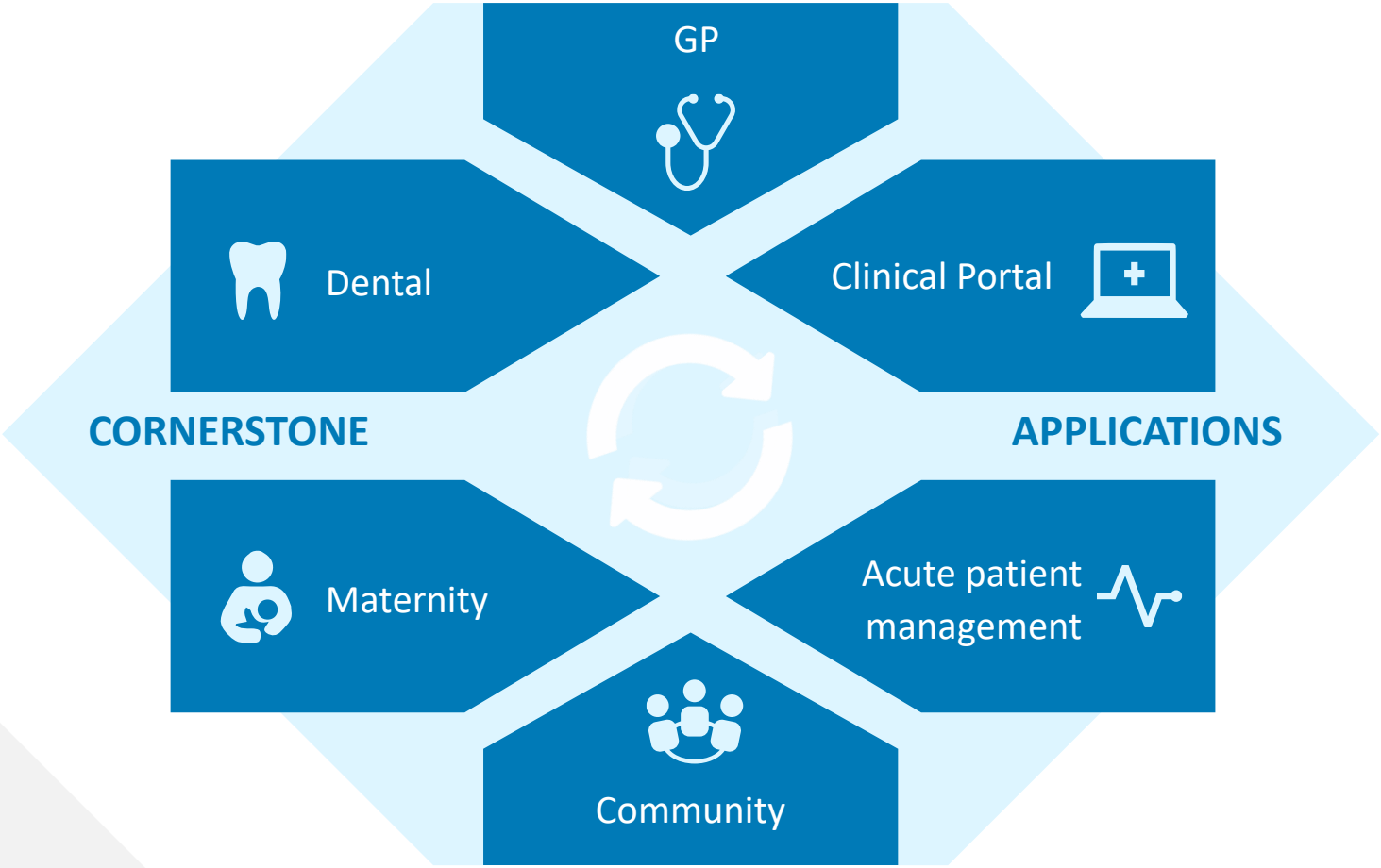


NHS Greater Glasgow and Clyde

Digital maturity review

Cornerstone applications

Six Board-wide digital systems comprise NHSGGC cornerstone applications. These are the foundation for our digital services and where possible new requirements are met using these systems' capabilities, rather than developing or procuring new systems.



Remote residential care appointments

Joe is a 57-year-old man with treatment-resistant epilepsy and organic psychosis who requires residential care due to severe and enduring difficulties with his day to day functioning. Joe loves computers and spends a big part of his day reading the news online and editing digital photographs that he takes. He can quickly become suspicious of people in new and unfamiliar situations and when under stress he is likely to react in an unpredictable manner. He has a good routine and works well with the staff at the home but finds formal appointments and settings very stressful. This makes going to medical appointments very difficult for him and those supporting him.

Due to his chronic condition and ongoing treatment with anticonvulsant and antipsychotic medication, Joe requires regular out-patient appointments. These appointments are centralised either in hospital or community clinics and require him to travel for a minimum of 30-45 minutes. To be able to react and manage his unpredictable behaviour, an escort of three workers is required for these appointments. Appointments can last 15-30 minutes, making travelling and preparation time longer than the intervention itself.

With the introduction of the NHS Near Me platform and with the support of the care home staff, we were able to introduce Joe to the concept of remote consultations. Joe already had a laptop, which he very much enjoyed using, and was guided on how to access the Near Me platform by his support staff as per clinic instructions. A mock appointment was set up in advance with admin staff to reassure him. A member of staff was present to help set up the connection but were no longer required once the appointment started. This was particularly useful as Joe feels comfortable in his home environment and the risks of unpredictable behaviours and agitation are minimised to his baseline.

After a very successful first remote consultation where no escort or travelling time was required, it was Joe himself who asked if he could be seen remotely more often. He did however say that he was hoping to get a breakfast roll after them as he did at the clinic cafe after face to face appointments!

Human impact story

Please refer to the Impact content section in the Appendix to learn how and why we have selected this content.

NHS Greater Glasgow and Clyde

NHS Greater Glasgow and Clyde

06

Strategic themes

Strategic themes are key challenges that NHSGGC will face over the coming five years. These include extensive digital topics and trends, and not necessarily items that can be easily ‘delivered’ as one priority, programme or project. Our strategic themes answer the question: What far-reaching digital opportunities and trends do we see as strategically important?

eHealth

Section 6 - Strategic themes

Data and clinical informatics

To continue to deliver healthcare within limited resources we must mobilise the power that data gives us to target expertise efficiently, automate common processes and augment decision making with artificial intelligence. NHSGGC aspires to be a true Learning Healthcare System where the care we give is informed and improved by the data that we collect.

Challenges we face include:

- The exponential rise in scale of data from the "–omics revolution" and citizen-data contribution
- Maintaining confidence and trust of our population
- Meeting ever increasing expectations from practitioners for data views and from citizens to interact with their health data
- The move to precision, individualised medicine
- Data needs to support the new National Care Service
- Maintaining the confidence and trust of our population in how we manage their data

To address these, we will:

- Build easy, high-quality structured data-capture into our clinical workflows, ensuring new developments use agreed standards-based data terminology such as SNOMED-CT
- Ensure these data are modelled and stored in robust data warehousing and as much as possible made available via our Safe Haven Trusted Research Environment
- Enhance our health data science and information governance capability, building on our academic partnerships
- Give our staff access to high quality data tools and visualisations: make the data come alive and become actionable
- Continue to monitor and improve data quality
- Provide training and support to staff in the use of data and reports

Strategic aims

Citizens will

- Tell us once about things that are important to them, and will see this making a difference to their care
- Be able to share their personally collected health data with us and see meaningful views of their statutory health data
- Trust that deterioration in their health markers will be noticed pro-actively
- Be engaged in decisions over data use

Clinicians will

- Be able to assimilate key information about a person they are caring for no matter the original data source
- Appreciate computer-assisted decision making, letting the 'computer take the strain', with less reliance on routine review and more on management of exceptions
- Be comfortable using modern data tools to help quality improvement

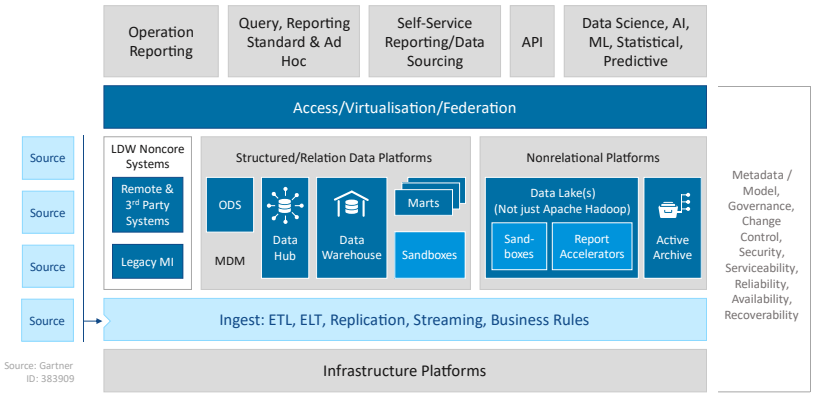
Researchers will

- Use our safe and secure Trusted Research Environments to generate new knowledge to benefit the health of our population

NHSGGC will

- Attract health data scientists and technology developers
- Foster strong academic and industry partnerships contributing to the 'quadruple helix'
- Aim to be a highly performing, digitally mature global health exemplar

High-Level Logical Data Warehouse Architecture



Target operating model

Data standards

We must maintain interoperability with a large installed base of historic systems.

Our data and development team will remain familiar with legacy standards such as SOAP, Scottish XML, HL7 v2.x, READ codes and ICD-10.

For newer developments we will look to use:

- RESTful interfaces, offering greater security than SOAP
- JSON and YAML which is quicker than XML
- HL7 FHIR

We will drive adoption of SNOMED-CT for clinical terminology and explore storing selected data in OpenEHR format.

With one of the largest hospital prescribing systems in the UK we are heavily dependent on the dm+d dictionary.

NHSGGC will contribute to development of these data standards.

Data protection by design

As data controller we will implement appropriate technical and organisational measures to ensure that we comply with Article 25 of the UKGDPR and to ensure we process only the data that is necessary to achieve the specific purpose. This means we will integrate data protection into our processing activities and business practices, from the design stage right through the lifecycle of the work we do.

We will implement the data protection principles effectively and safeguard individual rights. A proactive approach will be taken to data protection and identifying privacy risks before they happen by carrying out appropriate Data Protection Impact Assessments and implementing technical controls and policy controls to mitigate any risks identified.

Acute Sector Physiotherapists

Across NHSGGC we have approximately 450 Acute Sector Physiotherapists. The onset of COVID-19 and the introduction of social distancing necessitated a shift in the way training was delivered. New training priorities were rapidly established during the pandemic to accommodate redeployment, newly qualified practitioners, and new knowledge on COVID-19 management.

Acute Physiotherapy Practice Development facilitated delivery of 49 sessions of virtual learning presented by expert clinicians from a wide variety of clinical areas. Throughout this process considerable learning was achieved about how to deliver training virtually and best practice was determined.

After eight months of Practice Development-facilitated sessions, the staff were invited to state their requirements and ideas using a survey, email, telephone or Microsoft Teams. This established learning needs towards improving their skills for independently delivering learning and development virtually. Band 6 (B6) staff are expected to deliver most In-Service-Training, and as a team we wanted 80% of B6 Adult Acute Physiotherapy Staff to be competent in using virtual methods to deliver essential learning and development.

Actions included creating and circulating resources, training & advice specific to the needs of the Physiotherapists. An improvement group was formed with 30 members and was supported by a Microsoft Teams page for resources & peer support. We arranged three training sessions from digital experts bespoke to the stated needs, created six short videos, arranged peer support practice groups and online events.

As a result, 81% of B6 staff reported competency in delivering training via virtual means. This is an improvement of 76.5% since March 2020. The most commonly reported actions that nurtured improvement were time to practice with the systems (83%) and opportunities to deliver virtually. They also needed appropriate infrastructure, support and resources to assist with their learning. The effort by the team meant that wide-scale face-to-face and on-demand learning and development could be achieved over our large, diverse and ever-changing workforce.

Please note: photograph used was taken before COVID-19 face covering guidelines.

Human impact story

Please refer to the Impact content section in the Appendix to learn how and why we have selected this content.

NHS Greater Glasgow and Clyde

Digital clinical safety

Alongside cyber resilience and compliance it is critical that we understand the clinical safety benefits and risks of deploying technology into our services. Our expertise in digital clinical safety must keep pace with our ambitions to use digital technologies to positively transform healthcare delivery.

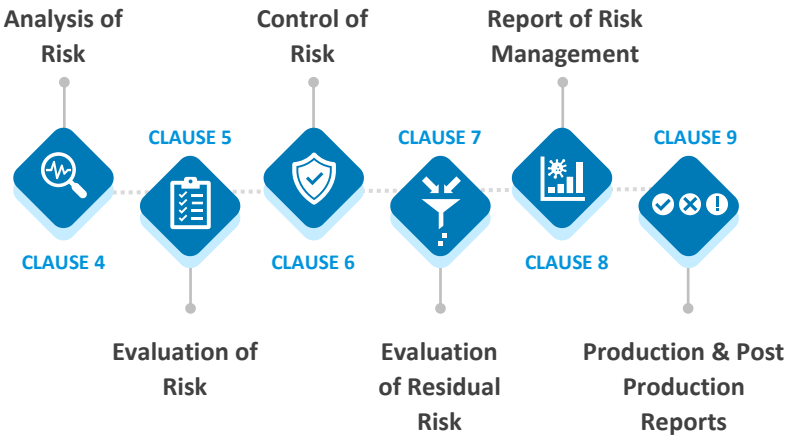
By continuing to invest in this area, we will ensure we have the knowledge and skills within the workforce to critically evaluate digital technologies at key stages including market evaluation, procurement, deployment, acceptance testing, and clinical impact assessment.

Our scale, digital maturity and expertise will enable us to contribute to new standards of clinical safety and use our organisational consumer power to ensure vendors and developers deliver products that meet these standards. Our processes relating to the development, deployment, and use of medical device software and health IT systems are based on risk management best practices including DCB0160, DCB0129 and BS EN ISO 14971, on which we will continue to build.

Our Medical Equipment Systems Committee and its subgroups will continue to help to ensure the safe and effective management of medical equipment systems (including software systems), consistent with legal requirements and industry standards. This includes supporting the implementation of new and evolving medical device regulations within the Board, and monitoring compliance over time.

We will continue to train Clinical Scientists and Clinical eHealth leads to act as Clinical Safety Officers for key systems and to inform Clinical Safety Cases for our internal developments. Our Department of Clinical Physics and Bioengineering will take a lead role in providing Clinical Safety Officer training across Scotland.

Risk Management Framework



Remote practice

Even before the COVID-19 pandemic, we recognised the need to support alternative working patterns. As a result of COVID-19 we have accelerated and continue to expand options for remote ways of working and online consultations. Increasingly our staff might not be based at a physical NHS site, and citizens will not always attend in person.

Remote Practice provides the opportunity for clinicians and citizens to meet via digital or online methods when appropriate, reducing travel time, infection risk and delays. This can include:

- Face to face video consultations
- Asynchronous methods such as an Asthma check-up questionnaire sent via a Mobile phone text message
- Remote monitoring, where clinicians can review clinical information without the patient having to leave their home.

Remote Practice will not be suitable for every individual or situation, but there are opportunities to expand these services and experience has shown that many patients prefer the flexibility and convenience this approach offers.

Blended working: enabling new ways of working

What do we mean by 'blended working'? A digital-first approach that enables staff, teams and services to determine how, when and where they work in order to best deliver high quality services. In other words, a combination of working in traditional NHS locations and working from home.

Experience during the pandemic has shown the effectiveness of blended working, including the potential to reduce office space costs, reduce the spread of infection and improve staff wellbeing.

We will continue to support blended working where appropriate by:

- Supporting staff to work in home and/ or office-based environments
- Providing tools and capabilities for effective communication, collaboration and performance management
- Consideration of future office space requirements to enable new working patterns, as part of NHSGGC developing Infrastructure Investment Strategy

Citizen access

Giving citizens increasing input and better insight into the decisions associated with their treatment and care is a key priority for NHSGGC. The COVID-19 pandemic has accelerated progress and increased citizens' expectations of how they can interact with their personal healthcare.

Our vision is for citizens to access and contribute to their own health record online. This will be accompanied where appropriate by a transition from traditional face-to-face interactions. This will offer a more integrated digital experience for citizens and care providers, while maintaining alternatives for people without digital access or confidence.

We want to empower people to interact with their personal data and utilise technology to better manage their health and wellbeing. We want to enable citizens to access clinical and community health and wellbeing services, manage appointments, and access tools and information to manage their personal health and wellbeing online.

We will offer options for how citizens communicate with NHSGGC and how our care teams deliver appointments, consultations and care. Options include, but are not limited to: telephone, live or recorded video, walk-in and "asynchronous" – which allows citizens and care professionals to communicate remotely, at times that suit both.

NHSGGC is playing a pivotal role in supporting the development of a fully interactive national "Digital Front Door":

- Implementing tools to enable citizens to self- manage their conditions
- Providing online and mobile access to information and their personal data
- Receiving and interacting with online appointments and related information
- Facilitating telemedicine and remote consultations

NHSGGC Patient Hub

Initially introduced to send COVID-19 test results to citizens, the system also can also send patient questionnaires, enable digital appointments, and send other types of results and information to patients. Pilots are underway in relation to these capabilities. This will enable us to undertake digital interactions with citizens and meet their expectations of modern online services.

Remote monitoring

NHSGGC will introduce patient remote pathways developed via the IHC Platform. This allows patients to send clinical and other information via text or app, enabling clinicians to review the responses virtually and develop appropriate treatment plans. Pilots are underway using this technology for blood pressure monitoring and heart failure.

Health Data Exchange
HDE provides a secure and standardised way of managing identity (login) and consented data sharing. HDE is already supporting WoS Innovation Hub projects including Dynamic Scot COPD, Heart Failure and OPTIMAL Osteoporosis risk stratification. This allows different applications to interact securely with our core systems such as Clinical Portal, and provides flexibility to add new and more specialised components to our DHCR as and when they are required.

Cancer Treatment Summary (TSUM)
This provides patients undergoing treatment for cancer with a summary when a planned schedule of care comes to an end. This outlines the procedures carried out, symptoms to be aware of, medications and key contact details. It can be printed out or electronically delivered to citizens.

Digital equality

Glasgow has the most diverse population in Scotland. It is essential that we ensure digital equality for all our citizens while avoiding citizens and staff feeling left behind. We will ensure that people who cannot access digital services are able to communicate and interact with health care in other ways.

In addition to the Equality Impact Assessments (EQIA) produced by individual programmes, an EQIA has been developed for the digital strategy itself.

We engaged with a wide range of stakeholders to explore the opportunities and challenges associated with digital equality.

We aim to:

- Promote equality of opportunity and engagement
- Ensure equality of access for people with protected characteristics and other marginalised groups
- Capture the data required to measure and improve digital equality
- Design, structure and store data to respect equality rights including gender sensitivity
- Continue to improve systems and online information to be accessible for everyone

Designing for equality

We will design for digital equality from the start, including the requirement for non-digital alternatives if needed, language translation where appropriate and non-gender bias as standard. Core systems and data will continue to be developed to be more equality-sensitive, with gender/sex/ethnicity standards that can be adopted across our services.

We know from demographic analysis and recent experience of connectivity during the COVID-19 Pandemic that some communities experience disproportionate levels of digital exclusion. This is primarily due to language and communication barriers associated with the protected characteristics of Race, Disability and Age but also because of poverty, which is an inhibitor when considering digital inclusion/exclusion.

The Strategy and aligned programmes of work will be subject to equalities impact assessment, and proportionate adjustments will be made to ensure that investment in digital development does not exacerbate the experience of inequality across protected characteristic groups. This will enable NHSGGC to transform the way we deliver care while ensuring no-one is left behind.

We will work in partnership with citizens and staff to find practical ways to listen to and learn from citizens and staff, to involve them on an ongoing basis as part of our digital solution/service design. For example, over 700 citizens responded to an online survey to share their experience of medicines processes, and help us identify priorities for improvement as part of the eMedicines Programme.

The Scottish Approach to Service Design vision will be adopted: “that the people of Scotland are supported and empowered to actively participate in the definition, design and delivery of their public services”.

The Digital Strategy has been developed by following guidance provided by the NHSGGC Equality Team and EQIA framework. We have produced a series of stories that reflect the needs and experience of citizens and staff. This process was inclusive and designed to reflect the diverse needs of many groups. The stories will be collected into a ‘living library’ that shows the diversity and range of what digital technology enables across NHSGGC, both now and in the future. We will continue to record these stories on an ongoing basis.

Connecting using iPads during the pandemic

During the COVID-19 pandemic, the introduction of iPads into hospital wards to support person centred virtual visiting was hailed a success by patients, families, and staff across Greater Glasgow and Clyde. When news of a lockdown and consequent visiting restrictions first emerged, the Clinical Governance Support Unit's Person-Centred Health and Care team sprang into action, sourcing almost 650 iPads for use across 314 hospital wards and departments.

An evaluation found person-centred virtual visiting enabled patients and their families to 'feel closeness and connection, especially through a challenging time of separation'. One family member said: "They were my family's lifeline. We would have been lost without the calls and I cannot express how much they meant to us and how grateful we were for them."

A Ward receiving their PCVV iPads

A staff member said: "It's been quite emotional at times. Two of my patients were smiling for the first time in weeks! The impact of not being able to see a familiar face is so huge." Setting up the virtual visiting service required a significant collaboration which included the nursing and clinical teams, Clinical Governance, eHealth, Infection Prevention and Control, Information Governance, Knowledge Services, Equality and Human Rights, the Public Health Team, and Endowments Management Committee.

Case study

Please refer to the Impact content section in the Appendix to learn how and why we have selected this content.

NHS Greater Glasgow and Clyde

Safer use of medicines

Medicines are a high volume, high cost, safety-critical intervention, used across all aspects of health and social care. As care continues to become more integrated, sharing of medicines information between sectors, settings and systems is increasingly important.

Supporting safer use of medicines through technology is a strategic priority for NHSGGC and we aim to become a centre of excellence in digital medicines practice.

NHSGGC has made good progress in digitalising medicines practice in recent years: for example, the current rollout of HEPMA will significantly increase NHSGGC digital maturity rating. We now need to build on this to move from islands of good practice to a joined-up patient medication record and integrated medicines practice across NHSGGC and beyond.

Scottish Government and other national organisations are also working to digitalise medicines processes, and NHSGGC is engaging fully with this work to influence the direction of travel. 'Moving Pharmacy Forward' is a strategic framework for the development of pharmacy services in NHSGGC. One of the five stated aims is to develop and optimise the use of data and digital solutions.

Our vision is to create a "single source of truth" for patients' medication. This will bring together medicines information from several sources and present it to clinical staff in a clear and accessible way. Paper-based processes will be digitalised wherever appropriate, with priority given to high volume areas where safety and efficiency benefits can be maximised.

This vision will be achieved by building on and spreading existing capabilities, putting in place strong technical and organisational foundations for future developments, and maximising opportunities to digitalise medicines processes.

Aims:

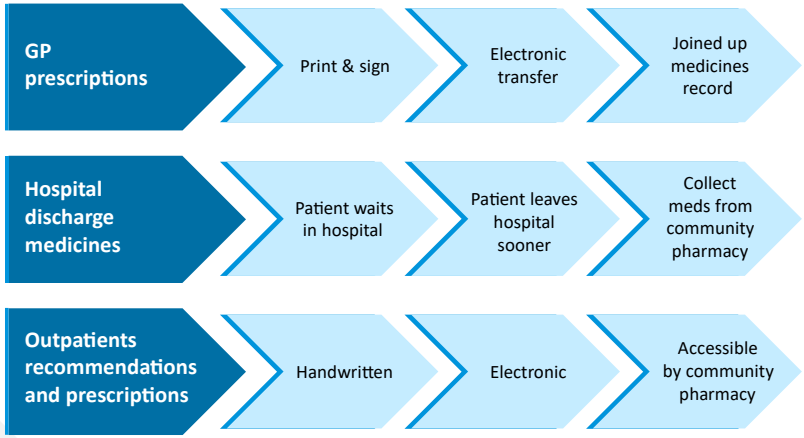
- Digitalise wherever appropriate
- Reduce clinical risk
- Use medicines more efficiently
- Empower clinical staff to continuously improve practice

NHSGGC will deliver this vision in a series of steps, each of which will deliver tangible benefits to clinical staff and patients, while incrementally building the capabilities required to transform medicines practice across all sectors.

Key step	Example
Spread existing capabilities	Extend HEPMA to outpatient, day case and other areas
Real-time links for medicines information	HEPMA/Clinical Portal link for Immediate Discharge Letter
Consolidated view of patient medication	GP, HEPMA, Clinical Portal, community
Unlock the potential of medicines informatics	Visual dashboards to inform clinical practice

The initial phase of HEPMA rollout is focused on inpatient wards and theatres. Future phases will spread the system to outpatient clinics and day case units, and additional opportunities will be considered e.g. oral health. This will extend the breadth of the hospital electronic medicines record and maximise safety and efficiency benefits.

Real-time links between systems will enable electronic sharing of medicines information, reducing the effort and risk associated with manual transcription. HEPMA will link with Clinical Portal to populate the discharge letter medicines list. In later stages we will seek to link GP medicines information with HEPMA.



Medicines and allergy information from multiple sources will be consolidated to give clinical staff a more joined up view of the patient.

Electronic medicines data provides a depth and breadth of detail about clinical practice that was not feasible with paper-based processes. Medicines Informatics will release the information locked up in individual systems and put it in the hands of clinical staff. This will inform and support the day-to-day care of patients and enable ongoing improvements to practice and optimisation of medicines.

Paper-based processes will be replaced with digital alternatives. For example, hospital to GP prescribing recommendations. A new Pharmacy Management System will be implemented fully integrated with HEPMA to enable electronic ordering of medicines by wards.

NHSGGC eMedicines Programme is progressing priority work streams including GP, community and hospital-based services. Key phases are illustrated above. The programme will engage with patients to better understand the citizen perspective on medicines processes, and ensure that the patient's voice is heard as NHSGGC moves forward.

The Cancer Medicines Outcomes Programme (CMOP) is a national collaboration between the NHS and academia, hosted by NHSGGC, which aims to better understand the outcomes of patients who receive cancer medicines in routine practice in Scotland. 'Real world data' (such as information about hospital admissions, test results, prescribed medicines, side effects and demographics) is stored within several record /digital systems. Our aim is to link these data to better understand outcomes in the Scottish population.

Paediatric Respiratory Physiotherapy

The Paediatric Respiratory Physiotherapy team had started to consider the use of NearMe remote video consultations, before the COVID-19 pandemic. This was mainly for patients and families who needed to travel a significant distance. The pandemic required the team to reconsider the use of the digital platform in order to maintain the service. The team reflected on the experience and how it has led to service change and how they have re-shaped their service for the future. PRP patients have complex needs which need a tailored therapy plan and close monitoring.

Some of the team were initially reluctant to use Near Me and worried about the technology and service quality. When the team met to discuss a plan of implementing Near Me, everyone got involved – from the service manager to students. A survey was undertaken to show success of a consultation from service user and physiotherapist points of view. This motivated the team even though it was daunting at first. They supported each other to make the calls work smoothly and overcome any technical concerns. The team asked their patients and families what they thought of virtual appointments. The feedback was overwhelmingly positive.

> *"So much easier, as it would take us 6 hours to travel to the hospital and this was instant."*

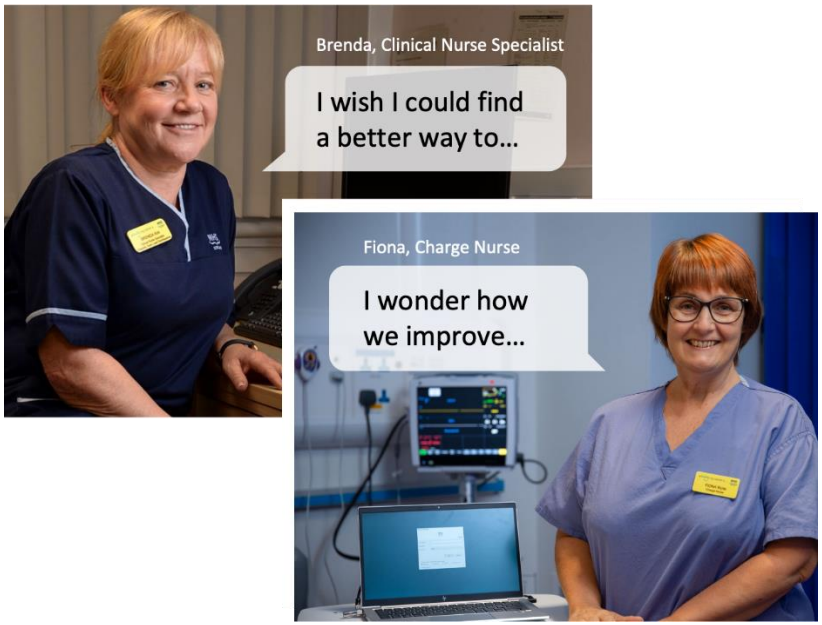
> *"I was much more relaxed than in the physio department."*

> *"Online meant we could both take part with our son."*

Staff and students reported the platform was easy to use and gave a greater insight to the patient's current condition than a phone call. The practice educator could join in the call with the student. Some appointments were organised to allow others from the multi-disciplinary team join in. The future holds much more appetite for a blended approach to patient consultations. The service recognises the role of Near Me in the delivery of patient care and will continue to use it.

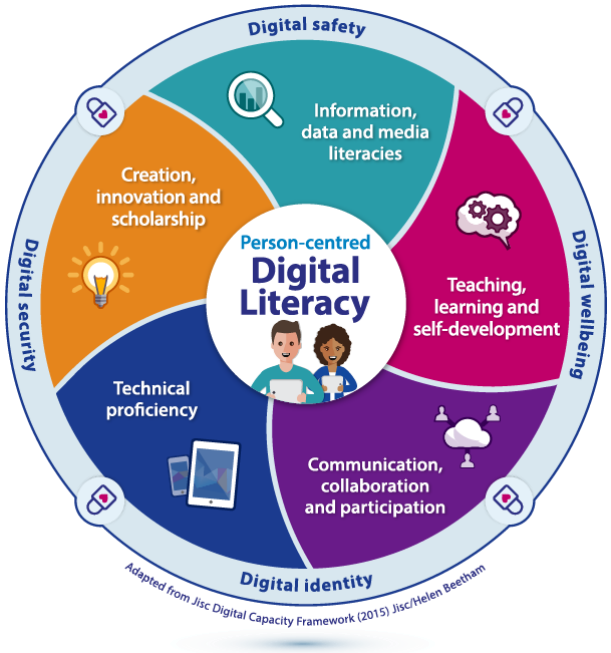
Please refer to the Impact content section in the Appendix to learn how and why we have selected this content.

Workforce digital literacy and skills



Supporting staff to be digitally literate is a key theme of this strategy. Digital literacy is defined as, “those capabilities that fit someone for living, learning, working, participating, and thriving in a digital society".

These capabilities extend beyond just technical proficiency in, for example, using a specific clinical system, but include more conceptual and transferrable skills and knowledge such as data use, digital safety, and having a “digital-first” approach to quality improvement. Several models exist that categorise them, such as:



It is the broad nature of these capabilities that make digital literacy foundational for all staff working in modern healthcare settings so that the best quality person-centred care can be achieved. Knowing which tools to use, and when, can support the delivery of care. This is particularly important with the implementation of new systems such as eRostering.

While many learning resources already exist to support staff in developing these skills and capabilities, it can be difficult to choose the best ones and know where to find them, so it is imperative that we outline our expectation of these.

Aims

- Do not assume staff are digitally literate
- Define a framework of recommended core digital skills for all staff. This may be through adopting a model such as that illustrated above, or developing an approach specifically for NHSGGC.
- Support services to identify and define a framework of recommended digital skills specific to their area
- Support services to evaluate the digital literacy of their staff to enable a conversation on learning for digital success
- Embed the adoption of these recommended digital skills in recruitment, induction, and the learning and development process
- Provide easy to find learning resources that are accessible for staff to develop the recommended digital skills specific to their role
- Provide the tools and technologies required for staff to work at their best digital capacity
- Identify leaders and champions, and the skills they require
- Promote an “I need digital to do…” approach

Workforce planning

This digital strategy has been developed in line with the NHSGGC Workforce Plan and eHealth Workforce Plan. The workforce plan includes a key focus on the development of digital literacy across the workforce to maximise the benefits of existing and new technology.

There will be a new eRostering system implemented across NHS Scotland to improve the existing rota system and processes plus providing on line access to shifts for staff.

Accessibility

NHSGGC has a diverse workforce with a wide variety of accessibility needs. Due to the increasing use of technology in the workplace, digital accessibility is equally as important as the need to ensure physical access for everyone.

Digital accessibility involves supporting specialist technologies, such as voice-to-text dictation, speech readers and colour changing digital overlays. Other important aspects involve adhering to accessibility standards when procuring and creating digital solutions, and providing the ability to change fonts and font sizes when required.

We will introduce a structured approach that caters for the needs of individuals by grouping digital accessibility needs. This will ensure we are better able to cater for needs related to vision, hearing, dyslexia, dyscalculia, dyspraxia and others. A register of assistive software in use will be created to help us better respond to support requests and reduce the risk of disruption for staff when updating our systems. We will work closely with suppliers to anticipate accessibility challenges and to maximise the value of available assistive technologies. Accessibility standards across our systems and software will be adopted where possible, including a standard typeface and font size. Cornerstone systems will continue to be reviewed regarding accessibility standards.

Our new eHelp system will be enhanced to provide short-form 'Micro-Learning' materials to help staff understand specific system features and functions, as an accessible alternative to long-form user guides. Technologies such as laptops and tablets with touch screens, assistive software, and multiple displays will be utilised to better meet individual staff needs.

Procurement and development of digital solutions will assess accessibility features and adherence to standards, improving the experience for staff with disabilities. Additional information will be provided to staff about the availability of accessibility tools and technologies, and how staff can access information about accessibility settings and core digital literacy and skills.

Professional Administration Transformation (PAT)

Additional Technology and Digital Strategy training modules are about to be implemented which will introduce administrative staff to the different systems, apps and tools on our technology menu, delivered in 'bite-sized chunks'. Options will continue to be explored for digital adoption methods and technologies to help our workforce understand and make effective use of systems, with the aim of having the best-trained, most professional, and digitally proficient workforce possible.

Regulatory and cyber security

Our vision for cyber resilience and vulnerability management is to prevent problems before they happen.

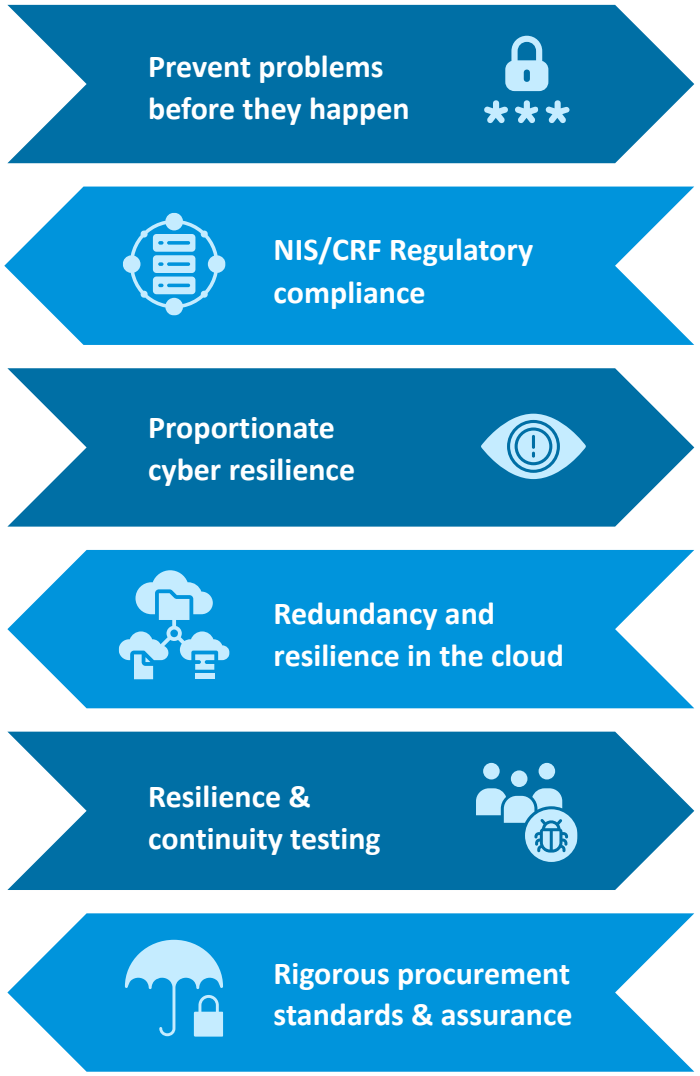
We achieve this through various methods including rigorous procurement that adheres to national standards and frameworks, adherence with NIS (Network and Information Systems) and CRF (Cyber Resilience Framework) regulatory compliance. This ensures we achieve assurance across our security architecture including the suppliers we work with and any system, service, or solution we procure.

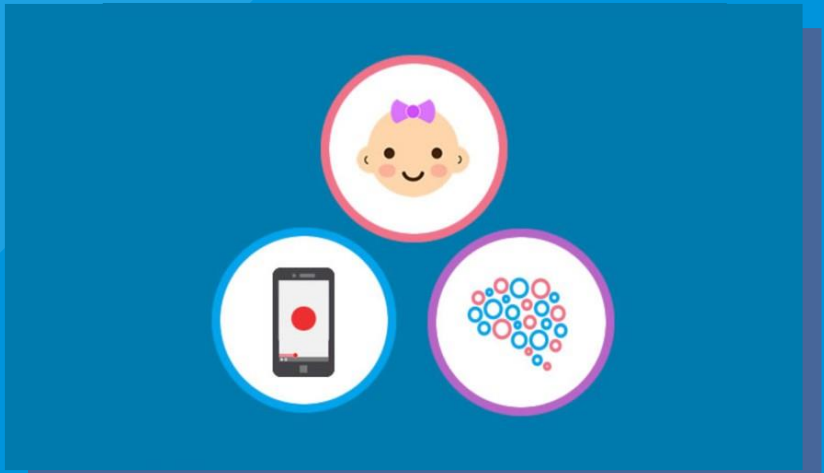
Regulatory compliance with NIS/CRF

From 2015, with acknowledgement of increased criticality of information technology for public sector services, we see changing attitudes to public sector cyber risk. Within NHS Scotland, Boards were required to adopt the Information Security Policy Framework (2015) supported by the Centre for Internet Security Controls. The Scottish Government developed the Public Sector Actions Plan and its Cyber Resilience Framework (CRF).

When the Network Information Systems (NIS) Regulations were adopted by Scottish Health in 2019, we were following NHS Scotland's Information Security Policy Framework (ISPF) 2018. In 2022 in line with NIS requirements we anticipate a move to the CRF which supports pan-public sector comparison.

The NIS is looking at cyber risk beyond the services provided by eHealth. Examples include; human resources, facilities, extending to medical equipment and hardware.





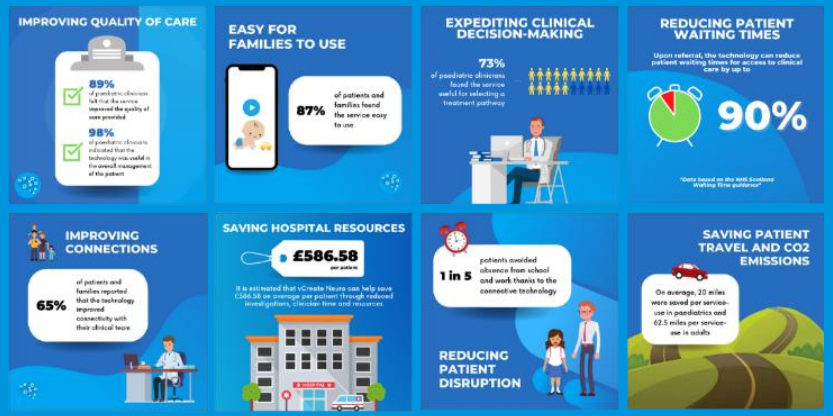
vCreate Neuro

Neurological diseases affect over 1 million people in Scotland. The impact on quality of life and productivity exceeds any other disease group. Videos, recorded by patients or their carers can improve speed and accuracy of diagnosis but there was no established means of quickly and securely sharing these with clinical teams.

vCreate Neuro was developed to address this challenge, creating a secure, cloud-based web-app for patients and carers to share video and associated clinical data remotely. vCreate Neuro is a collaboration between Paediatric Neurology Services in NHSGGC and vCreate Ltd, supported by the West of Scotland Innovation Hub.

vCreate Neuro was piloted in 18 Scottish and 7 English paediatric and adult neurology services during the COVID-19 pandemic. The service has been used for >12,700 remote interactions by >5,000 patients, and by >500 clinicians.

Evaluation demonstrated benefits in speed and accuracy of diagnosis, substantial cost, and environmental savings. The service is scaling rapidly into new clinical services across the UK and internationally. The project received a Scottish Health Award and Digital Health and Care Award and has been featured in national media.



Benefits of vCreate Neuro Service, (source, HIS/ SHTG Evaluation).

vCreate Neuro is just one example of the capability and experience of NHSGGC teams in co-developing clinically relevant innovations with global potential.

Innovation spotlight

Please refer to the Impact content section in the Appendix to learn how and why we have selected this content.

NHS Greater Glasgow and Clyde

NHS Greater Glasgow and Clyde

07

Priority programmes

Priority programmes update and replace the “Key Focus Areas” from our previous strategy. This section describes these priorities by asking:

“What will we focus on delivering in 2023-28?”

“What will the future impact of these changes be?”

eHealth

Section 7 - Priority programmes

Introduction

To progress the strategic themes described above, NHSGGC will implement a number of key programmes. These will deliver new or enhanced tools to support clinical and other staff in delivering care to patients.

Priority programmes include:

Digital Health & Care Record - Active Clinical Notes	Replacing paper "continuation notes" on wards
GP IT re-provisioning	Modernising GP IT systems
Laboratory Information Management System	Replacing NHSGGC's LIMS
HEPMA in outpatients	Extending the safety and efficiency benefits of HEPMA to outpatient clinics
eMedicines phase 3	Improving medicines processes within and between hospital, community and primary care
PACS re-provisioning	Modernising the PACS system
Dental EPR	Delivering the benefits of digital tools to oral health services
Unified Care Record	Joining up health and care information across Scotland

Board-wide programmes throughout the outlook period of this strategy will include:

- Scaling up virtual and remote care
- Maximising Microsoft Office 365

National context

NHSGGC leads and contributes to a number of digital programmes with regional and national scope. This is an opportunity for NHSGGC to influence the direction of travel and maximise benefits in a "once for Scotland" context.

NHSGGC works closely with national organisations including Health Improvement Scotland, the Digital Health & Care Innovation Centre, National Services Scotland, NHS Education for Scotland, and Scottish Government. The complexity of co-ordinating work at national level, and the need to collaborate with multiple suppliers and organisations, can introduce additional challenges.

Key programmes with a national dependency include:

- GP IT re-provisioning
- Laboratory Information Management System
- PACS re-provisioning
- CHI & Child Health
- O365
- eRostering
- Digital Front Door – Citizen's Access

Digital health and care records

Summary

Our vision is for a fully integrated health and social care system which will rely on technology to support new ways of working. This will support improvements in patient outcomes and care co-ordination for citizens as they move between services, by making information more easily available to those that require it at the right time and in the right place.

Information about citizens is recorded by health and care services across several digital systems. This includes GP consultations, hospital appointments and admissions, dental and oral health, and interactions with social care and third sector agencies such as charities. Together this data and information forms our individual and personal Digital Health and Care Record (DHCR).

Successes

NHSGGC already has a rich and well established DHCR accessed via the Clinical Portal, pulling information from across Primary Care, Community Care, Secondary Care and Local Authority social work systems. This information includes medical history, diagnoses, treatment plans, medications, immunisations, allergies and test results. We have continued to extend these data sources to create a single combined view of this information for health and care providers to access.

The development of Clinical Portal has resulted in a more person-centred care view, saving time and delivering safer and better care. For example, doctors and pharmacists admitting patients to hospital can view the patient's GP-prescribed medications (via Emergency Care Summary or a GP summary) and the discharge medication list (if the patient has had a previous admission) to help perform medicines reconciliation, improving patient safety.

To support more joined up care, secure Clinical Portal access has been extended to Scottish Ambulance Service, optometrists, community pharmacists and social care staff.

Opportunities

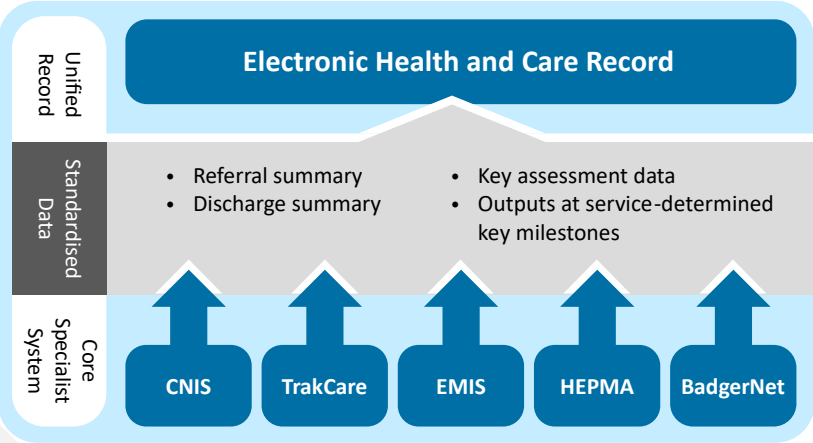
There are opportunities to fully integrate the digital health & care record by implementing a Unified Care Record.

Beginning in 2023, NHSGGC will roll out the new GP clinical system across GP practices. Procured via the new national framework, the modernised cloud-hosted GP clinical system will support the delivery of the GMS contract and the Primary Care Improvement Plan, and will provide benefits in terms of patient safety, data availability, and the wider Digital Health and Care record.

We are working with health and social care staff to enable them to fully utilise the wealth of information available within Clinical Portal. We have created a training package specifically for social care staff which includes information on the benefits, current data available and how to access support.

We will continue to expand the available information, widen access, and further improve the user interface to deliver additional benefits and support care providers and citizens across health and social care. For example, we have included vaccination records in response to the COVID-19 pandemic and expanded access to include additional professional groups such as Ambulance services.

Dental services will transition to the DHCR including lab tracking capabilities and dental charting. The “Open Eyes” system will be used across Scotland to enable sharing across Acute Ophthalmology and Community Optometry services, reducing duplication and aiding shared care.



The introduction of a unified care record will provide technology which sits over clinical systems and extends the user’s view to include data from all health and care organisations and Boards involved in a citizen’s care.

This technology will help deliver benefits including:

- Aggregated data views
- Automated alerts and notifications for identified clinicians and care providers
- Enhanced analytics
- Greater collaboration between clinicians, carers and the citizen
- The ability to order and refer between NHS Boards and services
- Greater support for patient pathways and clinical workflows

This will provide a problem-oriented and timeline-based view of encounters, enabling the removal of remaining in-patient paper documentation and making structured data more accessible and usable. As we develop this functionality, we will focus on the reuse of data to reduce the need for the same information to be provided and recorded multiple times during the care journey.

Active Clinical Notes functionality will replace traditional clinical notes, providing a central workspace for digital note taking and initiating clinical activities such as patient-centred care planning and e-Observations within hospital settings and including oral health.

Clinical Portal will continue to be improved by upgrading the system to deliver a more intuitive and configurable user interface, extending the portal data set, and extending usage to new areas including NHS24 and the Ambulance service.

Our focus will be on introducing integrated workflows between health and social care, allowing patients' care to pass seamlessly across systems, and exploiting technology to support staff in delivering care closer to home through developments such as mobile phlebotomy.

Strategic goals

Our vision will be delivered through the following key goals:

- Implementing Active Clinical Notes to replace paper notes with a full digital inpatient record, replacing scanned paper, putting the patient at the centre and achieving "digital hospital" increased maturity
- Introducing aggregated data to provide a citizen-centred view of health and care information from all relevant organisations
- Ensuring that the DHCR is readily available within traditional care settings, and remotely accessible using a range of mobile technologies
- Improving the user experience by optimising the look and feel of clinical systems such as TrakCare and Clinical Portal
- Incorporating enhanced decision support and electronic workflows
- Utilising data to drive quality improvement through delivering improved data visualisation, accessibility, training and support
- Reducing duplication of data entry, saving time for clinicians and reducing the need for patients to repeat information
- Developing integrated referral pathways and single system working
- Providing citizens with access to their personal digitalised information and appointments
- Review and implement further system convergence in line with the GGC Clinical Systems Review and recommendations
- Maximise on investment already made by taking full advantage of cornerstone system capabilities and the opportunities with new GPIT system and additional features within TrakCare

Innovation and systems development

Summary

Innovation

Digital innovation is central to achieving the ongoing transformational change that is necessary to support health and care teams deliver new models of care. Incremental innovation will continue to deepen the capabilities of cornerstone clinical systems and implement new solutions from the market.

NHSGGC has a strong track record of going beyond this and delivering transformational innovation – working in the quadruple helix of the citizen, health, academic and industry collaboration – to research, co-design, co-develop and deliver new innovative solutions based on the potential capabilities of new technologies.

These new innovative solutions may respond to new challenges and ideas, new capabilities of technology, apply existing technologies in different ways, involve patients' own devices and data, or involve digital technologies which are not yet invented or transferred out of research environments.

The innovation journey can include defining challenges and seeking industry support to develop new solutions for pressing NHS Scotland and NHSGGC requirements. It can involve co-developing solutions based on new ideas from clinical staff, collaborating and evaluating potential new solutions from industry often for the first time in a real-life healthcare setting.

It can also involve working with Research & Development and clinical teams to build evidence which then informs future approaches and adoption. And finally, it can involve scaling-up and operationalising proven successful innovations at pace across NHSGGC while in parallel informing regional and national direction through partners such as the Centre for Sustainable Delivery's Accelerated National Innovation Adoption (ANIA) process.

Systems Development

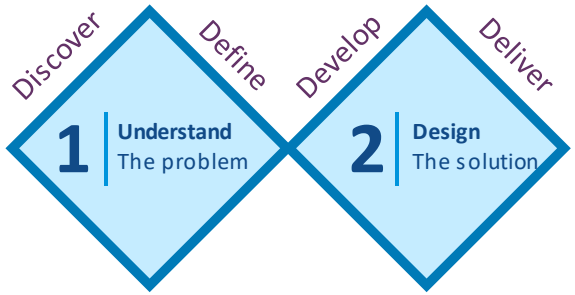
Our vision for software development in NHSGGC and the West of Scotland region is to bring development functions together to share resources, showcase current developments and create a model for success. By collaborating and communicating with colleagues across the region, we can all benefit from new developments and innovations, while avoiding unnecessary duplication. The West of Scotland Development and Application Group (led by NHSGGC) is coordinating this work.

NHSGGC have successfully created partnerships for development with NES Digital on a number of initiatives such as the COVID-19 Assessment tool. The Regional Stroke Application has been developed by NHSGGC using a common stylesheet.

This will enable a sustainable, supported, safe environment for innovation and development to thrive both locally with NHSGGC and across the West of Scotland, to include:

- Ongoing support for Cancer Services across the region
- Development of applications to support regional MDT meetings
- Molecular Genetics
- Further rollout and development to regional centres of excellence for stroke application
- Cancer treatment summaries

The Scottish Approach to Service Design (SAtSD)



Empowering and supporting the people of Scotland to actively participate in the definition, design and delivery of their public services.

gov.scot

Digital Scotland

Successes

NHSGGC experience in innovation already shows such approaches have the potential to:

Change how care services are provided
Reduce the requirement for routine outpatient appointments through regular real-time patient monitoring from their home, as already being applied in the NHSGGC Dynamic Scot COPD innovation project.

Improve sustainability
Reducing the need for patients to travel, e.g. for regional and national services provided by NHSGGC, a capability already being provided by the Board's vCreate-Neuro video innovation project. This helps reduce indirect emissions and alleviates road traffic, reducing air pollution and travel expenditure.

Assist and speed up clinical decisions
Supporting clinicians with risk stratified data and inputs from Artificial Intelligence / Machine Learning models, as already being evaluated in chest x-ray triage and pathology prostate cancer detection in the NHSGGC iCAIRD Programme (iCAIRD being the Industrial Centre for Artificial Intelligence Research in Digital diagnostics, a partnership with multiple universities and industry partners).

Reduce waiting lists and emergency admissions
Enabling more rapid diagnosis and earlier intervention, as already being applied in the NHSGGC Opera Early Diagnostic Heart Failure innovation project.

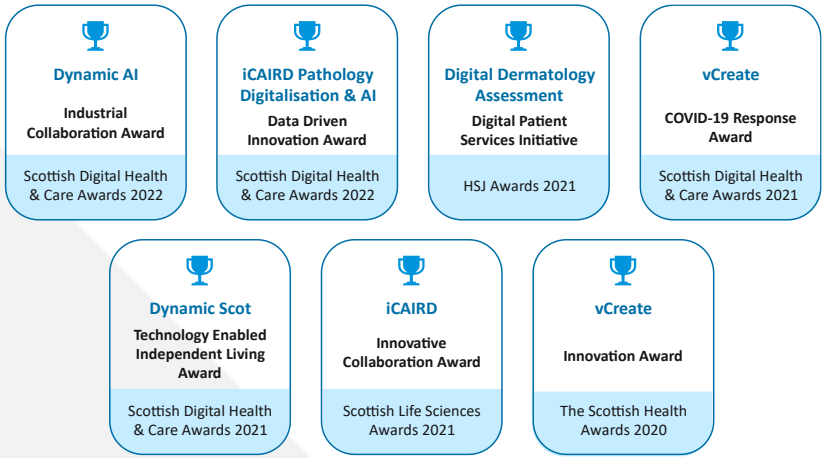
Remove manual processes
Automating and capturing data which in turn also enables further research, as being delivered by the NHSGGC TraumaApp innovation project in support of the national Major Trauma Centres.

Robotic process automation (RPA) pilots to reduce the burden of routine tasks.

Proactively identify patients at risk
Through analysis of health data already captured during other treatments, as being explored by the NHSGGC Osteoporosis risk identification using Machine Learning innovation project.

Support the NHS Recovery Plan post COVID-19
Through all of these approaches, and transferring innovations proven successful in one disease-area into further priority areas.

NHSGGC track record in delivering digital innovation has already been recognised nationally:



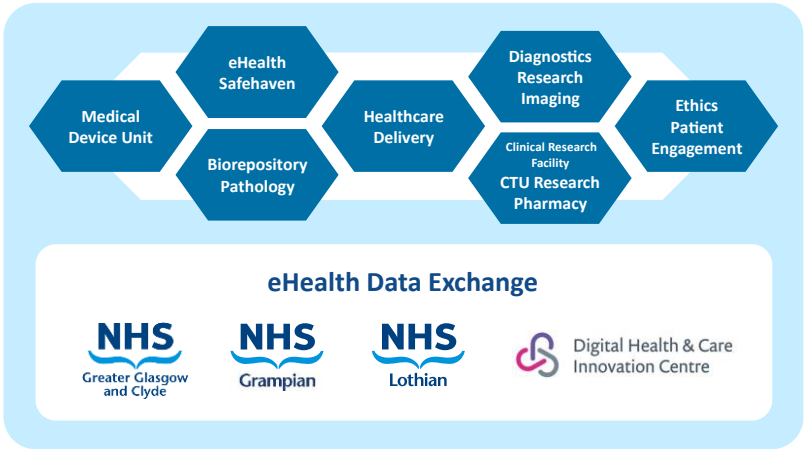
Opportunities

As one of the largest healthcare organisations in the UK, NHSGGC has a strong research and innovation culture (see also R&I Strategy 2020-23) which responds to the challenges and priorities of the Board and wider health services, and seeks to maximise the health and economic benefits for our population. This supports community wealth building and contributes to our sustainable development ambitions.

The Board has an Innovation Governance Group which draws on expertise including Research and Development, Medical Physics, Clinical, eHealth, Planning, ethics, regulatory and support services, and undertakes dozens of digital innovation projects each year.

These are structured into programmes and partnerships which operate innovation models appropriate to their areas of focus; and include the West of Scotland Innovation Hub, iCAIRD and Living Lab programmes and Health Data Exchange partnership. Each provides processes for rapid assessment and prioritisation of proposed projects; supports clinical leads and innovators; and supports development of funding bids through Scottish, UK and international life-sciences sector opportunities. In addition, they co-develop, implement, and trial the new solutions; build evidence for their effectiveness; provide project management and regulatory support; and where agreed, support scaling the innovations into mainstream services.

NHSGGC Innovation Test Bed Infrastructure



Strategic goals

Continue to provide and develop its innovation Test Bed infrastructure where innovators can work within health and care environments; will continue to work with specialist clinical, medical, academic, technology and research specialists from across the life-sciences sector; will aim to keep NHSGGC at the forefront of digital healthcare; will focus on innovation aligned to NHSGGC and national priorities; and will establish further innovation programmes of work and collaborations where these can bring external resources, accelerate, and operationalise successful innovation in priority areas.

West of Scotland Innovation Hub

Through hosting the West of Scotland Innovation Hub on behalf of the Scottish Government Chief Scientist Office, NHSGGC will continue to provide support and leadership for innovation across the West of Scotland; will continue to support all stages of innovation to deliver innovation activities focused on NHSGGC and national priorities; will scale-up and operationalise successful innovation, including in Respiratory, Cardiology, Neurology, and further areas as innovations and their evidence develop; and in 2023 and 2024 host national Innovation Clinical Fellow roles and Open Innovation Challenges as part of national collaborations with the Scottish Health and Industry Partnership.

iCAIRD

During 2023 NHSGGC will complete its role in iCAIRD, which has allowed NHSGGC to build expertise and capabilities in early stages of AI development and evaluation. We will establish an NHSGGC-specific successor programme focused on AI innovation, evaluation, business cases and operationalisation where solutions are proven to improve efficiency of services, improve patient outcomes, automate tasks, and deliver improved value.

Digital Pathology
A business case will be established to sustain the NHSGGC digital pathology service which the programme has delivered and has transformed NHSGGC's pathology services.

Health Data Exchange
NHSGGC will continue working with partners, including Digital Health & Care Innovation Centre, to develop and deepen this innovation-enabling infrastructure and build evidence of benefits across health, care and third-sector use-cases. The Board, with its partners, will develop routes to operationalise this infrastructure.

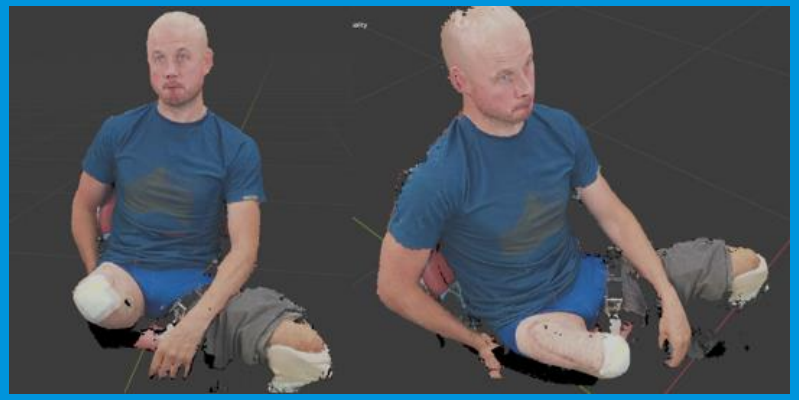
Living Laboratory
The Board will continue working with University of Glasgow and partners such as Stratified Medicine Scotland to deliver collaborations focused on bringing the benefits of precision medicine, research and innovation to Govan, Glasgow and beyond.

Holoportation

Holoportation is a new type of 3D capture technology that allows high-quality 3D models of people to be reconstructed, compressed and transmitted anywhere. Real-time 3D telemedicine has previously been proposed within a laboratory setting only, with constraints on cost, complexity, bandwidth and technology.

NHSGGC have been working with Microsoft since 2019 to assess how health care could leverage Microsoft's Holoportation technology, focussing on Plastic Surgery patients. In direct response to the COVID-19 pandemic, when most patient interactions shifted to remote platforms, the West of Scotland Innovation Hub worked with the project team to co-develop a solution where patient consultations could be carried out via Holoportation, without the requirement for them to be co-located.

Over 60 patients have taken part in the clinical trials, where participation in virtual consultations has demonstrated several benefits. Clinicians can move and manipulate images virtually, without the patient (who may be elderly or less mobile) having to move, and operations can be explained by drawing directly on a 3D model of the patient. Patient feedback has been overwhelmingly positive, with patient satisfaction and the realism and convenience of the consultation significantly improved with Holoportation technology.



The project is now expanding with a randomised control trial taking place in during 2022 to provide further evidence to support the implementation of Holoportation in health care. Alongside this work, the clinical team are continuing to support a scale-up in Ghana, where the technology will be used to offer mobile consultations to patients in locations without easy access to healthcare facilities.

Please refer to the Impact content section in the Appendix to learn how and why we have selected this content.

Safer diagnostics

Summary

Over the next 5 years the Diagnostics Directorate will manage a significant change in the cornerstone clinical systems that support the ongoing operational delivery of the service. This will include the implementation of a new Laboratory Information Management System (LIMS), a change to the Managed Service Contract (MSC) responsible for all laboratory analysis and the Re-Provisioning of the National Picture Archiving Communication System (PACS).

Successes

A significant number of developments were undertaken during the COVID-19 pandemic within the Laboratory Service and the digital systems including LIMS. This was essential in order to provide scale up of testing capacity for staff and the public and to support the complex data flows required for testing, infection control measures and reporting of data from both local and national laboratory.

Work was also completed on the development of a Microbiology Reporting System specifically to enable improved reporting and tracking of complex testing.

In 2019 the Diagnostics IT Support Teams aligned under the management of eHealth. This allowed us to review current IT requirements and processes within Diagnostics and align with established eHealth processes and procedures, adopting best practices for IT Security and implementation. This has enabled improved operational resilience and security.

Opportunities

Laboratory Information Management System (LIMS)

LIMS is crucial to the function of Laboratory Medicine as it is used to result and report all primary, secondary and tertiary laboratory requests received by Laboratory Medicine. It also enables automation of workflows, integration of instruments, and management of samples and their associated information. LIMS systems interface with several key local and national healthcare systems including Patient Administration Systems, the Electronic Patient Record, Analytical Middleware and Regional and National Systems.

During 2021/22 a new LIMS was procured by a consortium of 12 Health Boards. The new LIMS offers considerable opportunities to improve operational efficiencies, new diagnostic pathways and sustainability as a number of existing LIMS systems need to be replaced. The system will continue to underpin current laboratory services and enable services to transform and standardise to allow them to better meet evolving and changing service demands.

We are working in a consortium of 12 Health Boards. This provides significant opportunities for service transformation locally, regionally and nationally.

In addition to the core LIMS there is opportunity to develop a new genetics module. eHealth is an essential stakeholder in delivering Scottish Government's soon-to-be-published Genomics Strategy (anticipated summer 2023). Working closely with the local Laboratory Genetics department and the NSD Genomics Transformation Team, eHealth will help lead the delivery of the digital requirements for this strategy.

This has some overlap with the 'National' LIMS but also includes the strategy for the analysis, storage and sharing of genomic data for direct healthcare, clinical trials and research. This strategy will likely be delivered in collaboration with the National Digital Strategy team but also with chosen 3rd party commercial providers.

Aims

- To deliver a modern LIMS that will enable delivery of Laboratory Medicine
- To ensure that no matter where health care is delivered, patients will have equitable access to efficient, effective, sustainable and affordable laboratory services
- To implement standardised processes, data sets and common coding that can enable transformation of diagnostic services in Boards, regionally and nationally
- Develop a Genetics Module within the LIMS supported by sustainable storage and infrastructure for genomics data
- To realise the aims of NHS Scotland's eHealth Strategies. "Scotland's Digital Health and Care Strategy"
- To aid partnership working to deliver services in a radically different way, including the need for collaboration, innovation and flexibility

Clinical value

A modern LIMS is a key enabler to altering care pathways with benefits to both patient experience and operational efficiencies. LIMS will enable multidisciplinary team working including the production of diagnostic pathways and cascading of tests to support optimal use of resources. It will support improved productivity and efficiency across laboratory medicine by streamlining key processes and improving turnaround times.

Sustainability

Demand across services is increasing, requiring Laboratory Medicine to utilise the same, or fewer, resources to maintain services. A modern LIMS will help ensure service sustainability and reduce the reliance on "bolt-on" solutions.

Demand optimisation

A modern LIMS is a key enabler to reducing unnecessary testing across primary and secondary care. This will release capacity to address rising demand and deliver testing that positively affects the patient pathway.

Implementation

We will work collaboratively with other NHS Boards' Laboratory Medicine Services to design, configure and implement a LIMS fit for a modern laboratory medicine service. There will be a 24-month NHSGGC LIMS implementation project that will see the replacement of the current NHSGGC LIMS solution.

Strategic goals

There are a number of key programmes to be delivered within the 2023-2028 strategy period.

- Implement the new Laboratory Information Management System (LIMS) in NHSGGC replacing the old, legacy system. Develop a comprehensive benefits plan
- Develop and implement a new Genetics module within the new LIMS
- Complete the PACS Re-Provisioning programme
- Support the implementation of the new Laboratory Medicine Managed Service Contract
- National Digital Cytology Transformation
- PET Service Review and Transformation
- Digital Image Management System Review and Transformation
- Implement new Secure Clinical Image Transfer (SCIT) app with Medical Illustration Services

eMedicines Programme

Summary

Digital medicines processes will build the foundation for a single digital patient medication record which will enable benefits including improving safety, quality, efficiency, and patients' experience of care.

Medicines processes within NHSGGC are complex, with different groups of professionals interacting within and between care settings. Many processes are paper-based, and information about a patient's medication can be fragmented across multiple partially overlapping digital and paper records.

Additional challenges to the healthcare system arising from the COVID-19 pandemic have increased the urgency of NHSGGC strategic aim for co-ordinated digitalisation of medicines processes.

Successes

The eMedicines Programme is the next step in the journey for moving NHSGGC towards this strategic goal.

Phase 1 of the Programme delivered HEPMA across Acute Hospitals inpatient areas, theatres and Mental Health wards. Phase 2 of the Programme is underway and will progress the aims and objectives of the programme which were prioritised by the eHealth Safer Use of Medicines Programme Board. This will build on what we already have, to deliver early benefits to clinical staff and patients. It will prepare for the future by assessing opportunities to digitally transform medicines practice and processes.

Opportunities

The overall programme will work with patients, clinical staff and other stakeholders across care settings to improve medicines pathways. It will identify and prioritise requirements; investigate, design, build, test and deliver solutions; and review outcomes and benefits. Some aspects will be progressed within NHSGGC, while other aspects will require collaboration on a regional or national basis with other NHS Boards, Scottish Government, National Services Scotland (NSS) and other key partners and stakeholders.

Subsequent phases of the eMedicines Programme will deliver solutions which enable clinicians to maximise digital improvements in how medicines are managed across NHSGGC, for example implementing a single medication record that joins up medicines information from across primary and secondary care.

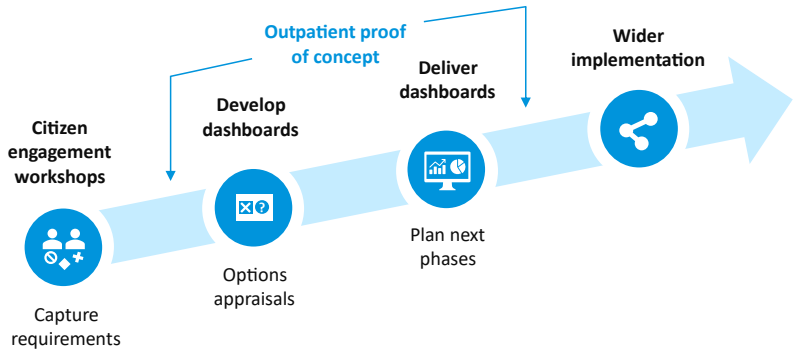
To map the citizen's medicines journey we will engage directly with patients and carers to understand their experience of medicines processes and identify priorities for improvement. This intelligence will inform current and future work to ensure that the patient's voice is heard.

As we replace paper processes with digital systems, the volume of available medicines data grows. To make sure this valuable information isn't "locked away" we will create visual dashboards which clinical staff can use to support the delivery of care.

The national Digital Prescribing and Dispensing Pathways programme aims to replace the paper prescription with a digital solution in all primary and community care settings. The initial focus is GP prescribing for supply by Community Pharmacy. NHSGGC eMedicines Programme is engaging with the national programme to share learning and influence direction of travel.

Strategic goals

Subsequent phases of the Programme will progress through proof of concept and pilot to implementation of Digital solutions in prioritised areas.



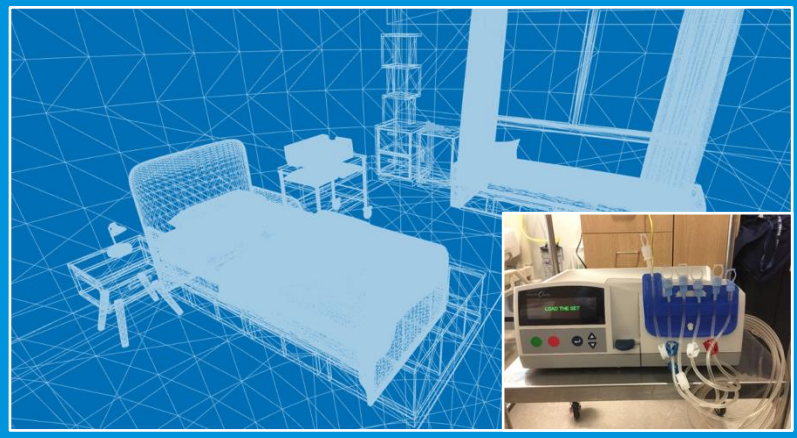
- HEPMA will be extended to outpatient and day case areas. Opportunities will be explored to extend this further in the future, for example to emergency departments.
- Community Pharmacy supply of medicines to patients on discharge from hospital has been successfully piloted and can enable patients to get home several hours sooner. This work will be extended, to deliver benefits more widely across NHSGGC.
- Develop and implement a communications solution with Community Pharmacies to improve inpatient medicines processes including discharge
- Options appraisals will be carried out to identify opportunities to join up and improve medicines processes for community nursing, addiction services and care homes.
- Development of additional medicines informatics dashboards to support service improvement.
- Explore options for a Single Medication View to aggregate a single view of patient's medicines and prescriptions records.
- Pilot and roll out access to medicines information for Care Home staff.

Virtual reality for dialysis education

During 2021/22, Glasgow Royal Hospital for Children successfully received funding to develop a Virtual Reality (VR) application, to provide theoretical and practical dialysis training. The Kidney Research UK/Stoneygate innovation grant was awarded to facilitate research to advance education and make dialysis more tolerable and effective.

Families with a child in end-stage kidney disease, and adult patients, often have a decision about the dialysis modality they wish to pursue, with an increasing emphasis on shared decision-making with clinician support. Patients and families may not have sufficient knowledge of what dialysis modalities involve or what they 'feel like' so a solution was needed to aid shared decision making to ensure they are more fully informed of their options.

Training opportunities for staff can be limited due to small patient numbers, and training for patients often requires an in-patient stay or multiple hospital attendances.



The VR tool is designed to support patients, families and staff. The VR solution seeks to shorten patient admissions, provide a simulated experience of each dialysis modality to inform patient choice, increase confidence before performing dialysis 'for real', and to allow simulated training of potential complications and troubleshooting to emulate real-world situations, which was previously limited.

The nature of VR allows multiple forms of feedback including visual and auditory signals, and haptics. There is no time limitation for set-up, or adverse consequences to training errors in VR. The VR-based model pilot is currently for peritoneal dialysis (with hope to expand to home haemodialysis). Further funding is currently being sought to expand development.

Case study

Please refer to the Impact content section in the Appendix to learn how and why we have selected this content.

NHS Greater Glasgow and Clyde

Decision support

Summary

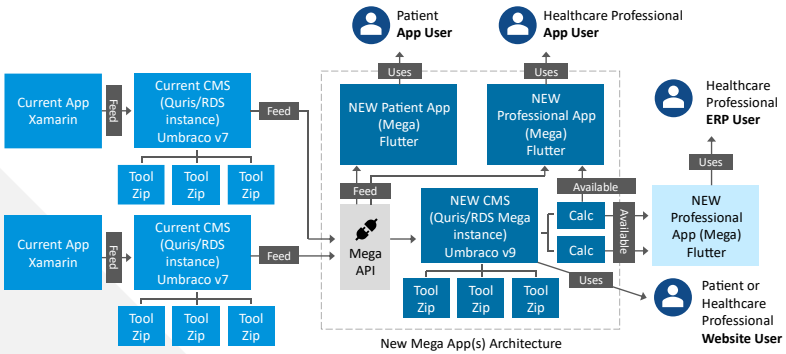
Decision support tools combine validated evidence and guidance with information about the individual person, to deliver reliable recommendations for action at key points in day-to-day activities and working processes.

NHSGGC will work with the National Decision Support Programme delivered by the Digital Health and Social Care Institute on behalf of the Scottish Government, along with other boards across NHS Scotland in a “once for Scotland” approach.

Opportunities

The content of the Decision Support systems will be created collaboratively with NHS content experts, partners and public, putting the end-user at the centre of the design and development process.

Mega App/Single CMS Conceptual Architecture



The Future of the Right Decision Service - provided by Tactuum – technical partners for the Right Decision Service

Aims

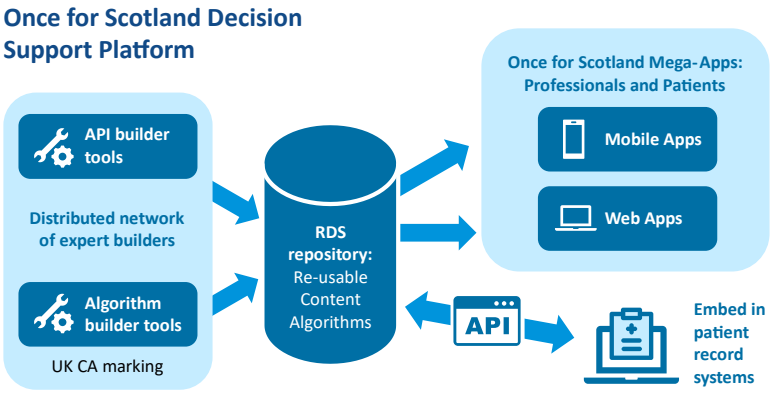
- Implement the Once for Scotland Approach for decision support content e.g. reduce timescales for the creation, automation for the upkeep of content
- Transform content into robust interactive material
- Integrate into clinical systems and daily working life
- Share across NHS Scotland to reduce duplication and maximise reuse

These aims will be supported by building better tools, capacity and expertise.

Strategic goals

In line with the National Decision Support Programme NHSGGC priorities are:

- Realise the aims of the national frameworks for Remobilisation, Rehabilitation and Clinical Prioritisation, to restore and renew services in response to the COVID-19 pandemic
- Address workforce challenges around demand/capacity management by providing tools that reduce decision density for practitioners, making their jobs easier and less stressful
- Support the Realistic Medicine goals of reducing unwarranted variation, harm and waste, and embedding shared decision making
- Achieve a whole-system approach to decision support across all stages of the health and social care continuum
- Develop an App catalogue and supporting process for the development and/or adoption of Apps within clinical services.



The Right Decision Service & Patient Record Systems - provided by Dr Ann Wales, Director of the Right Decision Service.

Technology estate

Summary

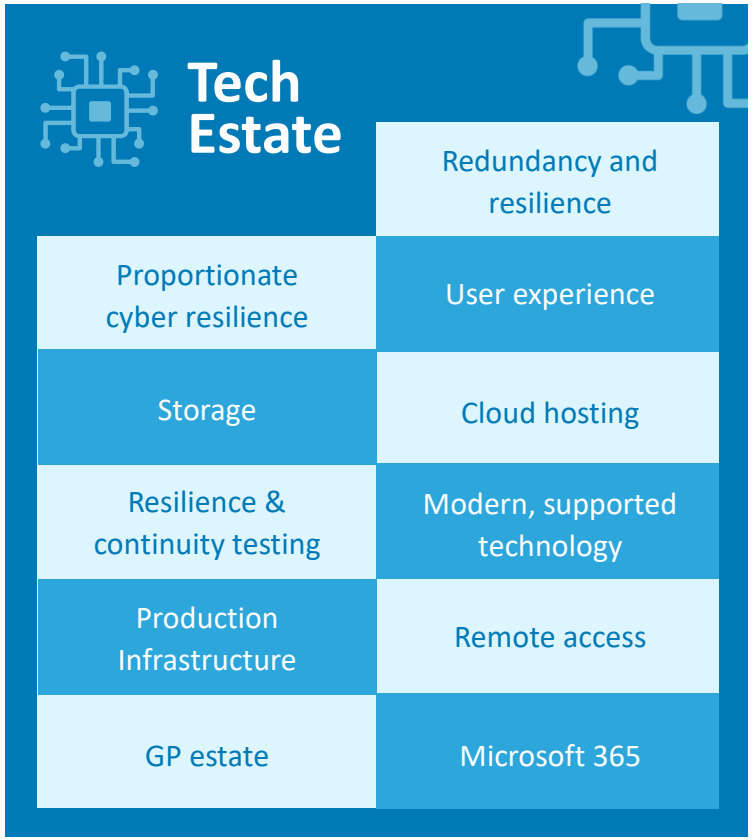
A robust and resilient technology estate is the foundation upon which services and systems are built and accessed. Providing an estate which is secure from cyber threats and protected against unnecessary downtime means that every part of the infrastructure requires careful architectural consideration, support, service management and vigilance.

Successes

NHSGGC has invested significantly to upgrade the vast majority of PCs, laptops and tablets. This investment will be built upon by planning for the ongoing refresh of these devices and operating systems, enabling accurate financial planning, and ensuring that the devices staff use are never obsolete or unsupportable.

eHealth already hosts some services within the 'Cloud': on another organisation's hardware which can be expanded as required. This use of cloud computing is likely to increase as we look to meet increasing requirements to store and process large amounts of data. Cloud computing also helps NHSGGC to become more energy efficient as this is a 'greener' way to deliver our services.

We have successfully transformed the majority of our telephony estate to a modern, cost effective and operationally sustainable technology platform. 25,000 handsets were renewed, along with supporting servers and software alongside the switchboard technology



Opportunities

Our staff require the ability to use a variety of device types and to access key systems when and where required. The continuing shift towards home and blended working and remote practice has shown that robust Remote Access solutions are a necessity. Applications which facilitate this approach such as the Microsoft 365 product set, will continue to be essential for this way of working.

Redundancy and resilience

To ensure that technology is available reliably where it is needed, our design approach is founded on the principles of safety and security. This is underpinned by the infrastructure - the data centre servers that run the programs and the networks that connect the users to them.

As reliance on digital records increases, we will continue to implement reliable digital solutions with robust business continuity measures in place to ensure that staff can continue to work safely in the event of adverse technical events.

In addition to the physical hardware there is also a logical infrastructure including Active Directory (which enables users to log in), programs that manage the contents installed on all the computers, and data backup systems. These too are highly resilient, having multiple instances in each data centre.

Proportionate cyber resilience models

NHSGGC has proportionate cyber resilience models which, in the event of system downtime, will help staff continue to work effectively. The introduction of systems such as HEPMA and TrakCare Active Clinical Notes make it ever more important that eHealth and clinical services work in partnership to ensure resilience for priority systems. Digital is just part of this approach: the combination of technology and working practice is essential to minimise the impact of system unavailability.

Commitment to modern and supported technology

We maintain hundreds of applications and tens of thousands of pieces of hardware which make up our technology estate. A key component of our strategic vision is to ensure that applications and hardware remain supported by the relevant vendor. We will continue to work with users to prioritise applications requiring intervention and these will be modernised as appropriate, along with the underpinning infrastructure upon which they rely.

Production Infrastructure
Our Production Infrastructure (PI) is a 'private cloud' containing servers, storage and networking which provides NHSGGC with the infrastructure to host the many applications and services used by our staff. The PI supports around 700 servers including Tier 1 applications such as TrakCare, SCI Store and Clinical Portal; management information databases and dashboards; high-capacity file servers and image stores; low-latency telephony servers as well as the multitude of other clinical servers and infrastructure components that are crucial for day-to-day patient care. In total, the PI can host 1.5 petabytes of replicated data.

Remote access
More staff access eHealth services from home than ever before and the expectation is that our systems should be available from whichever location is most appropriate. We will implement further resilience for remote access with additional capacity.

GP estate
Software and hardware will be upgraded and modernised across all 240 GP practices in NHSGGC, providing a platform for the new GP IT system and cloud-hosted DocMan instance, to ensure security and performance into the future.

Cloud hosting
NHSGGC currently host several systems in the public cloud. Our use of cloud hosting will continue to be developed and extended, reducing the need for hardware within our local datacentres. In the future a "cloud first" approach will be used when introducing new systems. However, all options for hosting whether they are on premise or in the cloud will be risk assessed in terms of requirement, resilience, IT and cyber security and cost. This will mean that our services are located in the most appropriate location based on measures such as cost, resilience required, response times and scalability needs.

Storage
The requirement for data to be securely stored continues to increase. For example, new technologies in Diagnostic Services such as Digital Pathology create very large volumes of image and video data. We will work with Diagnostic Services to upgrade and provide new methods of storing data.

Microsoft 365
Like all NHS Boards in Scotland, NHSGGC implemented Microsoft Teams (part of the O365 platform) at the beginning of the pandemic. Both NHS Mail and local NHSGGC email have now been migrated to M365. This means that staff can securely access their email from any Internet-connected location and from a much greater variety of devices than was previously possible.

In the coming period the Microsoft O365 programme will look at the implementation of SharePoint Online to replace Shared Drives and OneDrive to replace users' Home Drives. A focus on benefits realisation will also take place at a national, regional and local level to find new and innovative ways of working with the product set which O365. One such example is the Multi-Disciplinary Team meeting app which has been developed using Microsoft 365 tools and applications.

Strategic goals

- Continue to refresh up to 5,000 devices annually
- Continue to deliver modern, sustainable and cost-effective telephony solutions to maximise benefits
- User experience will be continually evaluated, and improvements made when and where possible
- Source solutions using recognised procurement methods to obtain demonstrable best value
- Cloud First – Where possible and where cost effective and resilient, applications will be delivered as cloud-hosted 'Software as a Service'.
- Maximise the investment in existing systems and infrastructure before buying new software
- Further extend the Microsoft Office 365 digital tools to replace StaffNet, shared drives and users' home drives
- Undertake the national cyber security audits and reviews

NHS Greater Glasgow and Clyde

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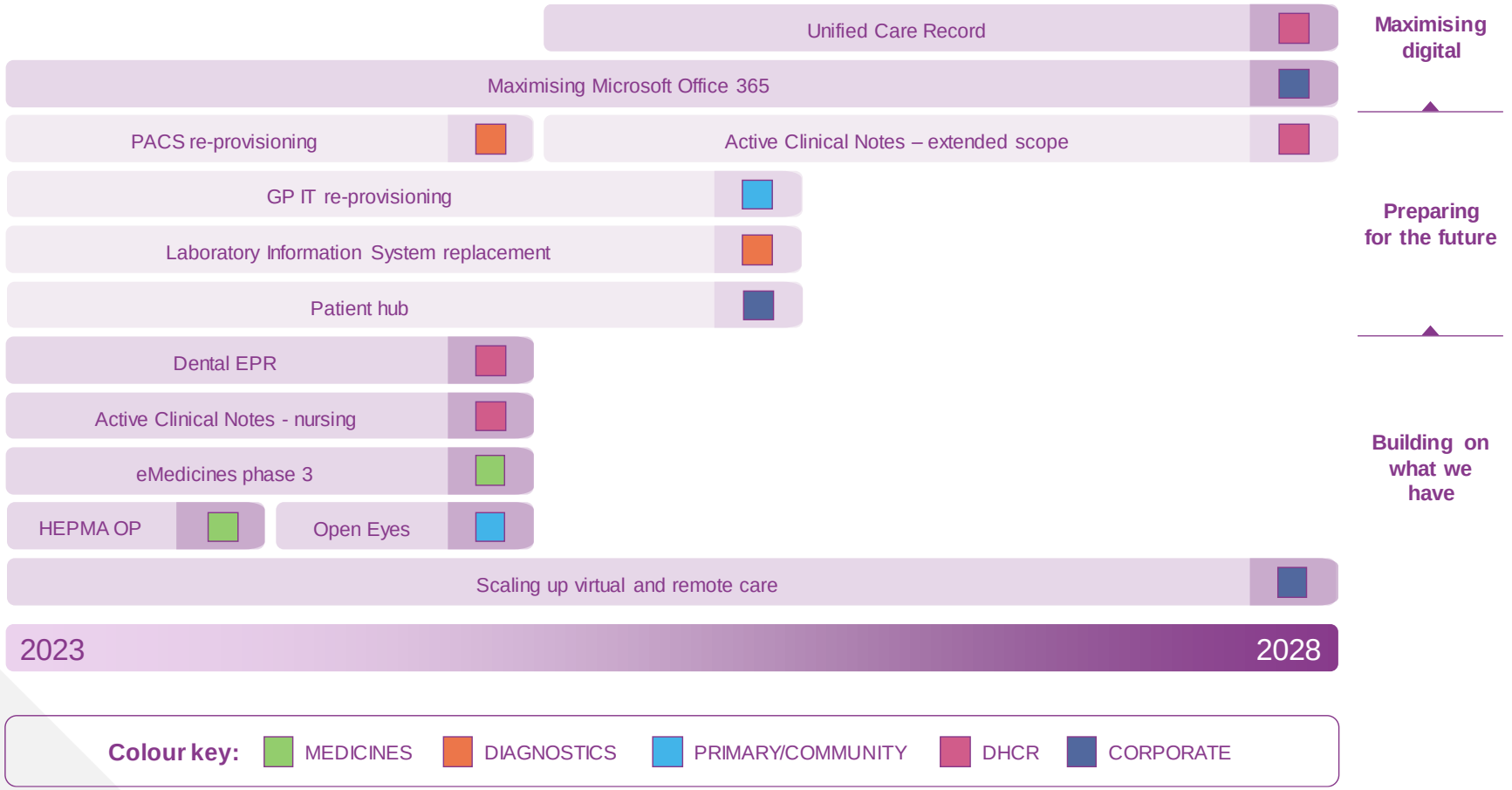
Digital roadmap

eHealth

Section 8 - Digital roadmap

Digital roadmap



NHS Greater Glasgow and Clyde

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How we will deliver this strategy

Following the strategy there will be a detailed delivery plan which will be kept under review under the oversight of the eHealth Programme Board and the eHealth Strategy Board.

eHealth

Section 9 - How we will deliver this strategy

Major investments

Funding for NHSGGC eHealth Delivery Plans is supported by Board funding, non-recurring Scottish Government strategic fund, and capital allocations.

Recovery and remobilisation of clinical services will continue to be a key challenge throughout the period of this strategy, placing additional pressures on the already challenging financial position. This strategy sets out NHSGGC's digital priorities for delivery. These will be continually reviewed and, where necessary, revised to ensure that available resources support the programmes that will make the biggest contribution to the Board's operational priorities.

The strategy will be further developed into an eHealth Delivery Plan subject to business cases and project evaluations. Requirements will be assessed against existing core clinical and business systems to ensure investment is maximised.

The robust governance structures described in this strategy will ensure that the right decisions are made in order to focus finite resources where they are most needed.

Laboratory Information Management System (LIMS)
A new LIMS will be implemented within the consortium Boards to free up capacity, address rising demand and deliver testing that positively affects the patient pathway.

Hospital Electronic Prescribing and Medicines Administration (HEPMA)
The rollout of HEPMA will be extended beyond inpatient areas, to maximise coverage and realise additional safety and efficiency benefits. Rich medicines information will be used to monitor and improve medicines practice.

GP IT
A new GP IT system, under the new national framework contract will be implemented to support HSCP and Primary Care improvement plans. The Document Management System will be replaced with cloud-hosted versions to enhance workflow, work with GP2GP and contribute to our strategic citizen records initiatives.

Active Clinical Notes
Through the existing TrakCare system Active Clinical notes, eObs, NEWS2 (National Early Warning Score) and other opportunities to capture data electronically, we will replace traditional paper clinical notes and reduce the need for scanning paper. Maximising existing investment in TrakCare and other technologies, these are significant clinical change programmes which will be closely tracked through the benefits realisation process.

Pharmacy Management System
A new Pharmacy Management System will be fully integrated with HEPMA to streamline medicines supply processes. This will enable wards to order medicines electronically, removing paper and saving staff time.

Microsoft Office 365

Extension of Microsoft Office 365 tools will transform the way our staff work and continue to maximise the opportunities from this investment. The existing StaffNet, Shared Drives and users' home drives will be replaced. A new app has been developed using Microsoft 365 tools and applications to support Cancer Multidisciplinary Team Meetings.

eRostering

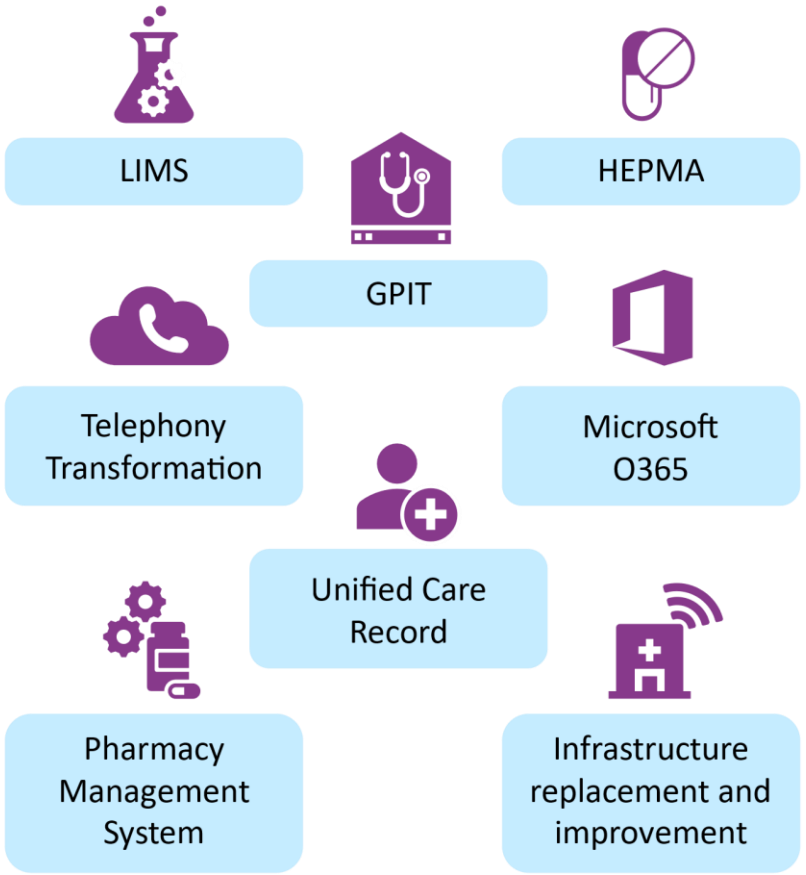
There will be a new eRostering system implemented across NHS Scotland to improve the existing rota system and processes plus providing on line access to shifts for staff.

Unified Care Record

The Unified Care Record will enhance clinical systems by aggregating citizen care data from across health and care organisations and Boards so that service users can access the information they need, regardless of setting, Board boundary or location.

Physical infrastructure

Device replacement will continue in order to ensure compliance with the NIS (Network & Information Systems) Directive for cyber security and improve user experience. Network infrastructure will be refreshed to remain in support and capable of ensuring compliance, performance and reliability. Local storage and compute infrastructure will continue to be updated, with Cloud alternatives to local hosting being considered within a business case process.



Nurse Controls within services

When NHSGGC implemented Microsoft Office 365 (MS365) within the Clyde sector, several meetings and discussions with admin staff and management were held to plan and prepare for email and data migration. Service areas included Surgical Specialties and Endoscopy and Theatres, who share aspects of their administration. As part of this process we determined that various repetitive processes and procedures existed, that staff conducted on a daily and weekly basis. The main item of note was the use of Nurse Controls within services. These were spreadsheets that contained staff absence information and costs to maintain the correct number of resources for each ward.

A Senior Charge Nurse (SCN) on each ward completed the spreadsheet every week and emailed them to admin staff to collate and process.

Across 14 wards SCNs spent around 7 hours per week/330 hours per annum completing the spreadsheets. In addition, the admin staff spent on average 2 hours per week/32 hours per annum, managing the 650 spreadsheets. With the introduction of shared files powered by MS365 cloud technology, an opportunity was spotted to find a more efficient way to manage Nurse Controls. Using SharePoint Online and Excel Online (both part of the Microsoft Office 365 solution) we were able to improve data quality and overall management, whilst reducing email volume.

66 % **Reduction in annual administration**

We created a new SharePoint site for the service and updated the current spreadsheet with a new master template for each ward. We anticipate this has reduced the annual time spent by admin staff on Nurse controls from approx. 30 hours to 10 hours a year.

The service now uses the SharePoint site as a central location for ward information, including fire safety Audit, Shift Information, Turas Reports and Annual Leave.

Human impact story

Please refer to the Impact content section in the Appendix to learn how and why we have selected this content.

NHS Greater Glasgow and Clyde

NHS Greater Glasgow and Clyde

10

Getting involved

eHealth

Section 10 - Getting involved

Getting involved

Our first core principle is “To listen to and learn from citizens and staff”. We want to engage actively and regularly with our citizens and staff. This section explains how you can get involved with our Digital journey, follow our activities, and share your stories.

Keep updated on what is happening in Digital: www.nhsggc.scot/eHealth

Access the online version of this strategy: www.nhsggc.scot/digital-on-demand

Visit our growing library of citizen and staff stories, that share the human side of how eHealth and Digital is making a difference across NHSGGC: www.nhsggc.scot/digital-on-demand/livinglibrary/

Tell your own story: www.nhsggc.scot/digital-on-demand/livinglibrary/share/

Get involved in our work and make a difference to how people can benefit from online technology in your area: www.nhsggc.scot/eHealth/engagement-hub

You can also find our eHealth engagement hub by visiting: GGC Consultation Engagement Space.

Email us with your views about the Digital on Demand strategy: www.nhsggc.scot/digital-on-demand/feedback/

If you are interested in working in the eHealth team, you can find our current vacancies here: https://www.nhsggc.scot/recruitment/

Engage with us on Twitter and YouTube:
https://twitter.com/nhsggceHealth
https://www.youtube.com/c/nhsggcvideos

Engagement Hub

Living Library of Stories

Recruitment

Feedback

NHS Greater Glasgow and Clyde

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Appendices

eHealth

Section 11 - Appendices

Financial summary

The NHS Board provides revenue and capital funding to support eHealth operations. A Strategic Fund is provided from Scottish Government which is used to support development programmes. Any funding required to support the strategic delivery plan will require a supporting business case.

The eHealth Directorate employs circa 1,500 whole-time-equivalent staff including almost 1,000 staff in Health Records Services, with a revenue budget of approximately £95M in financial year 2022/2023.

	FY 22/23
Recurring Funding	
NHSGGC rollover pay budget	£50.47m
NHSGGC rollover non-pay budget	£29.42m
	£79.89m
Non-Recurring Funding	
eHealth Strategic Fund allocation	£4.3m
Application & Infrastructure Funds (GPIT/Community)	£1.9m
Other NR funding for national network connections etc	£10.31m
FIP Savings	-£1.13
	£15.38m
TOTAL	**£95.27m**

The strategic fund is allocated by Scottish Government in order to deliver the key strategic aims of the National eHealth Strategy.

The Applications & Infrastructure Fund is largely a transaction with NSS to fund the Board's contribution towards national shared infrastructure and systems.

Digital delivery plan funding 2022/2023:

Programme	Strategic fund £000s	Capital £000s
Clinical Leads	250	0
Integrated DHCR	1,170	0
Safer Use of Medicines	720	0
Safer Diagnostics – LIMS	Nationally funded	0
PACS Service and Workstation Upgrade	0	645
Primary Care and Contractor Services	170	0
Innovations	290	0
Clinical and data Informatics	690	0
Workforce and Business Systems – O365	470	0
Technology and Infrastructure	490	1,140
Total	**4,250**	**1,785**

Apportioning of eHealth spend

Classification

- Pay **59%**
- Contracts **25%**
- Non Pay **13%**
- Hardware **3%**

Governance supporting the strategy

Through intensive work during the COVID-19 pandemic, and a natural maturing of our digital delivery, we have identified better ways to ensure ongoing, good governance across delivery and support of the many programmes and projects that we deliver.

To ensure optimal governance during implementation we have put in place specific Programme Boards which are dedicated to successful scoping, planning and rollout or certain systems or solutions. These Boards report to the overarching eHealth Programme Board and eHealth Strategy Board and follow Managing Successful Programmes (MSP) methodology through development, planning, implementation and then to be supported by our Operations Team as 'Business-As-Usual'.

This approach gives specialists ownership of programmes whereby there is dedicated focus on successful delivery, with a handover to our operations team who are best able to maintain, update and upgrade thereafter.

The overall governance structure has been updated to ensure input from citizens and closer alignment with HSCPs and Local Authority IT Leads plus the eHealth Partnership Forum and staff side representatives.

Governance structure

The eHealth Strategy Board will ensure that this strategy remains in alignment with key Board priorities including the Board's transformation programmes and the NHS Scotland national Digital Strategy, in addition to providing senior oversight to the prioritisation of the programme and its delivery.

The remit of the Board is as follows:

1. Develop the digital / eHealth strategy, ensuring it is aligned and co-ordinated with key priorities, strategies, policies and wider service transformation programmes
2. Agrees priorities for delivery by the eHealth Programme Board;
3. Acts as an escalation body for issues, providing decision support to agreed programmes of work when required; and
4. Develops plans for significant new investments including scrutiny of business cases and associated benefits realisation plans prior to presentation to the appropriate governance body.

The Terms of Reference have been revised and updated to include more partnership representation.

The eHealth Strategy Board reports to the Corporate Management Team (CMT)

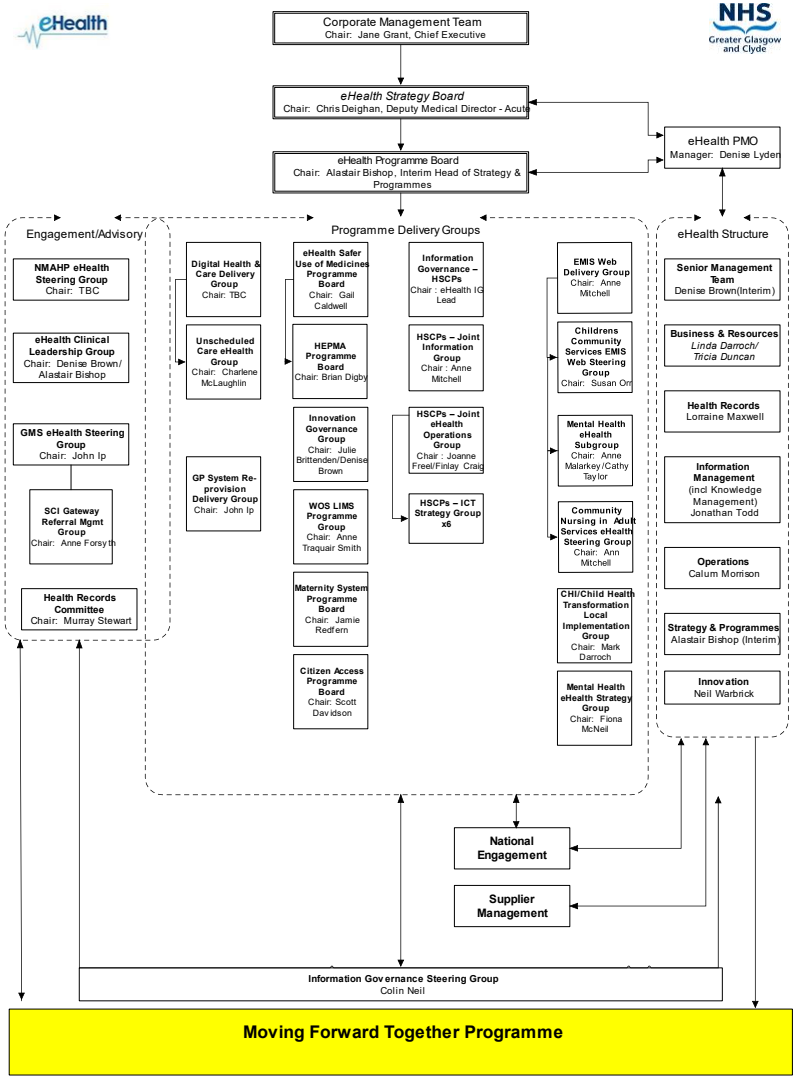
The **eHealth Programme Board** provides visible leadership of the eHealth programme's delivery. The Programme Board's principle focus is to provide high-level management of the programmes sponsored by the Strategy Board, ensuring that programmes and projects are appropriately resourced and effectively communicated to affected stakeholders including clinicians and patients.

Further advisory and programme delivery groups are responsible for the delivery of strategic projects – supported by the core skills and capabilities of the eHealth team.

eHealth Clinical Leadership

A number of eHealth Clinical Leadership resources have been established within the Directorate including Consultant, Nursing, Midwifery and AHP professions. This allows the needs and views of stakeholders to be represented at a senior level within the eHealth team. The eHealth Clinical Leads work within the established governance and directly with health and care teams to support, facilitate and advise on the delivery of the strategy.

There are also approximately 100 clinicians working across services who act as "Clinical Links". Although they do not have dedicated time as the Clinical eHealth Leads do these links are an invaluable clinical voice and participate in our annual Clinical Links Event and a range of online workshops during the year to inform strategy development and advise on the delivery plan.



September 2022

Staff groups included in engagement

During the production of this strategy we have engaged with the following staff and partner groups:

- Area Partnership Forum
- Community Nursing eHealth Group
- eHealth Directorate Workshop
- eHealth Partnership Forum
- Equality and Human Rights team
- Facilities and Estates
- Glasgow Adults and OP ICT and Digital Board
- HSCPs
- Infrastructure Core Internal Group
- Knowledge Services
- NHS Education for Scotland (NES)
- NHSGGC Leadership
- Patient Administration Transformation
- Project Review Group
- Staff BME Network
- Staff Disability Forum
- Staff LGBTQ+ Forum
- Workforce Planning

Glossary of terms

Term/Acronym	Short description
ACRT	Active Clinical Referral Triage
CAC	Community Assessment Centre
CMS	Content Management System
DHCR	Digital Health & Care Record
eHealth	Electronic Health (IT and Digital in Health)
EPR	Electronic Patient Record
HEPMA	Hospital Electronic Prescribing and Medicines Administration
HSCP	Health & Social Care Partnership
iCAIRD	Industrial Centre for Artificial Intelligence Research in Digital Diagnostics
MDT	Multi-Disciplinary Team
MFT	Moving Forward Together (Change Programme)
MS	Microsoft
NES	NHS Education for Scotland
NSS	National Services Scotland
OOH	Out of hours
PACS	Picture Archiving & Communications System
PAT	Patient Administration Transformation Programme
PEPI	Patient Experience & Public Involvement
PET	Positron Emission Tomography

Term/Acronym	Short description
SATA	Specialist Assessment and Treatment Area
SDPM	Strategic Development and Programmes Manager
TURAS	NHS Education for Scotland's single, unified platform.
VMT	Vaccination Management Tool
WoS	West of Scotland

Impact content

Rather than confining Human Impact Stories, NHSGGC Examples of Innovation and Case Studies to certain sections, we have determined an opportunity to distribute them throughout the strategy to aid with design and ease-of-reading.

Human impact stories

Our eHealth work has practical, hands-on benefits which we are keen to share. These stories include citizen, patient and staff perspectives, all designed to communicate how digital is helping people in their everyday lives. To help differentiate between the types of stories, we have provided icons to explain what each of the stories cover:

Icon	Perspective
	Citizen, patient
	NHS Staff and partners
	Both

Examples of innovation

Innovation is one of our most powerful approaches to identify, test and trial new methods and solutions. These examples are from across NHSGGC and the West of Scotland and demonstrate our commitment to exploiting new technology and experimentation that delivers benefit to our citizens.

Case studies

The case studies included in this strategy have been selected to recognise good practice and innovation in digital health care around the world. NHSGGC will apply learning from this work to our own digital delivery plan.