NHS Greater Glasgow and Clyde Digital Strategy

Recommendation:-

The Board are asked to approve the draft NHSGG&C Digital Strategy.

Purpose of Paper:-

This 5 year digital strategy establishes the direction for a prioritised programme of work that will exploit the investment in technology that has been made to date, harness the opportunities for innovation and deliver digital solutions to meet the growing health and care demands into the future. The strategy provides a plan to use digital as a powerful tool to fundamentally improve day to day health and social care across NHS Greater Glasgow & Clyde and to support the Board’s transformation objectives.

Key Issues to be considered:-

The draft strategy has been developed alongside the Moving Forward Together programme. Significant stakeholder engagement was undertaken during this programme, specifically relating to the use of digital technology and its potential to support transformation.

The draft strategy has been reviewed by the eHealth Strategy Board and also a significant number of clinical stakeholders.

The draft strategy was presented and discussed at the Board Seminar on 3 July 2018. Comments and feedback from the seminar have been incorporated into this latest draft.

There are 5 key focus areas of the strategy:

- Integrated Electronic Health & Care Record
- Self Care & Remote Care
- Information and Data Analytics
- Workforce & Business Systems
- Technology Infrastructure

Within each key focus areas the strategy outline the opportunities that digital technology presents.

The strategy will position the Board to deliver a range of digital programmes including:

- An appropriately shared health and care record that is available to health & care teams looking after our patients
- Creating opportunities where patients are able to engage in their health and care by having access and contributing to their digital record and having access to appointment
BOARD OFFICIAL

information. There will be opportunities to enable real time advice to patients and also between health and care professionals.

- Patients will have the ability to attend consultations virtually using digital tools from home.
- Where information and data is exploited to support new models of care and the use of precision medicine in relation to prevention and early diagnosis and decision support.

The strategy outlines the importance of the agenda being clinically led and aligned with the Board’s objectives.

We are also committed to ensuring that our staff are appropriately trained and supported to embrace new technologies.

The strategy recognises that the ambitious aims outlined will require continued collaboration and partnership working to harness capability and seek opportunities.

Any Patient Safety /Patient Experience Issues:-

The aim of the strategy is to improve patient experience by providing appropriate health and care information at the point of care to improve services.

Any Financial Implications from this Paper:-

The strategy is exploiting the existing cornerstone application systems and ensuring best value for investments to date. Additional investment is available through existing national funding streams. It will be necessary to ensure that investments are sustainable.

Any Staffing Implications from this Paper:-

A key aim of the strategy is to ensure that our staff are appropriately trained and supported in the use of technology.

Any Equality Implications from this Paper:-

An Equality and Diversity Impact Assessment is being completed to support the strategy.

Any Health Inequalities Implications from this Paper:-

None identified.

Has a Risk Assessment been carried out for this issue? If yes, please detail the outcome:-

N/A

Highlight the Corporate Plan priorities to which your paper relates:-

Linked to the Corporate Objectives and the Moving Forward Together Strategy.

Author – William Edwards, Director of eHealth NHSGG&C
Tel No - 01412782760
Date – 9 August 2018
Greater Glasgow & Clyde Digital Strategy

Digital as usual

2018 – 2022 Outlook

Released: August 2018 Version: 2.6 Draft
Contents

Message from the Director of eHealth 3
Introduction 4
Drivers for change 6
Shared vision 8
Size & Scale 11
Key Focus Areas for 2018 - 2022 19
Strategy Delivery Plan 45
APPENDIX 1 - Our technology estate 49
APPENDIX 2 - Governance - Supporting the strategy 50
Message from the Director of eHealth

“Building on our core foundations digital technology offers significant opportunities for us to deliver the transformational change that we desire”

Since taking up my post as Director of eHealth in NHS Greater Glasgow & Clyde I have been impressed by the enthusiasm and passion that clinicians and our staff across the organisation have for adopting new technology.

The opportunities for innovation and transformation that digital technology offers are significant and now is the time for us to harness this potential.

This Digital Strategy sets out a roadmap and delivery plan over the next 5 years for the development and implementation of new technology to support our ambitious transformational change plans including Moving Forward Together. Our vision is to deliver digital solutions that will enable a whole system of health and social care predicated on seamless care for everyone who needs it.

We will enable and empower individuals and communities to use digital technology to engage in their healthcare. Our workforce will be supported to become digitally confident and services will exploit technology to provide the most efficient health and care services as possible.

We will engage and work closely with staff and the public to ensure that we deliver solutions that are fit for purpose and enhance the experience of our health and care services.

I encourage you to get involved and join us on this journey and I look forward to working with you to create a digitally enabled health and care system.

To see an introduction video relating to this strategy please visit: (to be agreed following Board seminar)
Introduction

Digital technology has the potential to radically improve our lives, and this includes all aspects of health and care. Digital technology will be central to delivering the transformational change that is necessary to support integrated health and care into the future. People expect to use technology in all areas of their lives and health and care should be no exception. Digital technology provides the opportunities to support transformational change and to make care safer, sustainable and allow people to become active participants in their care.

From life changing monitoring devices that allow people to self-manage health conditions from the comfort of their home, to the clinical and business systems that support our services the vision set out in this strategy will rely on digital technology to provide a truly integrated and modern service. Digital technology includes a diverse range of areas including infrastructure, data, clinical and business application systems plus innovative opportunities relating to data analytics and artificial intelligence which can be seen as the enablers for service transformation. This strategy focusses on how this technology can be used and delivered, setting out a direction for clinical and social care transformation supported by technology.

This 5 year digital strategy establishes the direction for a prioritised programme of work that will exploit the investment in technology that has been made to date, harness the opportunities for innovation and deliver digital solutions to meet the growing health and care demands into the future. The strategy provides a renewed confidence in our ongoing plan to use digital as a powerful tool to fundamentally improve day to day health and social care across NHS Greater Glasgow & Clyde and support transformation ambitions in the Moving Forward Together strategy. By building upon our maturing digital outlook, we are confident that this will continue to provide answers to some of our most formidable and prevalent challenges and enable transformational change.

Digital at the centre of care

Today digital is intrinsic to the health and care we deliver and its use will increase as services are transformed. Digital powers our hospitals, gets people to appointments on time, keeps our data secure and is fundamental to the delivery of care. Digital is critical to achieving the Board’s transformation goals and will enable the new models of care and service redesign opportunities into the future. We have been building solid foundations that will allow for continued growth and scale. Having put the infrastructure in place, we want to set our sights on ensuring more digital initiatives operate at scale and are integral to transformation of services. eHealth will work with the Board’s transformation programmes ensuring that digital becomes the norm and the opportunity that technology offers is exploited.

For People

At any stage of care; when visiting a hospital or receiving a visit from your community team, you will have noticed health and care teams are using technology to support them. Whilst we acknowledge that some of this document may use unfamiliar technical language, you may find the ‘Size & Scale’ section of interest, as it explains more of what we do in this area, plus you may enjoy reading the human impact stories associated with each key focus area.

For Health and Care Staff

In producing this strategy we have been overwhelmed by the enthusiasm and passion our staff have for digital advancements across services. We appreciate that digital represents a high degree of expectation for our staff, who are always looking to improve and enhance delivery of health and care services with the person at the centre. We hope you enjoy reading our ‘Shared Vision’ which has been developed with support from your colleagues, and learning about our successes and the future opportunities within each of the key focus areas.
For Managers

Digital can be a complex area yet digital is as much a part of NHSGG&C as the physical buildings we operate. Given that we deliver health and social care in an era where people expect to use technology and our workforce are very familiar with technology as part of their daily roles; the challenge for managers is to grasp digital as a practical and achievable opportunity, exploring how it can enable, evolve or even transform areas of service. This strategy has been created with our staff, patients and carers in mind, including how it will support your work, demystify this topic to some degree and provide you with the information that you need to use digital to transform and sustain your services.

For Partners

For current and future partners we hope you will consider this strategy as a statement of intent that NHSGG&C is active and progressive in our ambition to modernise and transform our services using digital technology. With partners we will be able to explore new digital solutions that will make a real difference to the lives of people and staff.

For Technologists

Without the talent and expertise of our technologists, partners and suppliers, we would not be able to deliver and support the critical technology which the organisation relies on to deliver services. This strategy refers to many technology systems that are relied upon by thousands of NHS and HSCP staff and the public on a daily basis. You can learn more about what it takes to ‘keep the lights on’ and what we are doing to ‘sweat the assets’ that we manage, maintain and monitor by referring to the key focus area; ‘Technology Infrastructure’ and the ‘Our Technology Estate’ section located later in this strategy.

For Everyone

This digital strategy is an opportunity to gain a window into how we deliver digital and technology services and solutions at scale within NHSGG&C. We would hope that this strategy would offer you a perspective regarding the size and scope of digital at NHSGG&C and offer a direction for health and social care services who are looking to modernise and transform. A good starting point would be the ‘Drivers for Change’ section followed by ‘Size and scale’ which includes a useful infographic that helps explain the scale and significance of this area of work.
Drivers for change

When defining our digital strategy for the next five years, it is important that we consider the broader context so that we can remain aware of how people and our staff could benefit from, or be disrupted by digital opportunities. Drivers for change represent both opportunity and challenge; from keeping up with modern technology expectations, through to how our society is changing and what this means in terms of managing and maintaining growing demand for our digital services. We are building upon a solid strategic base, which acknowledges digital is core to our transformational ambitions and critical to the day to day delivery of health and care.

Strategic drivers

In developing this digital strategy we have worked to ensure that our direction of travel is aligned with the emerging national strategy and other important policies, plans, objectives and strategies as follows:

- Corporate Objectives
  - Better Health
  - Better Care
  - Better Workforce
  - Better Value

Scotland’s Digital Health & Care Strategy states: “The issue is not whether digital technology has a role to play in addressing the challenges we face in health and social care and in improving health and wellbeing: the issue is that it must be central, integral and underpin the necessary transformational change in services in order to improve outcomes for citizens. Over the next decade digital services will become not only the first point of contact with health and care services for many people, but also how they choose to engage with health and care services on an on-going basis.”

Each of these mandates should be complemented or directly supported by our digital strategy. Where possible we would recommend further reading of these documents to obtain a wider view of how digital can support and sustain health and social care transformation.
**Disruptive drivers**

In addition to the associated strategic drivers that need to be considered as part of this strategy, there are other drivers of change that should be acknowledged. Disruptive drivers are large scale trends or imperatives and represent important background context for our digital strategy:

**Expectations**

Changes in public and workforce expectations are being led by digital innovation. With most people owning a smart phone, the bar is set high in terms of what the ‘computer in our pocket’ can do to make our lives more healthy, convenient and productive.

**Digital Innovation**

Fitness and exercise Apps have proved that an active lifestyle can be fun and socially rewarding, and access to medical advice is becoming more prevalent via digital channels. These trends provide a healthy pressure for NHSGG&C to continue to find ways to make use of digital technology and methods to support our Nation’s aims to achieve high quality health and social care services that have a focus on prevention, early intervention and supported self-management.

**Integrated Care**

Integrated care will become the norm, whereby our people are supported by a total care package that includes health and social care across acute, community and primary care. Joining-up these services can be complex, given that separate systems and processes currently exist. Digital offers the toolkit to transform these areas, providing a truly integrated and modern care service.
Shared vision

**Why have a digital / eHealth strategy for NHS Greater Glasgow & Clyde?**

Our digital strategy acts as a compass for all stakeholders who have an interest in the digital and eHealth capability at NHSGG&C. The transformational ambitions within the Board have placed the implementation of digital technologies at the centre of the Board’s plans. The strategy will enable a planned and managed approach to the delivery of digital plans which align with the Board’s priorities and key transformation programmes. Whether you work in eHealth, use digital systems as part of your role, or simply have an interest in how digital can shape and evolve health and social care; we invite you to more actively participate, by sharing our vision and supporting this strategy. For more information about how you can get involved and be part of our digital future at NHSGG&C please refer to the final section in this document.

**Our Aim**

Our digital remit exists to advance delivery of integrated health and social care locally and more widely across Scotland and to enable and support the delivery of the transformation plans within NHS Greater Glasgow & Clyde. This includes re-setting any pre-defined perceptions about digital, to make sure those who want to input and support our digital modernisation feel welcome and empowered to do so. It is our priority to ensure that our patients, carers and workforce are enabled to benefit from positive health outcomes and experiences, including the greater choice and convenience that digital will provide.

To enable and enhance delivery of quality health and care services, using digital to deliver positive health outcomes and experiences for the people of Greater Glasgow & Clyde.

To achieve this vision will involve considerable effort and signals a significant stage in our digital maturity. The vision is inclusive of all stakeholders, must be accessible, keeping people at the centre of our focus, whilst continuing to support and enable the workforce.

**Our Goals**

1. People are well informed and enabled by digital technology in achieving positive health and care outcomes
2. Our staff are assisted by technology to make effective decisions, deliver integrated models and work efficiently and safely regardless of organisational boundaries
3. Our organisation’s performance is optimised and transformational change is enabled through the use of technology at scale

*Delivering better health*

www.nhsggc.org.uk
How we can measure progress against our goals

- Increasing levels of adoption of electronic health and care records in our hospitals with reduction of paper-based processes.
- Building on the electronic health and care record to provide a comprehensive and integrated shared record which will support health and care multi-disciplinary teams working across acute, community and primary care sectors and new tiered care models.
- Ensuring people, over time, routinely have online access to personal health and care records and be 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.
- Services have been engaged and there are robust design principles and business cases in place.
- Realising the wider opportunities that technology enabled care can offer when implemented at scale by measuring against the national Health & Social Care Digital Maturity Assessment.

Innovation

Research and innovation almost always requires some form of coordinated collaboration with other teams, specialists, education, industry, manufacturers and volunteers, often with international input.

Greater Glasgow & Clyde is uniquely placed to drive partnership working across the West of Scotland region to improve healthcare and patient outcomes through research and innovation. We have strong links between the Health Boards serving our regional population of 2.7 m and the academic base to support and foster industry collaborations both locally, nationally and internationally. The Research, Development and Clinical Innovation strategy can be found at http://www.nhsggc.org.uk/media/243755/nhsggc-research-strategy-document.pdf

Digital innovation will be central to delivering the transformational change that is necessary in order to support integrated health and care teams in delivering new models of care and is therefore at the centre of our strategy. Our strategy is to support innovation through the use of international technical standards and robust governance. We will set up an Innovation Group, working with Research & Development, Clinical Engineering and Medical Physics colleagues within the Board which will establish a process for the rapid assessment of proposed consortia and funding bids that aim to involve NHSGG&C as a test bed, assessing and prioritising innovation bids.

To support our work, we will continue to invite specialist clinical, medical and technology advice from inside and outside of our organisation including University representatives, in order to stay current with the latest advancements, learning lessons from elsewhere and keeping NHSGG&C at the forefront of digital in healthcare.

Research using electronic health records has supported a digital approach to generate real world evidence to understand and improve patient outcomes. For example, it has enabled us to evaluate the effectiveness of services and interventions in practice in a number of areas including weight management in patients with type 2 diabetes or how to target therapies more effectively, eg. Biomarkers in severe asthma.

Opportunities through partnership

Building on the close relationships that NHSGG&C have with the universities network to promote and encourage innovation, healthcare improvement and research development we will work closely with the University of Glasgow through the Glasgow Health Sciences Partnership (GHSP).

The aim of the GHSP is to integrate world leading research, education and clinical expertise to improve health outcomes, deliver better healthcare, generate economic benefits and to encourage investment in health and research. The NHSGG&C Digital Strategy will be a vehicle to support the collaboration

Delivering better health

www.nhsggc.org.uk
delivering disruptive innovation for the benefits of patients by implementing areas of health innovation such as Precision Medicine.

Work is also underway with the Digital Health Institute and a number of consortia small and medium enterprises to develop a test bed area for innovative digital systems to interface with NHSGG&C eHealth systems. This will be developed further to ensure that we are able to explore and take full advantage of digital developments that align with NHSGG&C objectives and strategic delivery plan.

**Underpinning principles**

To help guide our strategy and ensure we can deliver our vision, we have determined a set of underpinning principles. Eight principles will underpin all of our digital activities, programmes and initiatives:

- **Patient centred approach**
  - Ensuring that investments in digital support an integrated system to deliver patient centred health and care experiences.

- **Staff engagement**
  - Supporting the creation of digital solutions and systems that are fit for purpose and align to health and care service delivery.

- **Accessible, safe & secure systems**
  - Supporting patients and staff through the development of accessible, compliant, safe and secure solutions.

- **Robust governance & investment management**
  - Supporting consistent and integrated services for patients, allowing all our stakeholders to coordinate and plan effectively at local and board levels.

- **Standards based environment**
  - Adopting health information standards to facilitate and streamline the interoperability of systems, reducing integration costs while improving the overall quality of systems.

- **Working collaboratively & partnerships**
  - Forging strong partnerships and supporting development of a collaborative culture that will continue to embrace and find new ways to redesign health and social care.

- **Effective change management**
  - Enabling the sustainable and seamless transition of digital programs to become business as usual, including embedding digital literacy.

- **Fostering innovation & research opportunities**
  - Proactively anticipating citizen's needs to better predict and meet future expectations and demands.
Size & Scale
SUPPORTING USERS 40,000 ACROSS: 35 HOSPITALS | 242 GP SURgeries | +300 COMMUNITY PHARMACIES | +50 HEALTH CENTRES & CLINICS

WORKFORCE & SYSTEMS

EACH WEEK OVER 12,000 CLINICAL & SOCIAL STAFF ACCESS CLINICAL PORTAL FOR 2M+ RESIDENTS

AVERAGE OF 15,000 PATIENT MANAGEMENT SYSTEM USERS PER WK

PER WEEK

3,600 Outpatient clinics
5,000 Workflow requests
204,500 Lab requests
27,000 Radiology requests

ACCESS DIGITAL RECORDS VIA THE EMISWeb COMMUNITY SYSTEM

OVER 5,500 STAFF

INFORMATION

A DECADE OF ELECTRONIC CLINICAL DATA

REDUCTION IN OUTPATIENT CLINIC PAPER CASENOTES* SINCE 2014

89%

3,300 USERS OF INFORMATION DASHBOARDS

60,000 PATIENT CONTACTS EACH MONTH TO REFERRAL MANAGEMENT CENTRE

INNOVATION

10 KEY NATIONAL INNOVATION PROJECTS

PROOF OF CONCEPT PATIENT PORTAL DELIVERED

STATE-OF-THE-ART £5M CLINICAL RESEARCH FACILITY AT QUEEN ELIZABETH UNIVERSITY HOSPITAL

93% ONLINE PATIENT SERVICES

GLASGOW SAFE HAVEN ENABLES IDENTIFICATION OF PATIENT COHORTS 33 data sets

INFRASTRUCTURE

INTEGRATION OF 30+ SYSTEMS VIA THE CLINICAL PORTAL

ACTIVE MOBILE DEVICES 9,296

DESKTOP MACHINES 26,000

WIRELESS ACCESS POINTS IN ALL ACUTE HOSPITALS, HEALTH CENTRES & COMMUNITY SITES

AVG OF eHEALTH SERVICE DESK CALLS & EMAILS PER/MTH 4,500 17k
Some of our challenges

Despite digital offering opportunities to help NHSGG&C modernise and meet our commitments, there are a number of significant challenges as we look ahead to the next five years.

Whilst our services do need to modernise and change and digital will remain central to such improvements, this alone will not be the answer. Now widely accepted that people have a major role to play in improving their health and care, we will explore new ways to empower people with the tools they will need to better understand and manage their health and wellbeing and to access services through the use of digital.

Exploiting the opportunities that mobile medical technologies, health and fitness services (such as wearables and Apps) offer will help to give people an improved and more interactive experience. This data, when joined with medical records, can be exceptionally valuable in determining cause and self-managing prevention. With digital offering so much potential to support and improve people’s lifestyles (to eat better, exercise more, become fitter and healthier) this is one of the more proactive and long-term options we have to help alleviate future pressure across our services.

If digital can be further applied in the area of enablement and prevention, we could actively reduce cases of smoking related illness, type 2 diabetes, obesity and COPD in our region which are key objectives in the Board’s public health strategy.

In addition to these societal challenges we also face a number of specific digital challenges:

- Data sharing versus data privacy
- Information security
- Making improvements and changes to complex ‘inflight’ systems
- How we shift to measuring outcomes over process
- Legacy technology versus risk of new technology
- Costs and financial investment required to deliver the ambitions

There will also be challenges relating to the necessary service re-design and associated change management. Whilst this can be supported with project management and organisational development, change management at scale across services will require leadership and buy in at corporate level. It will be necessary to ensure that there is sufficient capability and capacity in the Board to support the change management that will be required.

Trends from other countries

In Sweden a major restructure of healthcare IT infrastructures is underway. More than half of the 21 Swedish regions are procuring or planning to procure new IT solutions as of late 2017. As an early adopter, many of its first generation systems are approaching end of life. Creating a patient-centric ecosystem that brings together digital services and real-world care is a prime focus according to the Commissioner for Innovation and eHealth at Stockholm County Council - Daniel Forslund.

Healthcare in Sweden lies within the responsibility of the 21 Swedish regions or counties, and these counties are responsible for procuring the major IT systems that hospitals and doctors in primary care use. It is different from region to region, but in Stockholm, 80% of both public and private healthcare providers use the system that the regional government acquires. It is possible to use other systems, though, or to connect them to the regional system.

In December 2017 Stockholm County Council took the decision to open the procurement process. A major effort, worth in total 2.2bn Swedish kroner, equalling €230m. Supplier dialogue in 2018 will progress to preparation phase in 2019, with rollout planned for 2020.
“The number of patients using tele- and video consultations has increased nearly twentyfold. Hundreds of thousands of Swedes are accustomed to meeting doctors online now.”

Requirements for the new Swedish IT solutions will have to address two main pillars; one being the internal digital documentation within healthcare organisations and the digital communication between healthcare providers. The expectation is for a more modern, somewhat more modular and more standardised approach than with the current IT systems, a system that makes it easier to add additional modules, such as decision support tools.

There is an increasing pressure for change in all Swedish regions. Patients are at the heart of this change, for example meeting doctors or nurses online or sending images for teleconsultations is common place and entirely expected. There are tools that help in writing and dealing with prescriptions and the number of patients using these kinds of digital tools has increased nearly twentyfold.

This digital healthcare system was completely separate from the traditional healthcare system in Sweden. Swedish citizens expect IT and digital providers to work together more closely. As well as technical change there is also policy change required, patients are not only free to choose their doctor or hospital, but also free to choose whether they want an online appointment or a regular appointment. This required forward planning of various policy changes. Hundreds of thousands of Swedes are accustomed to meeting doctors online now, or to have mobile access to care providers.

In Estonia the Electronic Health Record is a nationwide system integrating data from Estonia’s different healthcare providers to create a common record every patient can access online.

Functioning very much like a centralised, national database, the e-Health Record actually retrieves data as necessary from various providers, who may be using different systems, and presents it in a standard format via the e-Patient portal (link). A powerful tool for doctors that allows them to access a patient’s records easily from a single electronic file, doctors can read test results as they are entered, including image files such as X-rays even from remote hospitals.

97% of patients have countrywide digital record. For example, in an emergency situation, a doctor can use a patient’s ID code to read time-critical information, such as blood type, allergies, recent treatments, on-going medication or pregnancy. The system also compiles data for national statistics, so the ministry can measure health trends, track epidemics, and make sure that its health resources are being spent wisely.

Patients have access to their own records, as well as those of their children. By logging into the e-Patient portal with an electronic ID-card, the patient can review doctor visits and current prescriptions, and check which doctors have had access to their files.
Progress to Date – What has been delivered

To demonstrate how far we have come over the past four years, it is useful to consider the growth in Electronic Health & Care Records:

- **2014:** Rollout of Mental Health Community Sites
- **2015:** Theatre system users
- **2016:** Trakcare for Order Comms Results (Per month)
- **2017:** Information dashboard accesses per month
- **2018:** Number of paper records pulled per month for OutPatient Clinics (excl Ophthalmology)

**Clinical Portal Users**
- **2014:** 2,000
- **2015:** 75,000
- **2016:** 511,200
- **2018:** 25,000

**EMIS Community Users**
- **2014:** 6,440
- **2015:** 2,000
- **2016:** 600
- **2017:** 500
- **2018:** 5,500

**EMIS access completed for Mental Health & Specialist Services**
- **2018:** Live

**Number of paper records pulled per month for OutPatient Clinics (excl Ophthalmology)**
- **2014:** 6,440
- **2015:** 2,000
- **2016:** 780,000
- **2017:** 700
- **2018:** Live

**Medicines Reconciliation/ eIDL Commences**
- **2018:** Live

**Social Work Access to Clinical Portal**
- **2014:** 15,000
- **2015:** 50
- **2016:** 2,800
- **2017:** 700
- **2018:** Live

**GP Online Services**
- **2014:** Live
- **2015:** Live
- **2016:** 50
- **2017:** 65,000
- **2018:** Live

**EMIS Community expanded for Treatment Rooms & Community Rehab**
- **2014:** 6,440
- **2015:** 2,000
- **2016:** 600
- **2017:** Live
- **2018:** Live

**Introduction of EMIS Community**
- **2014:** 6,440
- **2015:** 2,000
- **2016:** 600
- **2017:** Live
- **2018:** Live

**eReferrals from Community Dental and Optometry**
- **2014:** 6,440
- **2015:** 2,000
- **2016:** 600
- **2017:** Live
- **2018:** Live

**EHR Online Services**
- **2014:** 6,440
- **2015:** 2,000
- **2016:** 600
- **2017:** Live
- **2018:** Live

**Number of paper records pulled per month for OutPatient Clinics (excl Ophthalmology)**
- **2014:** 6,440
- **2015:** 2,000
- **2016:** 780,000
- **2017:** 700
- **2018:** Live

**Trakcare Order Comms Results (Per month)**
- **2014:** Live
- **2015:** Live
- **2016:** 75,000
- **2017:** Live
- **2018:** Live

**Maternity System**
- **2018:** Live

**Social Care Information in Clinical Portal**
- **2018:** Live

**Clinical Portal Users**
- **2018:** 25,000

**Cyber Essentials Accreditation**
- **2018:** Live
Cornerstone Systems

Over the past five years, there has been significant work undertaken to establish Board-wide electronic clinical systems:

Clinical Portal
The Orion Health Clinical Portal is now used by an average of 12,000 front line staff per week across the organisation including acute care, mental health, primary care, GP surgeries, community nursing and a number of social care settings. Portal is an essential system for staff within NHSGG&C, where clinical information and resources can be accessed quickly and easily.

Clinicians use the Clinical Portal to access the electronic health and care record which holds a range of key information about the person including acute care correspondence, referrals, diagnostic results, health service encounter history and a mental health summary. Work has commenced to integrate a range of data from social care systems, starting the journey to an integrated health and care record.

Patient Management System
The TrakCare Patient Management System supports all acute sector and a number of community based Allied Health Professionals providing, at any one time, 19,000 staff with the tools they need to effectively manage people. The system provides a range of capabilities including the triaging of referrals, clinic appointments and scheduling plus the ability to order diagnostic tests and procedures. It is an essential building block of the electronic health and care record and “feeds” information to a range of other systems including electronic whiteboards which are used in the hospital wards to provide in-patient care plus patient self-check in facilities allowing patients and carers to self-check in for appointments at most acute locations.

Once people have attended their clinic the Patient Management System is used to record the clinical outcome of the appointment and then produces the necessary letters for the person and their record. These letters are sent electronically through secure systems and a copy is posted to the person attending for treatment.

Integrated Community System
The EMISWeb Community Care System supports almost 3,000 children’s services staff, 2,500 Mental Health services staff, and will support 800 community nurses following a planned transition during 2018/19. Due to a board-wide approach EMISWeb provides access to digital records across services, handling referrals and scheduling of appointments.

Integrated Maternity System
Rollout of the BadgerNet maternity system which supports around 16,000 deliveries annually, across one of the largest maternity services in the UK has been completed. Supporting a mixture of desktop computers and tablets for mobile maternity staff, a 4G private network is used to ensure highly secure transfer of data. BadgerNet maintains a single maternity record which is available across both acute and community care in NHSGG&C, NHS Forth Valley and NHS Lanarkshire, ensuring a single record that is accessible by clinicians at the point of care, wherever the mother presents.

GP Systems
GP Practices have well established clinical and appointment systems and are largely paperless. Electronic Document Transfer (EDT) transmits digital correspondence and messages from hospital services and digital dictation systems directly into the GP system. These messages are workflowed into the relevant patient record in the GP Practice for action. The challenge now is to update these systems with a new national GP IT system and to integrate primary care data into the Integrated EHCR.
Practices have benefited for many years from electronic referrals using SCI Gateway, further development of this system will enable advice and clinical dialogue to be delivered.

GP2GP is being rolled out nationally. This will enable the digital transfer of health records when patients change GP.

Many practices have back scanned their paper records. This means that the entire record is stored in one place and is accessible at the point of contact even if out of hours. Additionally, not having thousands of paper records has allowed practice to free up space for additional clinical activity. This is going to be more important as we develop the multidisciplinary teams in line with the new GP contract.

**Dental System**

Delivery of the R4 dental system to Community Dentists has provided enhanced productivity by simplifying routine tasks, improving communication and making information more accessible. The patient information system supports out of hours emergency dental treatment and provides a wide range of digital services such as eSignatures, online booking, credit card processing and detailed patient requirements.
**Then, Now and Next**

To further demonstrate our digital maturity, the example below outlines a scenario where there is a reduction in our reliance on the use of paper in favour of electronic methods. There is more use of digital technology to share information across the integrated team and Mrs Boyde benefits from this.

**Example scenario:** Mrs Boyde is an elderly type 1 diabetic with COPD and receives daily visits from her community nurses. With two young grandchildren she enjoys her weekend visits very much. Since her family visited on Sunday, Mrs Boyde has been off her food and complaining of stomach cramps following vomiting. The community nurse arrives to administer prescribed insulin as part of a scheduled visit but soon realises the patient’s blood sugars are dangerously low. Unable to keep any food or drink down, the community nurse is able to administer medication gel to alleviate a hypoglycemic episode, however she still has concerns about Mrs Boyde’s condition:

<table>
<thead>
<tr>
<th>Then</th>
<th>Now</th>
<th>Next</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Due to condition, community nurse contacts GP via telephone (waits 1 hour for call back).</td>
<td>- Due to condition, community nurse contacts GP via telephone (waits 1 hour for call back).</td>
<td>- Live monitoring data reduces decision making time and time to administer appropriate treatment, to allow earlier identification of patients at risk of hospitalisation</td>
</tr>
<tr>
<td>- GP not available until end of day (further 3 hours) to visit patient and approve admission to hospital.</td>
<td>- Decision made to admit patient to hospital for stabilisation via telephone.</td>
<td>- Before nurse arrives for scheduled visit, the patient’s monitoring equipment remotely alerts out-of-hours teams (including GP and community diabetes specialists).</td>
</tr>
<tr>
<td>- Nurse hand-writes community notes whilst waiting for ambulance. GP updates separate handwritten notes.</td>
<td>- GP and community nurse create patient notes electronically. GP able to access community notes in real time.</td>
<td>- Health and Care Team can view patients integrated care record</td>
</tr>
<tr>
<td>- Additional set of handwritten records created upon arrival at hospital.</td>
<td>- Hospital staff able to check Emergency Care System and eKIS if present, to see if patient has anticipatory care plan.</td>
<td>- Electronic care records are automatically updated with monitoring and prescribing information and available for all teams to see via dedicated dashboards.</td>
</tr>
<tr>
<td>- Historical paper notes retrieved from archives by porter to present to clinicians (next day).</td>
<td>- Hospital clinicians can import current prescribing information from GP systems into electronic medicines reconciliation systems.</td>
<td>- If admission to hospital needed; ambulance service able to check express wishes and status of patient on route to home.</td>
</tr>
<tr>
<td>- Hospital notes remain separate from community notes upon discharge.</td>
<td>- When discharged, GP receives electronic copy of the discharge letter at the time of discharge. Community care teams have limited access to the patient’s record and are reliant on verbal nursing handover from the hospital at discharge. In the case of insulin prescribing district nurses receive handwritten note of discharge insulin dosage.</td>
<td>- If discharged, patient returns home to be monitored on a ’virtual ward’. Discharge information is shared with the Multi Disciplinary Team who will be caring for the patient. Enhanced home monitoring technology is installed to reduce ongoing risk.</td>
</tr>
</tbody>
</table>
Key Focus Areas for 2018 – 2022

5 Key Focus Areas have been identified which will provide a framework for planning and communicating the delivery of our strategic goals.

These focus areas support the drivers for change and the shared goals defined within this strategy and are aligned to the Moving Forward Together priorities identified for eHealth.

This section sets out a summary of the key focus areas for the next 5 years and describes the successes to date and the opportunities that will be pursued in the context of strategic goals.

1. Integrated Electronic Health & Care Record

   *Patient centred healthcare, fit for the modern age*

   - Core Clinical Systems
   - Improved communication and decision making support
   - Shared Record
   - Integrated Comprehensive Care Plan

2. Self-Care Remote Care

   *World-class innovation, delivered remotely at the point of care*

   - Health & Social Care Patient Portal
   - Technology Enabled Care
   - Use of digital to enable self-care
   - Advice Referrals and dialogue
   - Virtual Consultations

3. Informatics & Data Analytics

   *Exploiting data to improve patient safety and quality outcomes and to support service developments*

   - Clinical Informatics Programme
   - Data Sharing
   - Information Governance
   - Artificial Intelligence & Machine Learning
   - Data Standards

4. Workforce & business systems

   *Empowering people, delivering optimal healthcare*

   - Digitally confident workforce
   - Enable services to transform and develop
   - Access to business systems & reporting
   - Digital Champions

5. Technology infrastructure

   *Advancing our future digital landscape today*

   - Infrastructure & interoperability
   - Cloud based technologies
   - Cyber Security & Data Protection
   - Business continuity
   - Device Strategy
   - Standardisation
   - Attract and exploit investment
1. Integrated Electronic Health & Care Record

*Person centred healthcare, fit for the modern age*

- **Summary**
- **Successes – what has been delivered**
- **Opportunities – what we must do**
- **Strategic Goals**

**Summary**

Maintaining up-to-date and reliable electronic health records is a critical component of modern healthcare. Providing access to reliable digital records for our staff will ensure that people’s integrated healthcare needs remain at the centre of pathway planning and ongoing care.

Electronic healthcare records have an important role to play in a wider public context, particularly when safeguarding the vulnerable. As services are integrated access to the Integrated Electronic Health & Care Record (EHCR) becomes more essential and requires to be accessed by the wider health and care team. Taking information governance into consideration, opportunities exist to share the record more widely in relation to the emergency services, 3rd sector and other agencies enabling the ability to understand people’s specific circumstances.

Collaboration with other authorities is an important part of our long-term digital strategy and some successful person-centred, cross-authority system integration has already been achieved. Developments in our core infrastructure and data sharing agreements have made it possible for us to commence the development of integrated records and provide secure access for a range of staff working across health and care teams.

Cornerstone systems “feed” information into the EHCR and are outlined in this section of the strategy.

The implementation of the electronic health and care record, accessible via the Clinical Portal in NHSGG&C, has resulted in more person centred care, maximising our available resource and delivering safer and better care for people. As we advance our use of digital technology and methods to support workflow and multi-disciplinary teams the cornerstone systems that have been implemented will provide the foundations for further development.
Successes – what has been delivered

Some examples of significant successes in the area of electronic health & care records include:

**eReferrals**

GPs use of the SCI Gateway system to refer patients electronically to hospital based, and to community services such as podiatry, dietetics and district nursing. Other contractors, such as optometrists and dentists, are also using SCI Gateway to expedite referral pathways. Use of this system has reduced the number of postal letters by 2.5 million items annually.

**Regional access to EHCR**

Phase 1 of the West of Scotland Regional Portal to Portal Programme, which links patient records between health boards has been delivered. Covering a population of 2.2 million people, the Regional Portal provides access to results, eforms and correspondence and has resulted in significant communications improvements and time savings when accessing patient information between the West of Scotland Boards. This has allowed for faster decision making and removed a historical, major challenge for clinicians. The number of paper records that previously had to be transported to clinics between sites and indeed NHS Boards has reduced significantly.

**Supporting Unscheduled Care**

TrakCare has been developed to support unscheduled care between the Immediate Assessment Unit / Minor Assessment Unit and in-patient wards. This supports improved bed requesting and bed occupancy. In addition patients on a COPD pathway are now managed between hospital and community services. This digitally enables the COPD team to record and share information through the use of new workbenches and questionnaires in the TrakCare system.

TrakCare will also be used to replace the obsolete EDISON system, through the further development of questionnaires and reporting.

**Medicines Reconciliation and electronic discharge letters**

Using the tools available in the Clinical Portal a phased implementation of medicines reconciliation is underway. This enables clinical staff to reconcile the medication that patients are taking on admission to hospital with the medication that they are prescribed whilst they are in hospital. In addition the system supports the workflow associated with planning for discharge and replaces the previous processes and is fully electronic. This has delivered patient safety and efficiency benefits.

**Digital Handover**

Medical handovers are now managed using TrakCare and have supported 2,600 weekend handovers per month between junior doctors currently. This has delivered safety improvements.

**Patient Centred Appointment Booking**

Patient focused booking has been introduced and is being rolled out across services. This allows a better choice of appointments to patients and along with the introduction of text messaging reminders provides a more patient centred approach to appointments. This also has the benefit of reducing the likelihood of cancellations and proactively cleansing and re-allocating appointment slots. This work is managed by our referral management centres and central booking teams.

**Patient On Line Services**

A GP digital transformation program has been delivered with 93% of GP’s now providing digital services which include online ordering of repeat prescriptions and appointments. 80% of practices have their own web presence to service their patients and WiFi is available for staff in most practices. Online access for prescribing and appointment bookings in primary care has reduced DNA (Do Not Attend) rates and a reduction in reliance on paper. Providing digital patient on line services will increase as patient demand more digital ways of interacting with the NHS. Intelligent text messaging provides appointment notifications to patients who provide a mobile number and digital recording of in-practice clinical notes is the norm.

**Nursing Documentation**

A review of core nursing documentation in use within acute adult services across NHSGGC was undertaken to ensure documentation was fit for purpose, record keeping is streamlined and seamless across the organisation and complies with data standards and scrutiny inspections.
The electronic Nursing Admission Document (NAD) underwent a comprehensive review, and the resultant document is now called the ‘My Admission Record’ (MAR). The review has been a vital step to devising an electronic nursing record to feed not only into the Care Assurance Standards and Excellence in Care and the Care Assurance Improvement Resource (CAIR Dashboard) but the Electronic Health and Care Record (EHCR).

Opportunities – what we must do

The vision for an integrated health and social care system will rely on technology to support new ways of working and to provide health and care teams with the information and tools that they need. This is a key enabler for the Board’s Moving Forward Together Programme. Integrated care will become the norm, whereby people are supported by a total care package across acute, community and primary care services. Joining up these services can be complex, given that separate systems and processes currently exist. Technology offers the toolkit to transform these areas, providing a truly integrated and modern care service.

In order to support clinical and care teams a number of new application systems will also be delivered including a new Ophthalmology clinical system, a new GP IT system and extensive implementation of the existing community system into new service areas.

The vision of an integrated health and social care system where people are supported to live independently at home or, when the need arises, as near to home as possible can be made possible with the support of technology.

Supporting Workflow & Teams

Thousands of electronic forms already capture information, reducing paper usage and manual administration burden across the service. Major further development and revision of eForms and their associated pathways, will drive additional workflow efficiencies and will underpin and enable transformational changes for service redesign. The use of intelligent eForms within the Electronic Health & Care Record will enable wider multi-disciplinary teams to manage people’s care across sites, newly designed service tiers and also across Board boundaries. This technology will enable the management of people’s care to take place remotely and regardless of where the clinician or person is based.

Progressing the review of core nursing documentation and moving from paper-based forms to digital eForms presents a range of opportunities including, economical benefit in a reduction in the resources required to scan current hard copies of nursing documentation, supporting interoperability of data sharing between existing electronic systems, and improvement in the quality of electronic information shared amongst clinicians. In addition this will ensure that nursing documentation is meeting the required standards of care, that good practice is identified and areas for improvement are addressed.

SCI Gateway has already replaced significant volume of postal letters with electronic correspondence. Wider adoption of the SCI Gateway, supported by connectivity with the TrakCare system, will allow hospital-based services to have clinical dialogue with non-GP Community services. The introduction of advice referrals and digital clinical dialogue across primary and secondary care and community services will provide the opportunity for clinicians to seek advice and correspond in real time if necessary regarding the need to refer a person, what diagnostic tests should be carried out and also the person’s ongoing care. The aim will be to reduce the overall number of referrals into secondary care services allowing people to receive more care in a community or GP Practice setting.

Phase 2 of the Regional Portal will provide an expansion to include NHS Forth Valley and NHS Highland and an upgrade to improve user experience, role-based access control and staff productivity that will reduce time spent on administration tasks. Longer term there will be a single West of Scotland Regional Portal.
Efficiency & Safety

To advance our Safer Use of Medicines Programme and build on the Medicines Reconciliation Immediate Discharge Letter system, a new Hospital Electronic Prescribing and Medicines Administration (HEPMA) system will provide key safety benefits by improving medicines safety and providing efficiency information relating to in-hospital medicines usage.

A digital patient administration transformation programme will include use of the TrakCare Patient Management System to support new ways of managing appointments, such as Patient Focussed Booking, reduction in remaining scanning activity through the development of digital workflows and eForms, therefore digitalising the remaining components of the EHCR.

Despite there being many new and emerging digital opportunities; it is also important that we build on our current successes and make incremental changes to existing systems that already support our services. An example of this is in the area of results sign-off (or results acknowledgement) where opportunity exists to support services so that results can be more easily managed. This will include introduction of a results task list that will allow clinicians to set a status for all results they are dealing with. This simple improvement will help teams digitally prioritise and sort results whilst reducing scanning and printing costs. This improvement will support the current workflow where test results are viewed using the Clinical Portal and signed-off within TrakCare, providing greater visibility of status and result handling capability across teams therefore improving safety and quality.

Then, Now and Next

Example Scenario: Mrs McKay has Parkinson’s disease with worsening frailty which led to a recent admission to manage a urinary tract infection. She had recently attended her specialist clinic at which medication changes were recommended. During the workup an incidental mass was discovered by the radiologist reporting on a chest X-ray ordered from the acute receiving unit. She was discharged with an increased care package and an urgent appointment with the chest consultant.

<table>
<thead>
<tr>
<th>Then</th>
<th>Now</th>
<th>Next</th>
</tr>
</thead>
<tbody>
<tr>
<td>A clinic letter detailing changes to her medication is heavily delayed in the post</td>
<td>A clinic letter is electronically sent to the GP and her medications are changed quickly.</td>
<td>Her medication changes are recorded by her community nurse during a home visit in her pan-GGC medicines record</td>
</tr>
<tr>
<td>Mrs McKay arrives as an unplanned emergency after sharply deteriorating on her old medication</td>
<td>She is found by her daughter having deteriorated during Sunday</td>
<td>Her deterioration at home is spotted earlier with aid of movement sensors and monitoring</td>
</tr>
<tr>
<td>She struggles to relay her full medication list and a key medicine omitted from the prescription</td>
<td>Admissions drugs are electronically reconciled</td>
<td>During admission her medicines are managed using an electronic HEPMA system and no errors are made</td>
</tr>
<tr>
<td>A paper X-ray request takes time to arrive in the department</td>
<td>Her admission is alerted automatically to the Parkinson’s specialist nurses who come to see her that day. This helps ensure her medication is correctly administered so she gets better more quickly</td>
<td>The chest X-Ray image is screened with an intelligence-based system and flagged for urgent review. She has a CT scan and urgent chest consult during admission</td>
</tr>
<tr>
<td>A care package is organised but the community nursing team can’t see the relevant details easily as these are locked in the social care system</td>
<td>Her discharge planning is easier as the social care team can see a summary of her records</td>
<td>A robustly tracked electronic referral is made for an oncology consult</td>
</tr>
<tr>
<td>Diagnosis is potentially delayed</td>
<td>The chest X-Ray is not reported until after discharge</td>
<td>The social care and community nursing teams jointly work on a holistic care plan recording this in a single agreed location. Mrs McKay can see and comment on this too</td>
</tr>
</tbody>
</table>

Delivering better health

www.nhs.ggc.org.uk
Strategic Goals

Utilising technology, the following strategic goals have been identified in order to deliver the vision set out in the Moving Forward Together Programme:

Looking forward, our strategy in this area will be to ensure that resources and effort can be attributed to supporting a number of strategic goals:

1. Improved communication & decision making support

2. Integrated Electronic Health & Care Record

3. Integrated, Comprehensive Care Plan

Improved communication and decision making support

GP to hospital referral, outpatient processes and in-patient workflow are now almost completely digitally driven. The aim will be to extend this to allow all necessary care transitions to be digitally managed and tracked across the teams within the network.

Specific areas of focus will include:

- Access to Clinical Portal with extended sharing of information available to clinical and social care practitioners. This will enable the care network to view the same information, have on line discussions across the team, including the patient if necessary
- Community nursing teams will make more use of predictive data to aid planning and help them target their visits to people who most need them
- Clinicians will be supported with advanced analytical tools, visualisation and better decision support to aid real time working
- Cohort registries and better results management tools will support moves to ‘safety-netting’ and alerts to review rather than bringing people back routinely for appointments just to make sure something has happened
- Quality improvement will focus more on patient-related outcomes.
- Further development of the HSCP data sharing framework to include all relevant aspects of social care information

It will be necessary to review information sharing and governance to ensure that information is available to those who need it at the appropriate time. It will be important to ensure that this aligns and reconciles both citizen and care provider demands, ideally with a move to person-centred control and reduces impact of organisational silos.

Shared Record

In order to ensure that people are at the centre of their integrated healthcare, a comprehensive electronic health and social care record is essential. This shared care record will be accessible for those health and social care professionals involved in the person’s care. This will ensure that the total care package can act with common purpose, based on a rich and reliable digital record.
Building on and developing the cornerstone systems currently in use, the shared record will include all of the relevant information from the acute, community and primary care services including social care. This will improve real-time communication and collaboration across the care network, enabling multi-disciplinary teams to collaborate at their convenience using the most accurate information available, allowing them to understand the complete care context to aid decision making.

The new GP contract promotes community-based care at home for patients with the GP at the hub of a multidisciplinary team of health and social care professionals. Services will be delivered either in community hubs or in individual GP practices. At present information is held within individual teams, so there is a GP record, physiotherapy record, district nursing record etc. In the future, we should aim to have safe and relevant digital sharing of this information, and ultimately look to have a truly interoperable record which can be viewed and updated by a variety of clinicians.

Health and care records from multiple sources and systems will be joined up with active input from multiple sources to deliver a truly integrated, digital record which will help to reduce or remove unnecessary duplication, interference or gaps in information. In time systems will be integrated in order to support integrated care transition without the need to join up records.

This shared health and care record will provide a comprehensive and ongoing record and one which people will also have access to and will be an integrated reference point to align people, departments, processes and systems around the active and ongoing needs of the person.

People will have access to their own digital records and will actively contribute and transact with services in this way. Recent pilots of the National Health & Social Care Patient Portal have demonstrated that it is possible for people to accept, decline or change their appointments digitally and that this can then be actioned on patient management systems and that people want to use this type of technology to access their health and care records and to engage with services.

Electronic forms will be able to be completed by people before they attend and sent directly into the NHS clinical systems for clinicians to view, respond to and contribute to. This then forms part of the person’s Integrated Electronic Health & Care Record. This capability will also enable administrative processes to be streamlined across tiers and networks of care teams.

Integrated Comprehensive Care Plan

The health and care teams will rely on an integrated care plan to support patient pathways and established workflows. The use of technology to provide this will enable a single care plan using digital forms and communication tools to support the pathway. The care plan will be accessible to all those who need to see it including the person receiving care and will be included and viewable within the shared record.

Thousands of electronic forms (eForms) already capture information and cornerstone systems are configured to support workflow of a person’s pathways and across teams. Major further development of eForms and their associated pathways, will drive additional workflow efficiencies and will underpin and enable transformational changes for service redesign across networks and regardless of organisational boundaries. This technology will enable the management of a person to take place remotely and regardless of where the clinician or person is based.

A range of capabilities will be provided including:

- Where appropriate the use of digital technology will enable the management of people’s care to take place remotely and regardless of where the health and care team or the person is based, whereby consultations are increasingly conducted using smart phone app, telephone, email, videocconference or online portals
- In order to support clinical and care teams a number of new application systems will also be delivered including a new Ophthalmology clinical system, a new GP IT system and extensive implementation of the existing community system into new service areas.
- Dynamic electronic forms and pathways based on agreed clinical workflow will be developed
- Integrated anticipatory care plans and notes will be accessible within the care plan and recorded in the shared record. People will be able to view and contribute to their care plan
- Problem lists recording diagnosis, procedures and allergies will be included in the care plan
A shareable list of current medication to reduce medication errors at care transition will be available.

Alerts and scoring which will flag at risk, vulnerable people to the integrated team will be included and communication tools will be available to allow the health and care team to discuss and update the care plans.

**Impact Story**

Jane has a challenging health profile consisting of COPD (chronic bronchitis) and Hypertension (high blood pressure) and within the last six months she has been diagnosed with cancer. Due to these combined complexities, it has been necessary for Jane to communicate with a variety of clinicians who are managing converging healthcare pathways. The clinicians involved in Jane’s care operate from a number of different sites and in some cases from another Health Board area.

Often Jane feels like she has to repeat the same information to different people, and given her condition she has been worried that she may forget to mention something important. For Jane and her care teams the situation has recently been improved with the joining-up of several record systems that now display all of her care information in the same place.

This simple yet important integration means that the burden for clinicians to investigate recent adjustments in Jane’s medication and treatment are reduced, and Jane has much more confidence in the information her care teams have available to them, before she attends her various clinics and appointments.

In future Jane is told that more monitoring of her condition could be done from home, which could radically improve Jane’s situation, especially as her home doubles as her office.
2. Self-Care & Remote Care

World-class innovation, delivered remotely at the point of care

- Summary
- Successes – what has been delivered
- Opportunities – what we must do
- Strategic Goals

Summary

Innovation in digital healthcare provides a real opportunity to evolve and enhance relationships with people receiving care, where telecare and telehealth, virtual clinics using video and advice and dialogue is supported with digital tools. Increasingly person held data from wearables, apps and technology enable care systems will form part of the Electronic Health and Care Record. People will be able to access services through a different channels including online through the internet and via mobile phone apps. People will be supported to access and contribute to their integrated EHCR allowing greater empowerment of self-care.

Self-care can be when patients are enabled to seek reliable information to allow them to manage minor conditions or to attend the most relevant care service for them. Existing examples include NHS Inform and NHS 24. Patients may also perform self-care when they have chronic conditions but they are given advice on how to manage fluctuations in their condition over time.

Successes – what has been delivered

Virtual Clinic Pilots

Pilots of virtual clinics have been undertaken and these will now be scaled up across services. The evaluations demonstrated that there are benefits for the public relating to convenience and flexibility. Many people and carers spend a significant number of hours waiting in a hospital environment (pre and post appointment) having been dropped off and thereafter waiting to be picked up to be taken home. The use of video consultations allows people to connect with the care team from home on their phone or tablet device.

Staff also benefit as there will be opportunity to perform pre-assessments ahead of any actual clinic attendance.

Pilots of Advice Referrals

A number of successful pilots have been carried out to test advice and clinical dialogue systems in TrakCare and SCI Gateway. These will now be rolled out across services.

Health & Social Care Patient Portal

A proof of concept “Patient Portal” has been developed in response to a national Scottish Government commission. This involved a new digital platform which allows data to flow securely between the public using wearable apps or by entering data into forms and the NHS eHealth systems. An outline business case was developed which will inform the national digital strategy. This is a significant step towards delivering the innovation to support people’s access to their EHCR and self-care.

The business case proposes five broad service categories to reflect the number of ways in which a national digital platform could now be developed including self-care and self-management of long term conditions, social care integration, integrating “The Internet of Things” and efficiencies.
Opportunities – what we must do

Virtual Consultations

As part of our ongoing digital patient administration transformation, opportunity exists to implement virtual clinics to facilitate the option for remote consultations as standard. This work will ensure that NHSGG&C and indeed the West of Scotland region is modernised, whereby consultations are increasingly conducted using digital means via a laptop or smart phone app, telephone, email, videoconference or online portals. Already success in Australia and closer to home with NHS Near Me in NHS Highland, remote consultations give greater choice and convenience for people that would ordinarily have to travel long distances for routine check-ups and help alleviate administration across our services.

Pilots of video conferencing technology have concluded and will be implemented in services to support remote, virtual clinics where a video call is appropriate. In addition the use of telephone and email dialogue with people will be promoted for virtual clinics in addition to the provision of guidance to services on how to set up and record virtual clinics within the Patient Management System in order to support future expansion across the Board and the West of Scotland region.

Technology Enabled Care

Technology enabled care such as home health monitoring which deliver benefits to people and services at scale will be a key focus with the integration of this information into the care plan, supporting self-management of health and well-being with a focus on digital products and services.

Mobile and wearable technologies provide significant opportunity to people and their health and care team individualised healthcare information and analytics. In the future this data will be viewable by the team providing care and can be used to determine early warning and preventative processes. Such technologies provide live and historical information that is unique to a person’s specific needs and promotes personal healthcare.

Advice and Clinical Dialogue

Advice referrals and clinical dialogue enabling co-ordinated decision making and the ability to anticipate people’s needs as early as possible. Specialists will be able to provide advice and information regarding tests or examinations which can be carried out before a person is referred into a hospital or to another practitioner.

Patient Self Care

Empowering self-care is an important part of our strategy, given that more individualised data allows for better decision making, resulting in intervention being optimised for the most appropriate place for care. In future, and with greater alignment of individual medical, healthcare and fitness information, the opportunity exists to explore remote healthcare monitoring and personal dashboards that could be configured and delivered as part of our electronic health and care records system. Collaboration with medical and health technologists is needed to support such innovation, in order to meet all legal, security and data regulations. This area represents a real opportunity to transform healthcare into the future in line with realistic medicine and newly designed services. Self-management plans in asthma are well-established and recent SBRI innovation funding sought to ‘enable citizens to better manage their inflammatory bowel disease through better lifestyle and prevention or early intervention approaches.”

People will participate in this communication utilising technology to access options about their care, enabling people to take a more proactive role in their own health and care. Building on our successful initial pilot of a Health & Social Care Patient Portal – a “Digital Front Door” to health and care services people told us,

“The concept of this Portal is fantastic, a long time coming in my opinion”

“This portal would put patients firmly in control of their health care, and that can only be a good thing”

“… for the majority of patients across Scotland, I expect this would be a success.”
Then, Now and Next

Example Scenario: Remote Care – AHP Pre & Post Stem Cell Transplant Team

Individuals from across GG&C, Lanarkshire, and Argyll & Bute currently travel to the West of Scotland Cancer Centre (WOSCC) based at the Beatson for stem cell transplant therapy. AHPs are integral to this process; initially ensuring patients are at an optimum level of fitness to undertake the treatment and then afterwards supporting them to ensure the best possible recovery. This currently involves patients having to travel long distances for face to face appointments at a time when they are tired and their immune system is already compromised. Using remote care reduces risk and improves the patient experience.

<table>
<thead>
<tr>
<th>Then</th>
<th>Now</th>
<th>Next</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient travels from Oban to WOSCC</td>
<td>Patient travels from Oban to WOSCC</td>
<td>Patient attends local hospital for pre-transplant assessment, with local staff working in conjunction with staff from WOSCC in a Virtual Clinic using the Attend Anywhere software</td>
</tr>
<tr>
<td>for pre-transplant assessment</td>
<td>Co-ordinated consultant/AHP clinic means that all assessments are completed in one visit</td>
<td>Advice, guidance &amp; tailored suggestions for maintaining wellbeing and activity levels are delivered directly to patient via Patient Portal. Activity levels are monitored through a linked wearable device and prompts sent to the patient as necessary</td>
</tr>
<tr>
<td>Consultant clinic and AHP assessment carried out at different appointments</td>
<td>Patient provided with information leaflets and advice on maintaining wellbeing and activity levels prior to transplant but leaves them on train</td>
<td>Patient travels to WOSCC for stem cell transplant</td>
</tr>
<tr>
<td>Patient provided with information leaflets and advice on maintaining wellbeing and activity levels prior to transplant but leaves them on train</td>
<td>Patient provided with information leaflets and advice on maintaining wellbeing and activity levels prior to transplant but leaves them on train</td>
<td>Patient is discharged back to Oban following transplant</td>
</tr>
<tr>
<td>Patient phones WOSCC requesting duplicate leaflets to be sent in post</td>
<td>Patient phones WOSCC requesting duplicate leaflets to be emailed</td>
<td>Although still weak and recuperating patient travels back to Glasgow for post-transplant follow-up appointment where he is provided with information leaflets and activity goals</td>
</tr>
<tr>
<td>Leaflets arrive one week later and patient starts to follow advice programme</td>
<td>Information arrives next day and patient starts to follow advice programme</td>
<td>Weekly individualised activity goals are sent directly to patient via Patient Portal with activity levels being recorded through wearable tech, and monitored remotely by WOSCC AHPs</td>
</tr>
<tr>
<td>Patient returns to WOSCC for stem cell transplant</td>
<td>Patient returns to WOSCC for stem cell transplant</td>
<td>Post-transplant follow-up appointments carried out virtually in the patient's home via a virtual consultation</td>
</tr>
<tr>
<td>Patient is discharged back to Oban following transplant</td>
<td>Patient is discharged back to Oban following transplant</td>
<td>Although still weak and recuperating patient travels back to Glasgow for post-transplant follow-up appointment where he is provided with information leaflets and activity goals</td>
</tr>
<tr>
<td>Although still weak and recuperating patient travels back to Glasgow for post-transplant follow-up appointment where he is provided with information leaflets and activity goals</td>
<td>Although still weak and recuperating patient travels back to Glasgow for post-transplant follow-up appointment where he is provided with information leaflets and activity goals</td>
<td></td>
</tr>
</tbody>
</table>
Then, Now and Next

Example Scenario: Self Care – AHPs within Specialist Children’s Services (SCS).

There has been a sea change in how services are delivered to less complex cases within SCS. Previously all referrals to AHPs had to come via a medic; be that a paediatrician or a GP. Nowadays referrals are accepted from any source. Previously families could wait up to 52 weeks to be seen, nowadays it is more likely to be 6 – 8 weeks. As we move more and more towards self-management it is anticipated that some families will not have to be referred to SCS, at all as all the support they require will be accessible on-line.

<table>
<thead>
<tr>
<th>Then</th>
<th>Now</th>
<th>Next</th>
</tr>
</thead>
<tbody>
<tr>
<td>• At school review meeting staff raise concerns with parent regarding their child’s poor pencil skills and sensory behaviours being observed in class</td>
<td>• School, with parental consent, makes referral to SCS</td>
<td>• School accesses KIDS platform directly</td>
</tr>
<tr>
<td>• Parent makes GP appointment to request referral to Specialist Children’s Services (SCS)</td>
<td>• Parent takes time off work and child is taken out of school to attend appointment</td>
<td>• Teacher completes training module and downloads information on developing pencil skills. Prints off work pack for child to use in class.</td>
</tr>
<tr>
<td>• Child waits up to a year to be seen</td>
<td>• Parent provides with print out and is able to take home and implement immediately</td>
<td>• Teacher completes interactive questionnaire and downloads strategies on adapting the school environment</td>
</tr>
<tr>
<td>• Parent takes time off work and child is taken out of school to attend appointment</td>
<td>• Therapist suggests parent attends local workshop to learn further strategies</td>
<td>• Learning assistant follows video demonstration and is able to carry out exercise programme with child</td>
</tr>
<tr>
<td>• Child then waits further 10 weeks for treatment to begin</td>
<td>• Therapist visits school and provides ideas on developing the child’s fine motor skills and makes suggestions on adapting the environment to suit his sensory sensitivities</td>
<td>• Parent accesses KIDS platform and completes interactive sensory questionnaire</td>
</tr>
<tr>
<td>• Therapist visits school and provides ideas on developing the child’s fine motor skills and makes suggestions on adapting the environment to suit his sensory sensitivities</td>
<td>• Second school visit required as therapist delivers in-service training programme to staff.</td>
<td>• Parent downloads the tailored strategies and implements suggestions straight away</td>
</tr>
<tr>
<td>• Suggested activities and programmes devised, printed off and sent to school</td>
<td>• Home visit carried out and similar advice provided to parent</td>
<td>• Parent books themselves into “workshop” at a time and venue that is convenient to them</td>
</tr>
<tr>
<td>• Further activities and programmes printed off and sent to parent</td>
<td>• Further activities and programmes printed off and sent to parent</td>
<td>• Learning assistant completes interactive sensory questionnaire</td>
</tr>
</tbody>
</table>

Strategic Goals

Whilst digital has a big part to play in this area, innovation cannot happen in isolation and as such, it is our goal to strengthen ongoing partnerships. Strategic partnerships in this area will allow NHSGG&C to develop new solutions that can deliver enhanced quality research and healthcare outcomes that will make a tangible difference to the lives of the public. Our strategic goals are:

- Working with the national Digital Health & Social Care Platform programme, we will provide people with improved access to their health and social care information.
- Facilitate multi-channel access and greater empowerment of self-care for people, providing flexibility and convenience through initiatives such as; patient portal, telecare, virtual clinics, videoconference, video outpatients, email, mobile text messaging, mobile Apps, web-chat and continued improvement of website, social media content and web-forms.
• Support the goal of technology enabled care focussing in on those projects that deliver the most benefits to people and services and can be delivered at scale.

• Implement advice referrals and clinical dialogue enabling co-ordinated decision making and the ability to anticipate people’s needs as early as possible.

• Support the growing demand for virtual consultations, reducing the need for people to travel, improving the management of long-term conditions and maximising clinic utilisation and efficiency.

**Impact Story**

Belinda is sitting in the Maggie’s support centre having found out that morning she had aggressive breast cancer. The staff in the clinic had already helped her connect to the patient wi-fi which allowed her to Skype her daughter overseas during the consultation, who was able to ask the consultant some questions as well. Belinda was impressed by the call quality. It had helped being able to show her daughter the mammogram and biopsy results. There was a lot to take in: several appointments were made and she was listed for a mastectomy.

The support worker helped Belinda register for the national patient portal and suggested she download the MacMillan cancer support app. She explained that recent improvements and a sensible agreement about information governance meant the app could connect into the portal directly to bring all her appointments together. Many people had found the reminder systems helpful as they were tailored to patients on chemotherapy. Belinda found this easy to do, and agreed that the app could send her reminders and connect to the health appointments system. She also agreed that her clinical team could see her symptom tracker. She had a go at completing this and noted that it seemed designed just for people like her. Belinda was able to download lots of helpful information. At the end of this time she was feeling just a little more in control.

By the time this was done her phone had notified her that there was form awaiting completion for her pre-op self-assessment. She was impressed by the form design and was able to quickly complete the questions on her phone. The professional appearance and ease of use gave her confidence that this was a well run health system.

Meanwhile the consultant was heading over to the regional cancer meeting and stopped for lunch in the hospital canteen. Her secure health messaging app notified her that Belinda had been added to the discussion list by the co-ordinator. She remembered with a shudder the day she had nearly left all the MDT meeting notes in the café. Two more patients of hers were also listed and she was able to check the pathology reports on her phone as well. The meeting coordinator then sent a quick group notification that the venue had changed rooms, and as everyone got this the meeting actually started on time. The team worked efficiently through the cases with all the reports to hand. The videoconferencing kit allowed her colleague in a neighbouring health board to take part easily. The digital pathology images were so clear with the new screens, and she was impressed at the turnaround time as the diagnostic work was now shared across the regional area.

Just as the meeting finished her phone flashed up an escalation notice from the hospital’s patient e-observation system. It looked like one of her inpatients had deteriorated unexpectedly and it wasn’t clear that anyone had responded to the automated alerts. It was going to be another late finish.
3. Informatics & data analytics

Exploiting data to improve patient safety and quality outcomes and to support service developments

- Summary
- Successes – what has been delivered
- Opportunities – what we must do
- Strategic Goals

Summary

Information and data are key enablers which support the delivery of clinical, research, and business services. Providing controlled and efficient access to this information for 40,000 users requires an effective information architecture, strong governance, good information security and adherence to relevant regulatory data compliance.

The breadth, volume and complexity of the information supported is substantial. There is over 10 years of clinical data and a growing number of data sources that need to be managed, organised and supported. Despite the complexity, it is critically important that we improve access to this information, make better use of and better represent the data through accessible digital reports and dashboards.

The Clinical Portal provides access to a wide range of clinical information – provided by integrating information from specialist clinical and patient management systems. The West of Scotland Portal to Portal solution allows sharing of electronic health and care records with clinicians caring for 2 million people across the region. Digital dashboards are also an important tool for many healthcare professionals. Numerous clinical, business operational management dashboards are already accessed across the organisation.

There is much work to do to deliver a clinical informatics workplan to exploit the rich data that is currently collected and to align with future developments. Improving and sharing access to information across our organisation is a high priority, to ensure that information is shared efficiently across multi-disciplinary teams for use in clinical informatics and to support clinical governance and quality.

Information and data within our systems is also valuable to researchers investigating new and innovative treatments. The Glasgow Safe Haven data repository, which holds anonymised clinical data, is a key resource to researchers. A priority will be to support the future development of the repository – providing access to more data where appropriate and extending its use.

Clinical informatics, the management and use of people’s healthcare information, provides an unprecedented opportunity moving forward, especially as we begin to connect devices and explore remote monitoring. Such intelligent use of information and technology to provide better care for people will be a key strategic priority.

Training and support for operational staff and clinicians will need to be provided to ensure that the use of data and information is the norm when planning and managing services.

Successes – what has been delivered

In addition to the successes we have achieved to integrate our cornerstone systems around a unique EHCR, we have improved and accelerated access to information & data analytics in the following ways:

Dashboard

Work has been undertaken to support the establishment of a data warehouse. The data warehouse brings together the information and data in our systems to enable the production of business intelligence dashboards which support operational decision making. These operational dashboards are currently used by over 3,000 users – with over 65,000 accesses per month.
Work has started to exploit the rich data in our systems relating to clinical informatics. For example, a dedicated dashboard has been developed to support the treatment of patients with Parkinson’s disease. The focus going forward will be to maintain and enhance those dashboards but also develop clinical reporting and dashboard views.

**Data Sharing**

The implementation of a HSCP data sharing framework has enabled improved joint working between healthcare professionals and Council social care staff.

**Safe Haven**

The Glasgow Safe Haven started as a collaboration between NHSGGC and the University of Glasgow but has recently expanded to include all health boards within the West of Scotland (WoS) region. Within the NHS, the Safe Haven makes a wide range of electronic health data sets available for research through an extraction, linkage and anonymisation service. The anonymised research dataset is then made available for analysis on the secure analytical platform held in the university and is both ISO 27001 and Scottish Government accredited. The WoS Safe Haven forms part of a federated network across Scotland working to common principles and standards, as set out in the Safe Haven Charter1. [http://www.gov.scot/Publications/2015/11/4783](http://www.gov.scot/Publications/2015/11/4783)

Clinical Informatics in General Practice has been used for some time to direct patient care. Data is routinely used to identify patients with poor control of chronic diseases and to plan call & recall. A new national system called SPIRE enables clinical information to be accessed and analysed at every level for individual patient data in practices to anonymised data at cluster, health board and national level. This allows practices to benchmark against other local practices as well as being able to identify patients who are most at need of intervention.

**Opportunities – what we must do**

The wealth of data and patient information held within the clinical systems provides significant opportunities to support service developments and to improve patient safety and quality outcomes. Whilst the development and use of data for operational and planning purposes will continue the investment in data repository and reporting tools will be exploited to deliver clinical informatics.

Rules based informatics provide a wealth of opportunity to deliver finely tuned alerting for specified patients, pathways and/or conditions. Examples include deteriorating conditions or changes to conditions that exceed (or are close to) pre-defined thresholds based on risk scores, results outside of an acceptable range or based on an increase in pain score; which would trigger an alert or activate a process.

The use of precision medicine to support early diagnostics and prevention will be possible through the use of digital technology. By using informatics to identify patient cohorts and historic datasets it will be possible to build a picture that will support research into specific disease areas. Working with Stratified Medicine Scotland (SMS) we will develop plans to harness the power of our data to support this work.

**Clinical Informatics**

The development of a clinical informatics programme utilising data and harnessing the capabilities of rules based informatics provide a wealth of opportunity to deliver finely tuned alerting for specified people, pathways and/or conditions. Examples include deteriorating conditions or changes to conditions that exceed (or are close to) pre-defined thresholds based on risk scores.
scores, results outside of an acceptable range or based on an increase in pain score; which would trigger an alert or activate a process. We will support improved use of smart informatics at the clinical front line to help decision making by summarising the large amount of health and care data that now exists on individuals and make this available within the Clinical Portal. This will allow us to better exploit data and information including use of informatics triggered alerts, increased use of Microstrategy visualisation and application of NSS Discovery and SPIRE primary care data summaries.

For patients this will mean that there will be reliable, relevant clinical information available to support alerting and triggers. The data will be available regardless of care information boundaries. Patients will be co-creators of data relating to their health and wellbeing.

For the clinician, actionable data will be visible and created without undue burden. Clinician friendly analytics to support care quality will be embedded in the applications that they use on a day to day basis and no longer locked away in standalone databases. Decision support tools, for example reducing manual calculations for NEWS scores or FIB-4 will increase the margins of safety.

Clinical Decision Support
The use of data to support clinical quality, managing risk and increasing effectiveness in line with the Board’s Quality Strategy which states a key requirement as “Data collection and visualisation to ensure the quality of clinical care”

Increased use of digital dashboards for visualisation to aid real time working and clinical decision making, extracting clinical data from specialist clinical and patient management systems.

NHSGG&C will be one of the 3 Centres of Excellence for Decision Support, sponsored by Scottish Government.

Cohort Management
The use of clinical data to support cohort management, chronic disease management and patient alerting by providing a secure solution for units requiring to keep itemised cohort data for specific disease management, replacing Access databases and bespoke coded systems. The focus will be on data that informs outcomes and the need for more timely information.

‘Disease registry’ approach in a single solution rather than multiple disease specific custom databases (the Swedish Karolinska model). Ensure data points from all contributors across health and social care involved rather than only data obtained in a particular care silo.

Artificial Intelligence (AI) and Machine Learning (ML)
AI & ML would allow for increased processing capability of medical imaging, within digital pathology and other areas. A specific example includes an expanded remit for the current PACS (Picture Archiving and Communications System). PACS is the clinical system where images are currently stored and shared, and could be expanded for research purposes, if anonymised and made available for manual, AI and/or ML processing. The intelligence that this advancement could bring would represent a valuable opportunity to review and validate research. Advancements in this area would greatly enhance the current data processing programme, allowing for faster and more sophisticated forms of data science analysis.

When collecting more regular and timely healthcare information for individual people, such as home based wearables that transmit live healthcare statistics to clinicians; the opportunity will exist to process patient information in increasingly sophisticated ways. Artificial Intelligence (AI) and Machine Learning (ML) provide opportunities to monitor and detect healthcare trends and anomalies that will support clinicians making quicker and more informed decisions. We will explore (AI) support for routing referrals to reduce the time taken to make decisions.
Then, Now and Next

Example Scenario: Dr Montgomery leads the outpatient antibiotic service (OPAT) for the Board which diverts patients from staying in in-patient beds. She knows the unit is busier each month and has been asked to produce a business case to expand services. It's clear some patients are not referred as soon as they could be. There could be cost-savings made by changing antibiotic policies in the hospital. Overall it's proving hard to demonstrate what they believe are good outcomes.

<table>
<thead>
<tr>
<th>Then</th>
<th>Now</th>
<th>Next</th>
</tr>
</thead>
<tbody>
<tr>
<td>Publicity about the service is sent out only via poster and emails</td>
<td>Agreed Clinical Knowledge Pathways guide clinicians to refer suitable patients</td>
<td>The use of ‘alert’ antibiotics is flagged to the OPAT team as soon as they are prescribed on the Hospital Electronic Prescribing and Medicines Administration system (HEPMA). Inbuilt decision support suggests OPAT referral to the ward staff.</td>
</tr>
<tr>
<td>Referrals to OPAT are made by insecure fax with inevitable data risks</td>
<td>Patients are referred using electronic workflow in TrakCare</td>
<td>Real-time diagnostic coding also flags suitable patients for OPAT services.</td>
</tr>
<tr>
<td>Referral forms are filed in a cabinet and have to be manually retrieved to review the service</td>
<td>A list of patients is manually maintained on a stand-alone database, when the clerical staff have time to enter it</td>
<td>A visualisation of antibiotics used against condition groups helps monitor appropriate usage and outlier prescribing in the hospital</td>
</tr>
<tr>
<td>Only aggregate costs of drugs are available</td>
<td>Data on antibiotic regimen used is sometimes entered in the database but there are some gaps</td>
<td>Outcomes are collected electronically from patients 4 weeks after discharge and show high satisfaction with the unit</td>
</tr>
<tr>
<td>Auditing outcomes of a specific condition involves clerical staff pulling manual records</td>
<td>Audit of a specific condition often isn’t done due to the time required</td>
<td>An review of patients aged over 60 with bone and joint infection is easily completed using routinely available data</td>
</tr>
<tr>
<td>The business case lacks key activity data and outcomes</td>
<td>The business case is more convincing but lacks patient outcome data</td>
<td>Modelling tools help predict the staff requirement for the unit over the Christmas period</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The business case is comprehensively informed by the outcomes data</td>
</tr>
</tbody>
</table>

Strategic Goals

This focus area will result in many opportunities as we look ahead and as such, we have determined the following goals:

- Develop and implement a clinical informatics programme to exploit and enable the delivery of transformation objectives.
- Continue to develop the management information and dashboard capability and extend sharing of information available to clinical and social care practitioners.
- Align with Scotland's Digital Health & Care Strategy to provide a consistent approach to Information Governance to ensure that data can be accessed by health and social care professionals.
- Trial emerging and new data science techniques to explore research efficiency with options such as Artificial Intelligence, Machine Learning and Digital Automation.
• Application of NSS Discovery, Safe Haven and SPIRE primary care data summary to feed into quality improvement work in acute and primary care.
• Further development of the HSCP data sharing framework to include additional Councils.
• Align with the Scotland’s Digital Health & Care Strategy to adhere to single standards for all key domains of data, including the health and care data summary, research and Public Health.
• Ensure that there is robust governance that both encourages innovation and aligns funding bids and innovation programmes to the Board’s objectives.

Impact Story
Ken from Milngavie is 71 and has lived with chronic obstructive pulmonary disease (COPD) for the past 7 years. Over the winter Ken has had numerous admissions to hospital due to his COPD and has frequently required a treatment called non-invasive ventilation (NIV) to help support his breathing at night-time. His sleep quality is poor and his breathing is difficult. As he is preparing to be discharged once again he is concerned that he is spending more time in hospital than at home and is worried that it won’t be long before he is readmitted.

Ken’s doctor knows that recent clinical trials suggest that people in Ken’s situation would benefit from NIV at home, which would help support and regulate breathing at night, with beneficial effects persisting through the day when he is off the NIV breathing mask. Importantly, home NIV has been shown to reduce frequency of admissions. Up until now, the NIV has required either trips back to hospital to review and adjust equipment settings or specialist nurses going out to see him at home. The level of resource required makes it difficult to offer home NIV to the large numbers of COPD patients in Ken’s situation.

Now, Ken’s doctor is able to offer home NIV with remote monitoring. Using ‘Airview’ the care team can monitor Ken’s NIV machine, detecting breathing pressures and adjusting settings to suit his breathing via an online portal. This reduces the numbers of trips to hospital that Ken would have needed to make these changes manually and allows the optimal settings to be achieved much more quickly. Remote monitoring frees up more time for the NIV team to treat more patients. Most importantly Ken is feeling much better, is now back in his bed and sleeping well. Janice can’t believe the difference in her husband since starting on the NHSGG&C trial. The COPD patient has praised the treatment for ‘giving him his life back’ having had his first full night’s sleep for years. With no further hospital admissions, Ken and Janice go out for lunch and trips, which they haven’t been able to do for years.
4. Workforce & business systems

*Empowering people, delivering optimal healthcare*

- Summary
- Successes – what has been delivered
- Opportunities – what we must do
- Strategic Goals

**Summary**

Workforce and business systems are the essential back-bone of our services, ensuring that staff can schedule their working rotas, properties are managed, in-patients are moved and transported within the hospital, technical problems are dealt with quickly and day to day business processes are supported. Modern challenges also exist in this area, such as balancing the number of mobile devices we supply to our staff whilst ensuring that desktop office systems are supported and maintained. Digital is not just related to clinical systems but is also critical to corporate departments such as HR, Finance, Estates and Facilities.

**Successes – what has been delivered**

There has been significant activity in this area, as we continually strive to improve our business systems, facilities and support provided to our staff:

**Podiatry Services**

Around 3.4% of the NHSGG&C board area population (40,000 patients) receives treatment from the Podiatry Service. In 2015, it began to fully utilise TrakCare functionality, including clinical notes as well as referral and appointment management, to migrate by the end of 2017 to a paper-free patient care pathway that effectively bridges the organisational divide between acute and community care. Implementing TrakCare has enabled whole system redesign delivering significant improvements in data governance, workforce planning and service delivery. Waiting times have improved by over 410%, and are now consistently less than 4 weeks for over 90% of referrals; with over 90% of people presenting with a foot wound, no matter how small, now seen within 2 working days – an improvement of 84% over 3 years in spite of a 104% increase in referrals.

**Specialist Children’s Services**

The service are using the EMIS Web Community System to support 12,000 referrals per year. A single electronic case record per child is now available throughout specialist children’s services where all entries are legible and entered in chronological order regardless of service or discipline and Clinicians can update the care record anywhere by using laptops/tablets. This has delivered improved decision making based on access to up to date information. Previously paper case records were created and stored by the local administration team and were only available to a single discipline at a time.

Previously appointment details were added to individual clinician’s paper diaries as well as in some cases local spreadsheets and standalone databases. Appointment information was then duplicated into the individual paper records. Now all activity including patient appointments is added to the clinician’s electronic appointment book. This is then automatically added to the child’s diary and administration history in EMIS and visible to staff accessing the child’s record. Visibility of appointments and activity for staff and managers via team view of the appointment books is now supporting management of staff and workload. Each child’s record provides a view of all planned, attended, cancelled and not attended appointments across all children’s services supporting easier identification of patterns where there may be child protection concerns.
Estates & Facilities
The introduction of a centralised facilities management solution, FMFirst, for 350 estates staff. The solution supports improved remote and mobile working – enabling operational staff to deliver services more effectively. In addition, a new National Domestic Monitoring tool has been implemented for 200 domestic staff. This new mobile tool enables the outputs from inspections to be quickly captured and reported to the centralised facilities management system.

The new catering information system, MenuPick, makes it easier for patients to select and order food. The system also supports better management of the production, delivery and stock management of the food, thus reducing food waste and making cost savings. MenuPick is now used in 10 hospitals and takes food orders twice a day for circa 2,900 inpatient.

The Central Food Processing Unit (CFPU) in Inverclyde is using large touch screens for the management of food processing and deliveries. Kitchens in 10 hospitals use large touch screens for the receipt and management of food delivery. To rollout this system to the other CFPU and remaining 8 hospitals further investment will be required.

The introduction a new system, PorterTrac, which improves the management of movements by porters is helping to manage resources and schedule patient movements.

The introduction of Robotic technology and Pneumatic tubing in the QEUH has introduced efficiencies in the way PPFM and Nursing services work.

Infection Control
ICNet has enabled Infection Control to manage and monitor micro-organisms. This system has been interfaced with Opera, Telepath and TrakCare to allow the flow of pathogens to be monitored and recorded against patients’ records.

Sigma has enabled Infection Control to manage and record all clinical audits electronically across the organisation using handheld technology.

Administration Services
The adoption of digital dictation and voice recognition has increased in many areas. For example, there are now approx. 2.5 million digitally dictated letters sent instead of paper and postage.

Investment in technology for the Referral Management Service enables the digital processing of electronic referrals through to clinical triage and appointing for over 3,600 outpatient clinics per week. The use of integrated telephony systems provides the call centre operating within the Referral Management Service with call management and routing enabling staff to handle over 60,000 contacts per month. Reporting is in place to allow managers to effectively manage the service in line with Key Performance Indicators (KPIs). Text messaging with patients is in place and will be further developed to support patient centred appointment booking.

The consolidated eHealth Service Desk is now supporting approximately 17,000 requests per month (calls and e-mails) in line with KPI targets.

Opportunities – what we must do
Opportunities exist to modernise and empower our workforce even further. This includes improving processes, ensuring our staff are less reliant on manual administrative ways of working and supporting a truly digitalised workforce. Opportunities in the area of workforce and business systems include:

- Enabling more agile and mobile working.
- Modernising office systems to support administrative processes and also provide digital collaboration tools for teams including investigation opportunities for voice recognition.
- Business case for community letter flow to Primary Care, reducing paper and digitalising records to further integrate into the EHCR.
- Implement new eESS - The new National Workforce system will provide a single workforce information database for NHS Scotland through the provision of a single electronic system which
supports HR and payroll processes, linking HR, Payroll and other systems, e.g. Time and Attendance. Employees will be able to access their own up to date data online as well as updating their details such as address and next of kin. In addition employees will be able to complete transactions which will then feed through to their Managers for approval for such things as annual leave, maternity, paternity and adoption leave and also to request, book and view training.

Managers will be able to access their employee’s data online and get up to date information, as well as complete transactions which will then feed through to Payroll, replacing the 3 part paper based Notification of Change (NOC) forms.

The introduction of a new eRostering solution to support improved management of staff rotas.

Business case for single decontamination system.

Delivery of operational reporting for Estates and Facilities management services enabling the use of data to be exploited with access to tailored reports and dashboards.

**Strategic Goals**

To ensure we can deliver the opportunities available to us in this area, we have determined the following goals:

- Support a modern and flexible workforce with the tools, training and new skills they will need to operate within a modernised organisation and meet the expectations of a digitally confident workforce.
- Develop a prioritised programme to support operational services to develop and transform with digital technology.
- Align with Scotland’s Digital Health & Care Strategy by signing up to the Digital Participation Charter to ensure we are working towards everyone having basic skills.
- Provide easy, usable and intelligent access to business systems in support of smarter delivery, benchmarking and reporting.
- Align with Scotland’s Digital Health & Care Strategy to support our leaders to participate in the NHS Digital Academy programme and the Digital Champions Development Programme to grow our network of digital champions, lead and inform digital developments and practice across health and social care.
Impact Story

Lesley, a Health Records Senior Supervisor, was involved in one of the largest changes in recent years, bringing together the various patient administration systems within NHSGG&C into one system, TrakCare. This new technology would now give both admin and clinical staff an overview of patients across NHSGGC. Lesley’s initial feedback from staff was that this was “just another change for change sake” and initially struggled to share her vision with her teams.

Staff had changed systems before and felt this was just another exercise. This was a challenge. Extensive training was put in place, around the clock teams available as “super users” for support, but despite all the planning, staff were still very nervous being put in live environments with direct patient care, dealing with a new system and raised the question “what if it goes wrong”. “I’m here for support” was Lesley’s call of the day and staff felt very comfortable with this message.

Slowly the system, despite teething problems, began to impact on staff in a positive way, in that roles became slicker, reducing delays from referral to booking with this now being mainly electronic and less requirement for reliance on internal mail, less manual intervention was required between clinicians and reception staff thus increasing productivity. A further benefit was being able to see appointments across all hospitals within NHSGGC, whereas before when different patient management systems existed staff were unable to help patients and ultimately her staff felt that although they were averse to another change, in the longer term they felt the benefits of this system and indeed today cannot imagine a time without it. Lesley, although tempted, did not once say “I told you so”!

Karen is a long standing member of staff who worked as part of the team introducing our new Call Centre functionality. Netcall Telecommunication’s system was installed a few years ago, and prior to this we had no real grasp with regards to the volume of calls or the amount of calls that we were not capturing. Karen was keen on the functionality of the new system and met the challenge of being part of the team to introduce this in Glasgow Royal Infirmary with her focus always being on improving patient care and experience.

Working with colleagues across all services, IT Departments and Netcall itself, there was a lot of trial and error to ensure this system was suited to both the Organisational needs and that of the patient. With the Go Live date imminent, Karen never once faltered in her enthusiasm and indeed this transposed to her team. With this new system we were able to capture calls in a timely fashion and could gauge this according to the statistics. For those calls abandoned, we were able to offer a call back service to patients. We were then able to introduce a text reminder service which sends a message to patients reminding them of their upcoming appointments, which has had a positive impact in reducing the number of patients who did not attend; this reminder prompts patients to reschedule their appointment if it does not suit.

Staff morale appeared to increase as staff could see the difference they were making. Patient feedback was also positive knowing that their call would be answered, as again the statistics allowed us to ensure correct staffing in place. Karen and her team continue to progress with this system and provide suggestions and ideas of how to continuously improve.
5. Technology infrastructure

ADVANCING OUR FUTURE DIGITAL LANDSCAPE TODAY

- Summary
- Successes – what has been delivered
- Opportunities – what we must do
- Strategic Goals

Summary

Our technology infrastructure provides the foundations we need to deliver our core digital capabilities which is critical to the day to day ability to function across the organisation. For more summary information regarding our infrastructure, including the clinical and back-office areas we cover, please see the additional section Our technology estate.

There are over 35,000 end user devices deployed across the NHSGGC, including desktops, laptops, tablets and mobile devices. A growing number of digital services are accessed across these devices. The age of these devices is variable – with a significant percentage approaching end of life. An important aspect of our technology infrastructure will be to update and sustain the support for the infrastructure that our services use in order to maintain security and reliability. In addition, it will also be necessary to consider how best to introduce supported office and operating systems, Windows 10 and Office365 to end users.

From a technology perspective, cyber threats may be one of the biggest risks to any organisation. Cyber-attacks have the capacity to severely disrupt our digital services and new threats and methods of attack are continually appearing.

In terms of resilience, business continuity and disaster recovery, our new architecture will provide increased capability. The planned implementation of a consolidated core infrastructure will principally be delivered from two new computer rooms located at QEUH. The shared architecture deployed across these facilities will provide resilience for core critical services if there is a major incident in either data centre. In addition, in line with best-practice, a 3rd facility has been introduced which will be able to deliver limited services if there is a major incident which impacts the entire QEUH site.

Successes – what has been delivered

Much of our focus in the years leading up to this strategy has been to build resilience and capacity to scale across our technology estate. This has been a necessary and important step towards achieving our longer term digital ambitions. Some highlights include:

- The existing core data centre infrastructure has been consolidated to two new data centres at QEUH. The new data centre facilities have the capacity and capability to support the future infrastructure requirements of the Board. It also has the capability to support regional digital health initiatives and has been used to support regional hosting services such as the regional Clinical Portal Programme.

- A new digital platform has been developed, initially to support the proof of concept for the National Health & Social Care Patient Portal, a ‘Digital Front Door’ for public access to Health & Social Care services. This digital platform presents opportunities for the wider digital market and recently we have embarked on a simulation exercise with DHI to demonstrate how data from mobile apps and wearables can be integrated with data held by statutory bodies. The platform currently supports access through a range of devices, including tablets and smartphones.

- The new data centres have also enabled the introduction of a new enterprise architecture capable of supporting the future growth of digital services. Technologies have been deployed which will enable the Board to quickly introduce new capacity, either to support the growth in existing services or the introduction of new services, either on premise or in the cloud. The architecture is also able to support future collaboration and shared service delivery at a regional level.
Applications and services have been made more resilient to failures in the underlying infrastructure as a result of our Infrastructure Applications. Alignment and concerted efforts to improve the underlying technology infrastructure. The new infrastructure offers a range of resilience options which can be tailored to meet the specific requirements of the relevant application/service. For example, critical clinical applications, such as TrakCare, are protected by multiple layers of resilience, including hardware failure, network failure of loss of a data centre.

Staff can now work remotely in a variety of ways. They are increasingly accessing the information required to carry out a range of functions from locations outside traditional NHS premises. Consultants can access clinical systems from their homes, District Nurses and Children’s Services staff can access patient data from within their patient’s house while carrying out their visit. While increasing numbers of both clinical and administrative staff have access to back office systems, allowing them to work in an agile fashion, completing almost any electronic task that previously they would have required access to an NHS location and PC. Maternity staff recently implemented a new maternity clinical system (Badgernet) and have been provided with a mobile ‘app’ and IPADs with which to access patient information without having to sit at a PC.

The introduction of a new VDI (Virtual Desktop Interface) infrastructure has provided opportunities for accessing and sharing applications and systems on a greater range of devices. It has also allowed the Board to more easily provide access to information and systems with other organisations. For example, the VDI infrastructure was a key component in delivering EMISWeb and other applications to Council staff.

The introduction of a new multi-channel contact centre solution, Netcall, has supported new ways of contacts from the public and service users in the Referral Management Centres including improved call and email handling, automated voice calls, text reminders etc.

**Opportunities – what we must do**

The following opportunities exist to build on our existing foundations:

- Completing the implementation of the enterprise architecture.
- The introduction of a new modern unified communications solution. Replacing the end of life telephony system will provide greater opportunities for communication and collaboration across the Board – and potentially with the region.
- Develop the convergence of health and social care systems, taking into consideration the number and version of systems due for replacement
- Further investment in our contact centre system, Netcall, providing opportunities for smarter communication including interactive text messages, web chat functionality etc.
- Further develop our cyber security framework to ensure that we remain compliant with the emerging national cyber resilience frameworks. Continually monitor and improve our cyber posture.
- Continue to review and upgrade our data governance arrangements to ensure we remain compliant with the latest Data Privacy legislation as GDPR evolves.
- Although the Board has significantly reduced the amount of paper that it consumes, there is still significant opportunity to reduce the cost of printing. A new Print Strategy will be introduced which further reduces the cost associated with printing and encourages the further adoption of paperless working.
- Provide improved productivity and collaboration services and tools, such as shared calendars, email, video and instant messaging, to support effective, efficient and secure ways of working across organisational boundaries.
- Further develop capabilities allowing end users to self-service their password resets, to request and install software that they require and to experience a consistently modern and improved experience when they receive new or rebuilt equipment, which retains their settings and customisations.
- Implement technologies which enable our staff to take greater control of how they access, share and collaborate on their information in a secure and simple manner, removing the need to log calls and engage eHealth staff whenever a user needs access to a file share or to configure an e-mail account.
Further focus on agile working will result in more options for staff to utilise a range of mobile devices which are chosen to meet their specific requirements, secured appropriately and available for use both in and out of NHSGG&C premises.

**Strategic Goals**

To realise the opportunities ahead of us, we have set the following goals related to our technology infrastructure:

- Continue to develop and maintain a modern, sustainable infrastructure that is able to adapt to emerging regional and national initiatives.
- Progress the interoperability of our systems, particularly focusing on social work systems and the interfaces with health systems.
- Convergence of health and social care systems
- Consider and leverage the benefits offered from cloud based technologies.
- Ensure we protect our access and infrastructure by following best practice and adhering to standards that meet or exceed our responsibilities in the areas of data protection and cyber security.
- Continue to ensure that our infrastructure is able to meet evolving business continuity and disaster recovery requirements.
- Develop a sustainable end user device strategy that reflects the evolving requirements for newer devices such as tablets and allows self service and improved user experience.
- Support regional and national initiatives which explore the benefits of standardisation including devices, applications and core infrastructure services.
- Ensure that existing technology and infrastructure investments are leveraged to their maximum potential.

**Impact Story**

Major Trauma (MT) centres treat over 1000 patients each year often arriving by helicopter, requiring activation of the QEUH trauma team. On a cold winter evening a road traffic accident has been reported involving multiple patients with a range of potentially life changing injuries. One patient, John, has multiple fractures and significant neck and head trauma requiring neurosurgical intervention, blood transfusion and an emergency general anaesthetic. John will require a series of critical interventions during the initial phases of his resuscitation involving an extended team of upwards of 20 health care professionals. One of the key roles of the team leader is to orchestrate these interventions utilising the skills and resources available.

The challenge can consist of simple crowd control in the first instance, and ensuring that the team maintain situational awareness in a dynamic and evolving environment, often requiring critical information to be relayed to each member of the team. On this particular December evening the MT centre is involved in a pilot, funded by the DHI, eHealth and the Scottish Trauma Network to trial a new Major Trauma App. Even before John arrives at the centre, information is being input into the App that will display via Apple Airplay on a large format screen that will be located above John's treatment area. The App is updated continuously throughout his intensive treatment, providing a nexus of information for the various specialists involved in John’s care. With this simple display of ever-present information above the patient, in the form of a dashboard that includes vital monitoring information, the team are able to fast-track their liaison and apply more time in delivering urgent medical care.
Strategy Delivery Plan
Financial

Currently the NHS Board provide 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.

Evidence from other systems demonstrates the need to have upfront investment to support delivering the service transformation. In considering the way forward developing digitally enabled services to modernise how care is delivered and ensuring adequate capital investment is available to create the most effective configuration of facilities across the health and care system to provide the right models of care to support transformation is recognised.

Challenges

A number of challenges exist in relation to funding and sustainability.

- Software as a service is now the norm and requires a recurring revenue budget rather than one off capital funding as has been the case in the past.
- Annual increases in support and maintenance contracts for RPI/CPI
- The aging desktop and end user devices. NHSGGC has approximately 35,000 end-user devices with a ratio of fixed to mobile (PC:laptop) of about 80:20. The graph below illustrates the age demographic of the desktop estate based on year of purchase.
Get Involved

With the increasing impact of digital across the organisation, it is important to provide feedback channels from customers of the eHealth service – to ensure that the digital strategy continues to meet not only the strategic direction of the Board, and the Scottish Government, but also the needs of end-users.

Here are some ways you can get involved and help support this strategy:

**Feedback eForm**

We are keen to hear your views and have your input into the delivery of eHealth services. The best place to share your ideas is via our eForm on the NHSGG&C staffnet portal:

[Digital Strategy Feedback Form](#)

**Email**

We have created a dedicated in-box for questions that cannot be shared via the staffnet portal. If you have any questions, or would like learn how to gain access to more information about the associated documents or programmes mentioned in this strategy then please email:

[DigitalStrategy@ggc.scot.nhs.uk](mailto:DigitalStrategy@ggc.scot.nhs.uk)

**Digital training & support**

Further training and support is available via the eHealth Directorate and can be arranged by emailing in to the dedicated email box (see above). Also, if you are working in a clinical capacity you can contact one of the clinicians who link with the eHealth teams. Details can be found here….. There is further help available for those seeking to advance their digital skills here……NES digital initiative provided by NHS Education for Scotland:

APPENDIX 1 - Our technology estate

It is important for all of our stakeholders to appreciate two of the main areas of digital and technology that are delivered at NHSGG&C, these being:

1. Clinical systems and technologies.
2. Back-office systems and technologies

As the largest employer in the region, our workforce is dynamic and diverse. Our teams each require access to systems in order to perform their roles, often from a physical office location and when working out in the region. Given the sheer number of users we support, this would be a challenge for any public or corporate enterprise, and yet the eHealth and digital remit at NHSGG&C is also responsible for the critical and complex medical systems and technologies used to deliver care. This represents one of the most sophisticated technology estates currently deployed within any region.

Over the last 5 years, the Board has further adopted and implemented a range of digital applications and services which feed the EHCR and will be further integrated. As an organisation, the Board has benefited significantly from these investments – digital services are now a fundamental component in delivering health and care in an efficient and effective way. The increased dependency on digital services in delivering patient outcomes has been recognised – along with the need to have secure, reliable, resilient access to these services on a 24/7 basis.

As a result, investments have been made to implement a new resilient, scalable, flexible and highly available enterprise class architecture capable of supporting the current and planned portfolio of applications and services. This new architecture consolidates the current infrastructure, preparing a tiered service approach to the critical applications and laying the foundations for shared/regional services as well as setting down the stepping stones towards a digital journey that includes areas such as Cloud Services. At a high-level, the new IT enterprise architecture is built of distinct layers of technology that supplement and support each other to provide a foundation on which business critical systems and services can be deployed.

Enterprise Architecture

This architecture will provide the IT foundations to support the future developments in digital in a number of ways including providing an infrastructure that supports 24/7 delivery of services; increased resilience in terms of BC and DR and enabling mobile and flexible working.

It will be essential that this infrastructure is updated regularly to ensure that critical systems are available and supported appropriately.
APPENDIX 2 - Governance - Supporting the strategy

The implementation of the eHealth strategy requires strong and effective governance supported by meaningful and ongoing stakeholder engagement across the wider business directorates and departments.

Governance

The governance model that will support the implementation of this digital strategy is shown below:
The **eHealth Strategy Board** will ensure that this strategy remains in alignment with key Board priorities including the Board’s transformation programmes and also the NHS Scotland national Digital Strategy in addition to providing senior oversight to the prioritisation of the programme and its execution.

The remit of the Board is as follows:

1. Develops 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 **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 developments and implementations and are critical to the successful delivery of this strategy.

**eHealth Relationship Management**

In addition to the formal governance arrangements, within the existing eHealth senior team a dedicated relationship management capability has been established to support strong engagement between senior members of the eHealth team and senior leaders with NHSGG&C business directorates and clinical services. This function primarily provides a senior point of contact and escalation to seek resolution of any escalated queries or issues and also is intended to be an important channel for feedback on the implementation of strategic programmes.