

Plan 
for the
Future

Service Transformation through Digital:

a Strategy 2023-2027

October 2023

DRAFT

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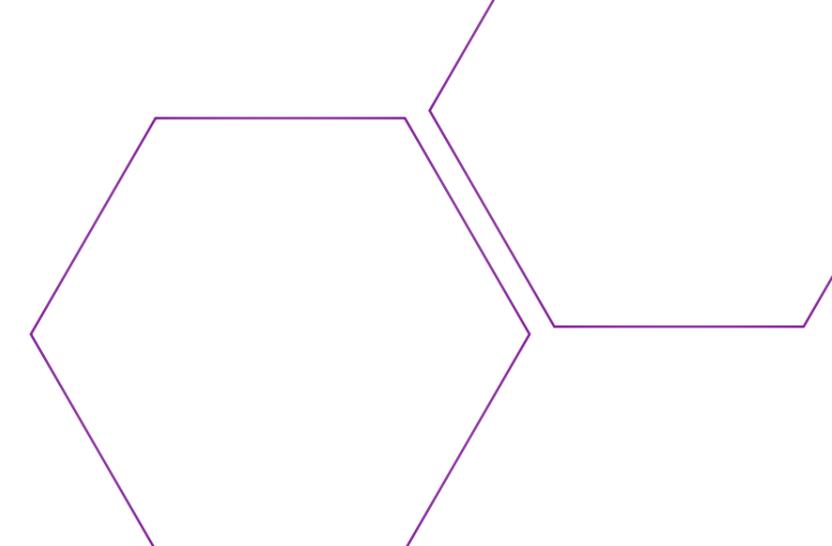
“As a citizen I have access to the digital information, tools and services I need to help maintain and improve my health and wellbeing. I expect my health and social care information to be captured electronically, integrated and shared securely to assist service staff and carers that need to see it...”¹

“As a member of staff I have access to the digital information, tools and services that I need to fulfil my work, wherever that may be. Access to these resources helps me provide great care for my patients and clients.”

“As a member of the NHS Grampian board I am confident that, through the adoption of digital technology, we now provide the best quality health and care to our patients.”

¹ The Vision. Scotland's Digital Health & Care Strategy. <https://beta.gov.scot/publications/scotlands-digital-health-care-strategy-enabling-connecting-empowering/>

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Foreword

This strategy describes how NHS Grampian and partners will exploit digital technology to improve health and social care – increasing the quality and efficiency of the services we provide.

This is the first revision of the strategy since its introduction in 2020. While supporting this revision I have been impressed by the progress made in recent years and by the enthusiasm shown by the wide range of clinical and support colleagues involved in delivering that progress.

The Digital Health and Care strategy sets out a roadmap for the next five years for how we will transform services through the implementation of new technologies. This will be challenging. However, digital technology plays a significant part in supporting the NHS Grampian's Plan for the Future and its greater adoption will be essential if that plan is to be a success.

Key themes within the document include the need to support our workforce to become more digitally capable and to automate routine tasks, freeing up clinicians and colleagues to spend their time where it really counts. There is also a focus on Value and Sustainability and how we need to consider these factors when making technology investment decisions and how technology can improve the financial and climate sustainability of all our services.

And finally, as always, we will continue to work closely with a wide range of stakeholders to ensure that we deliver solutions that are fit for purpose and enhance the experience of patients and staff.

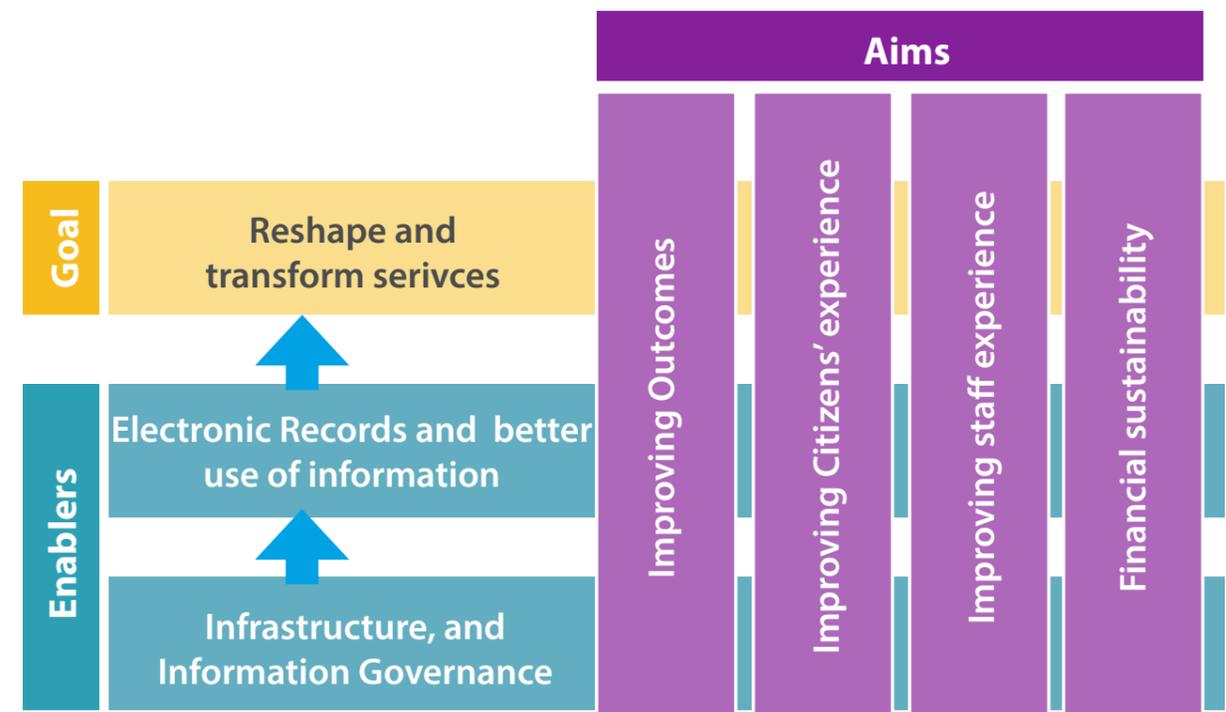
Paul Allen
Director of Infrastructure and Sustainability



Summary – Strategy on a Page

This strategy describes how NHS Grampian and partners will exploit digital technology to work with people as partners in their care, enable staff to work to the best of their abilities and support financial sustainability.

The goal is to modernise services. To do this will require universal adoption of electronic records and for relevant information to be accessible to all who need to see it – citizens, clinicians, care providers and analysts. In turn, those electronic systems need to be safe, secure, accessible and reliable.





Section 1 – Setting the Scene

Introduction

The **National** and Grampian Clinical Strategies describe the demographic changes that are increasing demands on the health and care sectors: people living longer independent lives but also living with multiple chronic conditions, a shrinking workforce relative to the rising demand, and budgets that barely keep up with inflation. NHS Grampian's Plan for the Future sets out how we will tackle these challenges - with person-centred care and digital technology at its core.

The clinical strategies and the strategic plans of Grampian's Health & Social Care Partnerships agree on the fundamental principle that people should be supported to remain active and well and to manage their own health and care issues much more so than at present; thus maintaining their independence and quality of life. Where possible, unscheduled care should shift to planned care, planned care should shift to self-management and self-management should shift to prevention.

The purpose of this change in emphasis can be summarised using the **Quadruple Aim** - the requirement for organisations to simultaneously achieve:

1. Better health and social care outcomes – longer, healthier, more contented lives.
2. A better experience of health and social care for citizens – less stress, easier interactions.
3. A better experience for staff – supporting people to work to the best of their abilities
4. Affordable health and care services – sustainable long-term financial planning

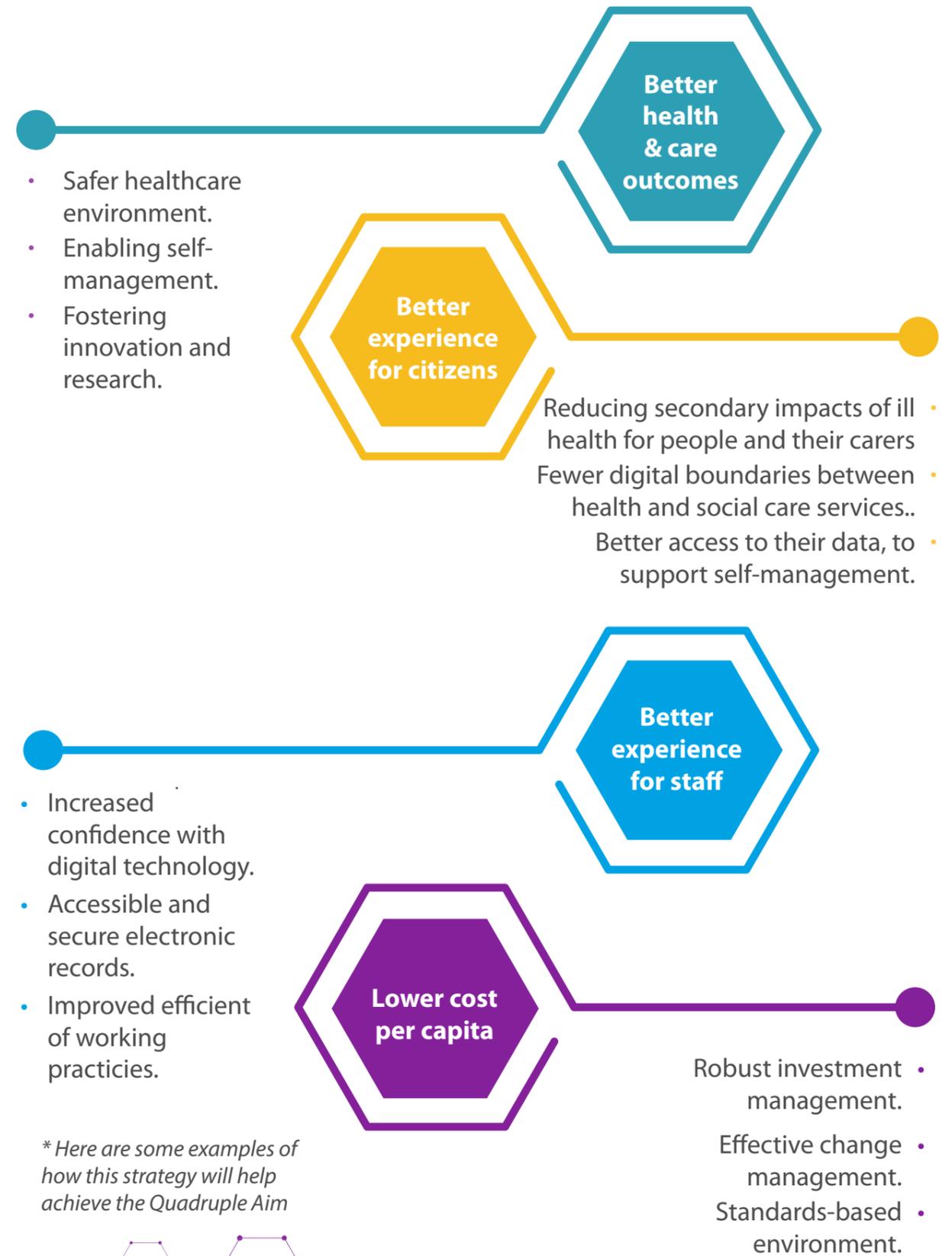
The clinical strategies and Plan for the Future make it clear that the necessary shifts in care, self-management and prevention can only come about through the better use of digital technology. Which needs to change from being a bonus add-on for someone else to deal with to being the essential, normal enabler of care delivery, self-management and prevention in every setting.

This strategy outlines how, over the next five years, digital technology will enable the success of the clinical strategies and strategic plans and allow us to work towards the Quadruple Aim which needs to change from being a bonus add-on for someone else to deal with to being the essential, normal enabler of prevention, self-management and care delivery in every setting.

But Technology is only part of what will help us achieve Service Transformation through Digital. Tom Loosemore, formerly of the Government Digital Office, defined Digital as: "Applying the culture, processes, business models and technologies of the internet era to respond to people's raised expectations." Developing our culture and processes is as important to the success of this strategy as is the adoption of new technology.

Read on to discover what this means in practice. How, over the next few years, we will exploit Digital to enable the success of Plan for the Future.

Quadruple Aim



Case studies

A citizen's experience in 2023 and in 2027

Angus' experience in early 2023

Angus is 79 years old and lives with his husband in Crathes. He has Chronic Obstructive Pulmonary Disease (COPD), Ischaemic Heart Disease and Type 2 Diabetes. His GP manages these conditions, his pharmacist in Ballater dispenses the medication and he sees his optometrist and ophthalmologist as needed due to his Diabetic eye disease.

Angus and his husband go on a relaxing minibreak to Forres but Angus forgets to pack some of his pills. On Saturday afternoon he goes to a pharmacy in the town to get a new supply but can't remember everything he's taking. The pharmacist can't look up his GP's medication list as she has no direct access to the Emergency Care Summary. She tries calling the pharmacy in Ballater but it's closed. Angus isn't too concerned so he decides to just call his GP on Monday to get an updated medication list to bring in to the pharmacy.

On the Monday morning Angus accidentally walks into the trouser press in their hotel room and realises that he's lost some vision in one eye. He goes to the local optometrist who asks what eye problems he has. Angus can't give a lot of detail and the optometrist has no access to previous retinal imaging or letters from ophthalmology so the optometrist's assessment is inconclusive.

The optometrist refers Angus urgently to Dr Gray's Hospital where he's admitted with a suspected stroke. The admitting team can see the GP's medication list via TrakCare but no more of the GP's record. They need to obtain a problem list from Angus's husband Michael as Angus is now having difficulty speaking. The CT scan is a little inconclusive and Angus isn't thrombolysed.

Angus's symptoms stabilise after a couple of days and he's discharged home with follow up arranged at the stroke service in one month. He has some difficulties washing so has once daily home care arranged.

Angus is restricted from driving after his stroke so gets the bus to Aberdeen for his follow up appointment where the scan results and other investigations are discussed. He then gets the bus home. In the meantime the carer has visited, was unable to gain access and has called the police, concerned that Angus has been incapacitated by another stroke.

Angus' experience in early 2027

Angus is 79 years old and lives with his husband in Crathes. He has Chronic Obstructive Pulmonary Disease (COPD), Ischaemic Heart Disease and Type 2 Diabetes. His GP manages these conditions, his pharmacist in Ballater dispenses the medication and he sees his optometrist and ophthalmologist as needed due to his Diabetic eye disease. Angus and his husband use My Health & Care, the national citizen portal, to look up their test results, read clinic letters and medication lists and manage appointments. They can use NHS Messaging to send questions to their various care providers. Angus can complete symptom questionnaires in advance of appointments and blood sugars are automatically loaded to the platform from his glucometer.

Angus can review any anticipatory care plans that have been drafted for him, leave comments and make changes. My Health & Care supports Angus to manage his conditions and stay well.

Angus and his husband go on a relaxing Christmas minibreak to Forres but Angus forgets to pack some of his pills. He goes to a pharmacy in the town and accesses My Health & Care on his phone to tell the pharmacist what he's forgotten to bring. The pharmacist can access Angus' National Medication Record that allows her to confirm and dispense the forgotten medication. This dispensing information is automatically updated in Angus' My Health & Care Record.

After a few pleasant days, Angus and his husband drive home.



A staff member's experience in 2023 and 2027

Agnieska's experience in early 2023

Agnieska is a homecare practitioner in Fraserburgh. One dark, windy February morning she visits her client Mary but gets no response at the door despite knocking repeatedly and then phoning. She can see that a light is on in the lounge. She goes back to her car and calls the Care Management Office to see if they know what the situation is. The Care Manager hasn't heard of any problems with Mary and asks Agnieska to wait while they check with the hospital.

Agnieska realises that she's going to be late for her next client Bob. She fills in some paperwork and wonders if she should just phone the police and ask them to investigate – perhaps Mary has collapsed in the house?

Agnieska's Care Manager calls back. Mary was admitted to ARI last night with a chest infection and she's likely to be in hospital for a few days.

Agnieska carries on with her visits. Now that she's running late she's not going to have much of a lunch break.

Agnieska's experience in early 2027

Agnieska is a homecare practitioner in Fraserburgh. One dark, windy February morning she is preparing to set out on her visits and checks her tablet to run through the morning's clients. She sees that Mary was admitted to Fraserburgh hospital last night and that her client visit list has been rearranged for the day. Mary's predicted length of stay is two days and Agnieska can see that Mary will be getting an intensified support package for the few days after she gets home.

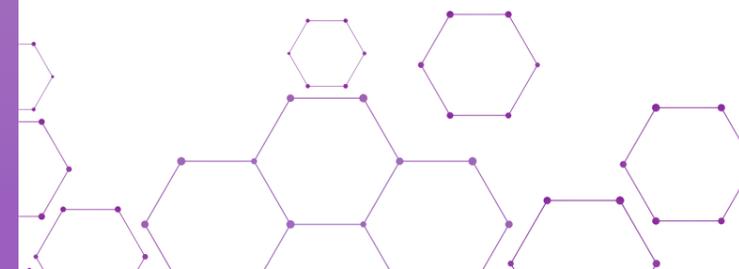
Agnieska knows that Mary's son David, who lives in Plymouth and has health power of attorney, will be able to see his mum's care plan when he logs in to the My Health & Care system via proxy access.

Agnieska heads out on her visits. The technology she uses now means that she has slightly more time to spend with her clients and is more likely to get a lunch break herself.



Other differences in 2027

- When Angus visits his optometrist she can, with Angus' consent, see imaging and correspondence from any ophthalmology department in Scotland.
- Clinical updates the optometrist contributes will then be accessible to Angus' ophthalmologist. Angus, of course, will be able to see much of this data when he looks at My Health & Care.
- Hospital-based clinicians can see much more background information about Angus – GP summaries, vaccinations, problem lists and details of any care package he might have. The hospital team can also access the What Matters to Me information that Angus has added.
- Radiology imaging – X-rays etc, is now enhanced by augmented intelligence. If Angus needs a CT scan of his head, software will speed the reporting process - highlighting areas that need a closer look by a human and identifying other scans as probably normal.
- When NHS Messaging isn't sufficient, people will still need a consultation with their health or care professional. These are now conducted by phone or video by default; 'Reducing the Burden of Care' is embedded in the culture and this includes avoiding unnecessary travel.
- When the hospital specialist advises a blood test, she can arrange to have the sample taken close to where Angus lives, rather than him having to come in to hospital. The result then gets pushed back to her.
- Angus uses connected medical devices such as a Blood Pressure monitor and glucometer that send data to his record. This information will can be viewed in real time by clinicians if required, for example during a call to the out-of-hours service.
- Mary is admitted to Fraserburgh Hospital instead of ARI when her chest infection is too bad to be managed at home. Point of care blood tests and vital signs automatically loaded to her electronic record are used to monitor progress. The specialist nurse in Aberdeen can see how she's getting on and has a video call with her and her son in Plymouth to help plan her discharge.
Enabling Mary to be managed at their community hospital supports the local economy and makes it easier for her friends to visit.
- The National Vaccination Record, created in response to the coronavirus pandemic, has allowed all information on vaccines to be stored in one place – reducing the chance of a missed dose or unnecessary injections for Angus and Mary





What are the drivers for increasing the use of IT in health and care?

The success of our clinical strategies and strategic plans rely on the greater adoption of digital technology. However, there are multiple other drivers covering areas such as law, economics and the environment. These are summarised here, with a fuller assessment to be found in the appendix.

- Political** As well as Scotland's Digital Health & Care Strategy and Delivery Plan, many national and local government policies, Plan for the Future, regional and national strategies include digital as an enabler.
- Economic** Shifting the balance of the local economy away from oil and gas and towards life sciences and digital technologies.
- Social** Increasing assumptions that the health and social care sector should adopt the digital technologies used elsewhere.
- Technology** Increasing capability of technology to meet our needs, and its increasing accessibility to staff and citizens.
- Legal** The need to comply with new legislation on data protection and network security, while enabling appropriate access.
- Environmental** The need to reduce the carbon footprint of health and social care.



Section 2 – Delivering the Strategy

"[A] pivotal issue is that information technology has been seen by many health care organizations as a commodity, like plumbing, rather than as a strategic resource that is vitally important to the delivery of care."

David Bates, Atul Gawande 2003

"There isn't a single part of our health and social care system that doesn't rely on some form of technology to deliver excellent care. It's transforming it every day."

Caroline Lamb, Director of Digital Reform & Service Development, Scottish Government. 2020

Introduction

Our aim is to transform health and care services through increased use of digital technology. The first part of this section gives examples of how services could be transformed and how this could improve the lives of staff and citizens. As emphasised by the recently published Data Strategy for Health & Social Care, improving how we create and use data and information is essential if we want to improve the quality of health & social care services.

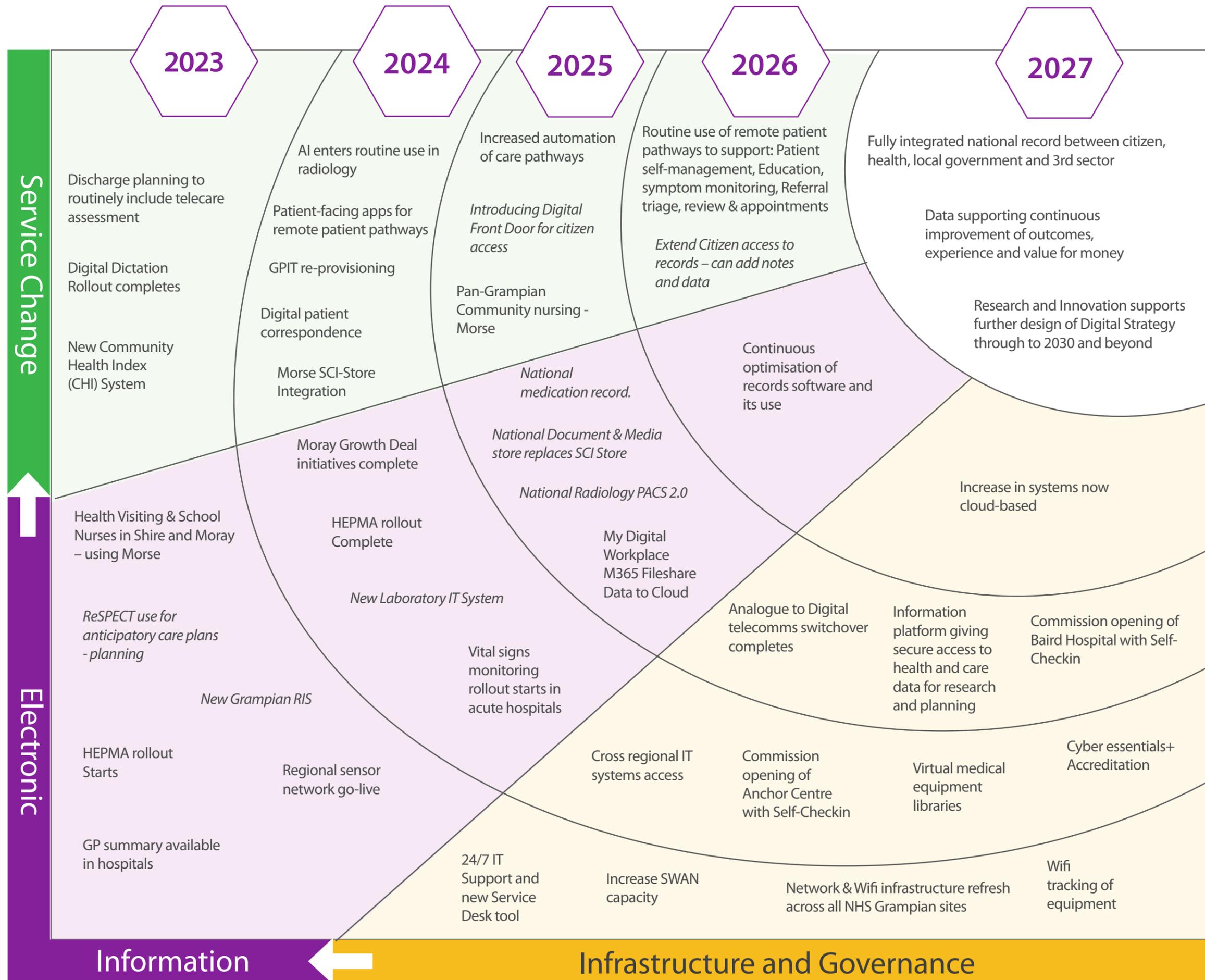
The Delivery Planning Guidance for health boards, issued February 2023, includes the driver: Optimise use of digital & data technologies in the design and delivery of health and care services for improved patient access

We must ensure that all staff and citizens have access to the information they need and can access it where they need to. Data arising from health and care encounters will need to be learned from – to improve the quality and efficiency of care. The second part of this section gives examples of how we will improve the ways we work with data and information.

And if we are to make increased use of electronic records and other digital tools then they will need to be safe, well supported, run on reliable infrastructure and be compliant with all necessary cybersecurity and data protection legislation. The final part of this section describes how we will achieve that.



Grampian Digital Health & Care Strategy 2023-2027



Glossary

GPIT	General Practice IT systems
HEPMA	Hospital Electronic Prescribing and Medicines Administration
NDP	National Digital Platform
ECS	Emergency Care Summary
KIS	Key Information Summary
PACS	Picture Archive and Communications System
IG/IS	Information Governance and Information Security
LIMS	Laboratory Information Management System
RIS	Radiology Information System
SCI Store	Scottish Care Information Store
AI	Artificial/ Augmented Intelligence

Italicised items are particularly dependent on national developments

We Said...We Did

Introduction

Our aim is to transform health and care services through increased use of digital technology. Building on strong foundations, since the 2020 strategy was published, digital technology has continued to support new models of care in North-east Scotland. Teleconsulting using phone or Near-Me video is now part of routine care, where appropriate.

Electronic note-taking is now in place across all our hospitals, allowing the multidisciplinary team to better support our sickest patients. In late 2020 NHS Grampian became the first health organisation in the UK to launch a hospital-community pharmacy prescribing system. This saves time for prescribers and patients, particularly those in rural areas. More recently, we have taken a lead role in the roll out of hospital ePrescribing (HEPMA) across the North of Scotland – thought to be one of the largest implementations of such a system in the world.

The sophistication of our electronic care records has been increasing in all sectors, with the chart showing the progressive maturation of our electronic record keeping over the last decade.

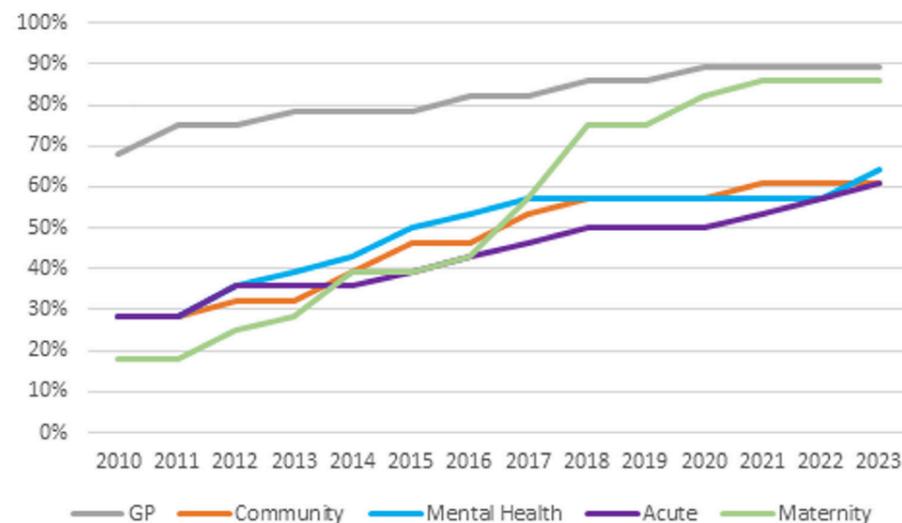


Figure – progress against a modified version of the Hospital Information Management Systems Society’s Electronic Record Adoption Model (v2011)

Dragon is a digital dictation and document management system that allows clinicians to create, sign and send letters to EPR and GP practices electronically. Currently the system is being implemented and the plan is to have it fully rolled out across NHS Grampian by October 2023; the system also the ability to use speech recognition.

From a Community Nursing perspective across Grampian the Morse system has been rolled out across Aberdeen City partnership for Health Visiting, School Nursing, Hospital at Home, Community Nursing and MacMillan Nursing. This has given the partnership the functionality to schedule all patient appointments, create clinical notes and assessments electronically and therefore remove the need for a paper record. Looking forward, a pan-Grampian implementation will cover all Health & Social Care partnerships in the region.

We have made encouraging progress in the use of patient-facing digital Remote Health Pathways. Remote home monitoring of blood pressure is now in routine and widespread use in general practices across Grampian, while digital asynchronous appointments and digital patient symptom gathering questionnaires are in use across a range of early adopter secondary care services to support referral triage and review processes.

The safety and security of IT systems and health information is paramount. Since 2020 we have maintained our focus on cybersecurity and data protection and this has been demonstrated through our performance against the annual Network & Information Systems audit. In 2021-22 NHS Grampian took a lead role in improving the monitoring of healthcare IT-related safety incidents; an approach which the rest of Scotland is now learning from.

Despite these advances we are still at an early stage when it comes to the adoption of digital technology across health and social care. Accordingly, **the first part of this section** gives examples of how services could be further transformed; improving the lives of patients and clients as well as staff.

There is a strong national steer that this is the approach we should take. The Delivery Planning Guidance for health boards, issued February 2023, includes the instruction to:

Optimise use of digital & data technologies in the design and delivery of health and care services for improved patient access

And the Data Strategy for Health & Social Care, published in early 2023, has at its heart that improving how we create and use data is essential if we want to improve the quality of health & social care services.

We must ensure that all staff and citizens have access to the information they need and can access it when and where they need to. Data arising from health and care encounters will also need to be learned from, including in real time, to improve the quality and efficiency of care. **The second part of this section** therefore gives examples of how we will improve the ways we work with data and information, including maturing our record systems and increasing the adoption of Artificial Intelligence.

And if we are to make increased use of electronic records and other digital tools then they will need to be safe, well supported, run on reliable infrastructure and be compliant with all necessary cybersecurity and data protection legislation. Significant investment in IT networking infrastructure has taken place in supporting one of Europe’s largest health IT campuses including the upgrade of all Wifi equipment planned for 2023. **The third part of this section** describes how we will achieve that.



1. Co-designed Service Transformation

The Modern Outpatient Programme, The Access Collaborative, the Clinical Strategies and Plan for the Future all imagine health and care being delivered in new ways – more convenient for people, more effectively using staff time and more efficiently using resources.

The Scottish Approach to Service Design mandates us to involve people who will use a service in its design – staff, patients and other service users.

An imperative is to build in digital technology from the earliest planning stages of a new service and use this to maximise efficiency and quality. The data arising from the service should then be used to drive research and continuous service improvement. This is sometimes referred to as a Learning Health & Social Care System.

Fairer Scotland Duty: Socio- economic deprivation and digital inclusion

The Fairer Scotland Duty requires public bodies such as NHS Grampian and Health and Social Care Partnerships, when making strategic decisions, to take account of the need to improve equity of health and social care outcomes for areas of multiple deprivation.

Some patients in socio-economically deprived areas may not be able to afford the hardware or revenue costs to access the new services and data. This could make the gap in health and social care outcomes much wider for patients in these areas.

To overcome this issue, we will work with partners to ensure that additional support will be provided in areas of socio-economic deprivation. We will also ensure that any new citizen-facing services have an Equality Impact Assessment performed before they enter mainstream use.

Supporting Self-management

We need flexible ways of providing education and other support for people with chronic diseases.

Changes to expect include:

- Improving Digital Literacy - more partnership working with libraries and third-sector organisations to support patients to adopt digital technology.
- We will embed proven support technologies such as Inhealthcare in to routine care. This means that patients can get feedback on their health condition, such as when their blood pressure or weight is outside an acceptable range.
- We will be an early adopter of NHS Messaging technologies. Sometimes referred to as Asynchronous Consulting, these provide ways for patients to securely write and ask for advice from their care providers, perhaps sending in photos for review. This means that some of clinicians' time will need to be allocated to dealing with these queries instead of seeing patients.
- We will support trials of other innovative digital solutions that facilitate self-management, including appointment management, plus easily accessible online information that can be 'prescribed' to support patients manage their condition
- Where patient information videos have already been created by NHS Grampian, these will be made available on accessible platforms such as YouTube



Telehealth and Telecare

Telehealth is the provision of healthcare at a distance. This includes a range of techniques such as home and mobile health monitoring and teleconsultations by phone or video.

Telehealth can reduce inconvenience to patients, save time for staff, reduce the carbon footprint of healthcare and reduce the spread of infection. It can enable clinicians and patients to share and communicate information more efficiently, and can support early intervention and better health outcomes for patients.

During the pandemic, NHS Grampian launched the UK's first hospital to community pharmacy ePrescribing system - this enabled people to receive treatment from specialists without needing to leave their community.

Telecare enables a person to remain in a homelike setting, maintaining independence through remote monitoring and support. This includes a wide range of services such as sensors for monitoring the environment, fall detectors and community alarms.

Examples

Building on our long history of leading in the area of video-conferencing, NHS Grampian was the first health board in Scotland to use the NHS Near Me (Attend Anywhere) videoconsulting platform. The coronavirus pandemic further scaled up our adoption of telemedicine and it now represents a large proportion of consultations.

The coronavirus pandemic has led to widespread adoption of Virtual Visiting. Allowing hospitalised patients and people in care homes to keep in touch with their loved ones. Each Health and Social Care Partnership within Grampian has a long tradition of operating a telecare and community alarm service. These provide a range of sensor-based tools that can help services in the assessment of the abilities and risks of people to live independently at home, support safe and timely discharge home from hospital, and give ongoing support and reassurance to individuals and their carers to enable people to remain in a homely environment.

The needs of non-English speaking patients and patients with a sensory impairment

To assist staff to communicate with non-English speaking patients and their families and carers, the "Language Line" telephone interpretation service is available. By prior arrangement, "face to face" interpreters are also available. If the patient and their family members and carers have a communication disability, appropriate communication support such as British Sign Language (BSL) interpretation can be provided. Information in other formats can also be made available.

During the pandemic, the use of Near Me in conjunction with the "Language Line" telephone interpretation service and "face to face" language or British Sign Language (BSL) interpreters was a great success; and continues to be. Staff have also used "Language Line" to "Call Out" to non-English speaking patients. Our increased use of BSL videos on social media has also proved popular with BSL users and will be further expanded.

We will continue to be innovative but are aware that digital communication and information is not suitable for all patients in all circumstances.

Our strategy is to introduce telehealth and care wherever it offers benefits. Our unique Grampian geography and regional expertise puts us in a good position to lead on the piloting and evaluation of new models of remote care.

- We will introduce a stepped consultation model. Where appropriate, the default mode of interaction may be by NHS Messaging – using a range of digital tools to enable questions and information to be shared asynchronously between patient/carer and clinician. This will also support patient-initiated follow-up for people with long-term conditions. Where appropriate, this may then lead to a phone or video consultation. Face to face consultations will still be used when essential
- Telehealth and care, including remote monitoring, will be routinely used in care pathways to support independent living, aid diagnosis and treatment, prevent hospital admissions, and expedite hospital discharge.
- Discharge planning will routinely include an assessment of whether home telecare could benefit the citizen.
- The shift to teleconsulting will be supported by expanding the network of community investigation hubs and community treatment and care services.

Workforce development

In order to exploit digital technology, staff need to be trained and supported. Although digital systems are in widespread use, there are still alternative paper systems in use in a number of areas. As the use of IT increases it will no longer be possible for people to get by using paper alternatives and some staff will need additional support to adapt and become suitably skilled

Improving Digital Literacy.

Scotland's National Digital Health & Care Strategy and delivery plan have workforce development as a distinct theme. NHS Education for Scotland (NES) have developed a comprehensive programme to support the digital-enablement of the workforce - improving skills at all levels of an organisation.

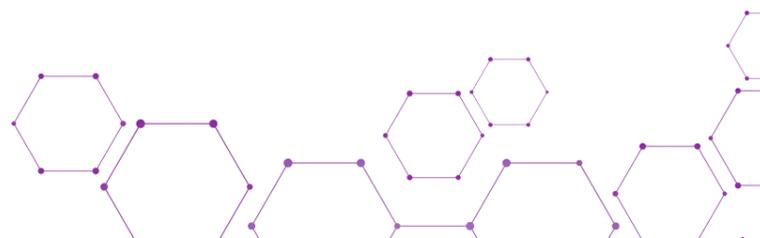
Staff have some opportunities to develop informatics skills and take on leadership roles in this area. However, there is a particular gap in the area of social care informaticians.

Examples

- Some Grampian clinicians have received specialist training in the areas of informatics and digital health. Aberdeen was one of the first universities to have an eHealth medical education lead.
- In 2020, University of Aberdeen launched an MSc and CPD modules for Health Data Science for health professionals

Our strategy is to deliver a digitally competent workforce in Grampian, working with NES, COSLA and other partners.

- We will promote digital skills through the learning management system and ensure that staff can access the development relevant to their role.
- We will focus on the needs to improve patient safety in the area of healthcare IT by training some staff to be clinical safety officers and engineers.
- We will work with partner universities and colleges to embed digital health into the available education, including undergraduate curricula.



Research and Innovation

Our Grampian patient population have a right to equality of opportunity to participate in research and shape innovation. A culture of research and innovation raises the profile of our organisations and is an important driver for care improvement. A research culture supports the recruitment and retention of staff and can make service transformation easier as staff are already used to trying new ways of doing things.

Examples

Aberdeen Children of the 1950s, a study of all children born in the 1950s and at school in Aberdeen, are now in their 8th decade and continue to participate in health care research, linking their digital health records to research data to understand, for example, the impact of education on later health, supporting early diagnostics discovery for dementia and describing the impact of technology on their health and lives.

In 2019, the Centre for Health Data Science opened as a centre of excellence. The centre brings together the people and expertise from academics with clinical colleagues, patients and industry to establish a vibrant, multidisciplinary research environment to address the health and social care challenges of our local community, and population health nationally and internationally. The Centre proved invaluable during the pandemic, supporting the response via predictive analytics of future bed occupancy.

Aberdeen has a proud history of research and innovation and in 2019 NHS Grampian published its latest Research Strategy. Life science research is seen as a way of diversifying the local economy away from a reliance on oil and gas. Our Scottish Government accredited and ISO27001 certified secure data research facility, the Grampian Data Safe Haven is a core enabler providing the infrastructure and skilled workforce to safely enable our patients, NHS staff, academics and, where appropriate, industry partners to work together using health and care data to understand health and disease, evaluate and redesign care pathways and develop new methods to support disease diagnosis.

The University of Aberdeen brings internationally leading researchers in health data science, artificial intelligence and health service research. Robert Gordon University computer science department brings leading-edge applied research with a high societal impact and a track record in health digital technology and artificial intelligence.

State of the art, high quality, widely available information technology structures and systems are key enablers of research and innovation activity. They would act as a welcoming shop front to potential collaborators from academia, industry and sister health boards, facilitate access to significant external funding streams, and be a catalyst for improvement, innovation and research projects that otherwise would not be possible.

Our strategy is to make Grampian a welcoming location for health data science and to support trials of innovative technology.

- With our partners we will seek to share information securely and in a collaborative manner with regards to health and social care data.
- To enable competitive response times and maximise our ability to engage in research and innovation opportunities we will require investment in key digital health posts.
- We will pursue opportunities for investment and support from Scottish Government awarded via innovation funds.

Medical equipment as an enabler of service transformation

NHS Grampian has over 20,000 items of medical equipment. Making best use of this investment is essential to minimise waste and maximise benefits. Tracking technology based of RFID (Radio Frequency Identification Technology) tags is being deployed in large hospital sites. Once tracking technology matures virtual equipment libraries will be implemented so staff can find the nearest unused item of equipment.

A new generation of connected medical devices are being deployed in acute settings. These devices, such as ECG machines and vital signs monitors, can upload health data into the patient record, saving staff time and improving care. Other devices, such as infusion pumps, can also provide enhanced patient safety features such as drug libraries.

Radiotherapy planning and delivery will increasingly rely on automated "intelligent" systems. Such systems will aid in delivering effective, timely treatment.

Our strategy is to maximise patient benefits that medical equipment can bring.

- The organisation will build on the device tracking system with additional technological approaches with the aim of tracking equipment across the region.
- We will complete the rollout of connected ECG machines and monitors.
- We will embrace advanced radiotherapy technology, seeking to validate, adopt and enhance it.
- We will aim to invest in devices that will connect to and integrate with existing digital systems to enrich the content of electronic information.



2. Doing more with Electronic Information

Most health and care information is now created electronically and is essential for the smooth running of modern care pathways. Recent years have seen great progress in front-line digitalisation and most clinical staff now work with at least basic electronic patient record (EPR) systems.

2023 has seen the launch of the North of Scotland Hospital ePrescribing system – one of the largest such projects in the world.

However, a number of challenges remain.

There are still clinical and social care practitioners who remain reliant on paper. This is particularly an issue for community clinicians such as nurses and Allied health professionals (AHPs).

When clinicians do have EPRs they can lack the more sophisticated features such as vital signs tracking and internal communication.

There are information access challenges when staff or patients move between health boards or between health and social care.

Citizens have very little access to digital information about the care that's provided to them; they are thus at a disadvantage when it comes to being able to manage their health and staying well.

Even when data is available we don't always make best use of it. Information on the flow of patients through our hospitals has generally been static and usually not available real-time to those that need to see it. This has improved significantly as a result of the pandemic response but there is more work to be done to put this data in the hands of clinicians.

The goal is to have a Learning Health & Social Care System. However, without sophisticated digital solutions for frontline clinicians we will limit our learning potential.



Electronic records

The ambition of the National Digital Health & Care Strategy is that the National Digital Platform (NDP) will become a single record of truth for diagnoses, problems, vaccines, medication and other key data. This builds on work done during the pandemic to centrally record vaccine data so it becomes accessible to citizens and staff who need to see it.

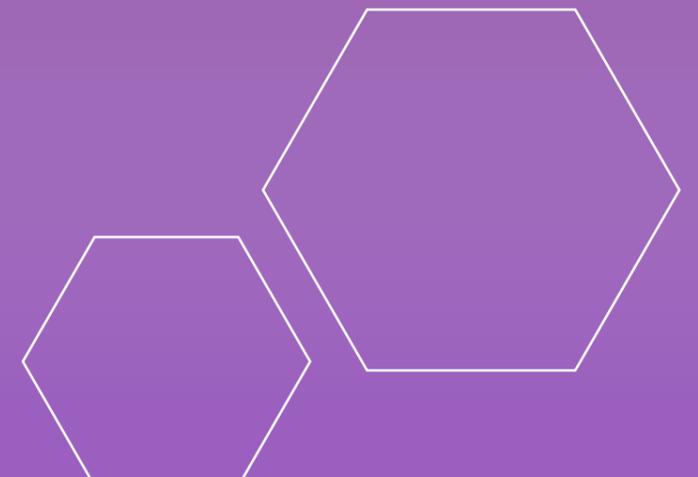
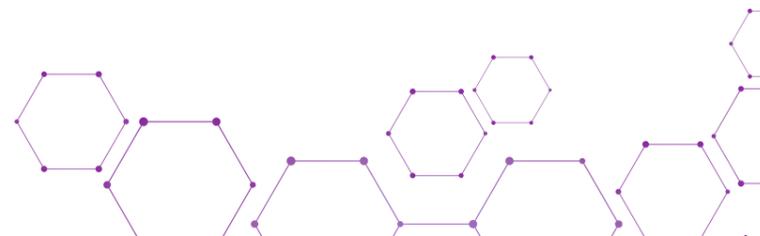
The Digital Front Door Programme, led by the Scottish Government and launching in 2023-2024 will give people access to more of their own data. It will also enable more interaction with health care organisations – such as appointment management.

A national digital maturity benchmarking exercise took place across health and social care in 2019 and is due to be repeated in 2023. NHS Grampian came out relatively well from the previous assessment, despite our modest size. When digitalising organisations there are benefits of scale. It is therefore important to collaborate where possible - either within the region or nationally.

Our strategy is to advance our electronic records in health and social care with the goal of maximising citizen and staff benefits.

- We will support GPs in the re-provisioning of General Practice IT and the development of these clinical systems thereafter.
- We will increasingly mature our electronic records across health and social care, ensuring they are intuitive and safe to use.
- As new requirements for electronic records emerge we will aim to meet those requirements by development of existing applications whenever possible.
- When procuring new solutions we will follow the 'Once for Scotland' principle when appropriate. This will mean collaborating with other boards to design national systems and initiatives.
- Regional systems will be prioritised where national solutions are not available.
- We will only pursue a local approach when no viable alternatives are available.
- When procuring new systems we will prioritise safety, usability and compatibility with the national data stores, regional systems and relevant local systems.

² <https://www.himss-uk.org/analytics/emram>



Analytics

Health and Care organisations generate vast amounts of data on a daily basis. Although some of this is used, for example for national reporting, we have barely scratched the surface of the possibilities. Much data is still recorded in ways which make it hard to analyse and where data is analysed it is rarely on a real-time basis.

If we can increase the amount of data that is available for study then this will increase our ability to improve health outcomes.

Examples

NHS Grampian and the University of Aberdeen lead some of the first UK evaluations of real time eAlerts for detection of Acute Kidney Injury and now are developing predictive analytics to identify patients at risk of deterioration after discharge.

As part of the coronavirus pandemic response we introduced displays showing real-time data on patient movements and ventilator use. These displays are used by operational teams for planning and to support care quality.

Our strategy is to exploit data to provide benefits to patients and staff.

- We will introduce real-time analytics, pulling data from electronic records and logistics systems as required. Some of this data will be accessed from Real Time Command Centres - physical locations displaying real-time data on patient flows and activity.
- We will develop and implement greater use of predictive analytics, which can identify patients at risk of deterioration; enabling early intervention and preventing harm.

Automation and Augmented Intelligence

The rise in demand, with no increase in the health and care workforce means that we will have to automate processes wherever possible. Software will make it easier for clinicians to make the right decisions, allowing faster and more accurate processing of test results and imaging.

An example

NHS Grampian and University of Aberdeen have been partners in iCAIRD – the Industrial Centre for Artificial Intelligence Research in Digital Diagnostics. This aims to accelerate the diagnosis of a range of conditions, supporting a local innovation culture and enabling partnership between patients, clinical staff, academia and industry to drive the critical step change in diagnostics

Our strategy is to gain benefits for patients and staff from increased adoption of Automation, Robotics and Augmented Intelligence.

- We will adopt the recommendations of the national review of Clinical Decision Support. This involves the creation of decision support systems linked to our electronic records.
- We will safely implement and support automation components of Microsoft 365, where appropriate.
- Working with others we are developing an AI Strategy for the North of Scotland which will come up with a range of recommendations.

Workforce and business systems

A wide range of business processes support the smooth running of health and care activities. These include workforce systems such as rostering, Human Resources (eESS), Occupational Health Services, payroll, job planning, revalidation, recruitment, learning and appraisal.

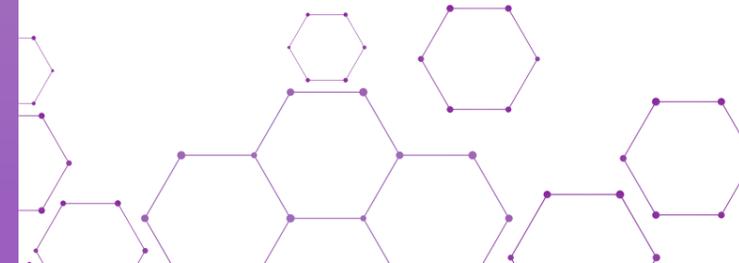
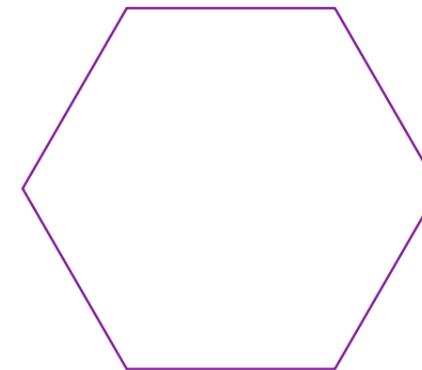
Logistics systems ensure the right person or object is in the right place at the right time.

Example

NHS Grampian has introduced a task management system for porters, allowing staff to work more effectively.

Our strategy is to modernise workforce and business systems to optimise the support they can provide to staff. Some of these systems are now being developed and /or procured on a national basis e.g. eRostering

- Logistics systems will be adopted for all staff who need them, whether clinical, support or administrative.
- Use of productivity and collaboration tools such as Microsoft 365 will facilitate easier data sharing within and across organisations, allow non-clinical and clinical teams to organise in new ways – improving the visibility of projects and breaking down barriers.



3. Infrastructure, Cybersecurity and Information Governance

Electronic information systems need to be underpinned by reliable hardware, network infrastructure and Information Governance. Data also needs to be accessible to all who have a legitimate reason to see it.

Information Governance

- Information and data is fundamental to health and social care in Grampian, whether as part of the medico-legal record of individual care or where used for the successful operation and management of the system.
- Information Governance provides the framework for the proper management of data and information as a resource and supports the Grampian health and social care system's compliance with information legislation. It is a key enabling function within the Health Board, GP practices and the wider system, recognising that strategic and operational change throughout the system's portfolios relies on information and data. It is a genuinely system-wide function; information and data is used in all activity by the Board and its partners.
- The proper management of information is fundamental to patient, staff and stakeholder trust in the system. As with other assurance functions such as clinical governance, the appropriate and proportionate use of information underpins system activity in the context of 'doing no harm'. It is essential that the Board and its partners understand and acknowledge the significance of the data processed further to their functions and operations and the potential detriment to individuals that could arise from its misuse. 'People' are at the core of NHS Grampian's strategic 'Plan for the Future 2022-2025' and the Information Governance Function is essential to the realisation of person-centred approaches to information.

The vision for Information Governance is that information and data is:

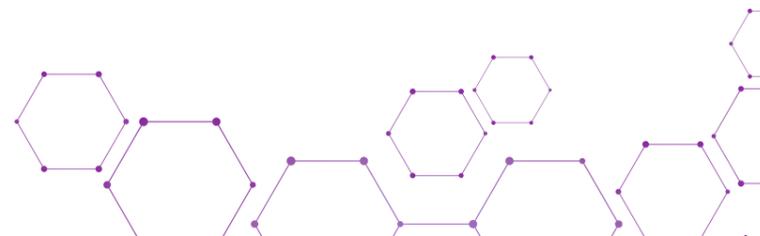
- Available to those professionals and colleagues who require it to deliver services;
- Accessible to our patients and stakeholders;
- Appropriate to the audiences to whom it is disclosed or shared with;
- Secure, recognising the significance of the information with which the system has been trusted;
- Managed to ensure proper retention, use and disposition;
- Compliant with information rights laws.
- This vision is system-wide and not restricted to any particular service or sector. It is endorsed by Chief Executive's Team and fundamental to system leadership and operation. In realising this vision Information Governance will be a key enabling function for positive system change.

Work in this area will include

- Building on the recommendations of the National IG Review, we will help create and then adopt standard national and regional approaches wherever possible.
- We will establish a new process to ensure that the requirements for data protection and data sharing are balanced and carefully documented.
- We will create an easier way for people making Subject Access Requests to receive their data.

Clinical Safety in IT implementations

The goal of IT implementations is to improve the quality of care and safety. However, this does not happen automatically and any new initiative can introduce new risks. In 2022 NHS Grampian was a lead board in the area of IT-related patient safety incident reporting. We will build on this work by appointing a lead Clinical Safety Officer for the organisation and by providing appropriate training for specialist staff.



Cybersecurity

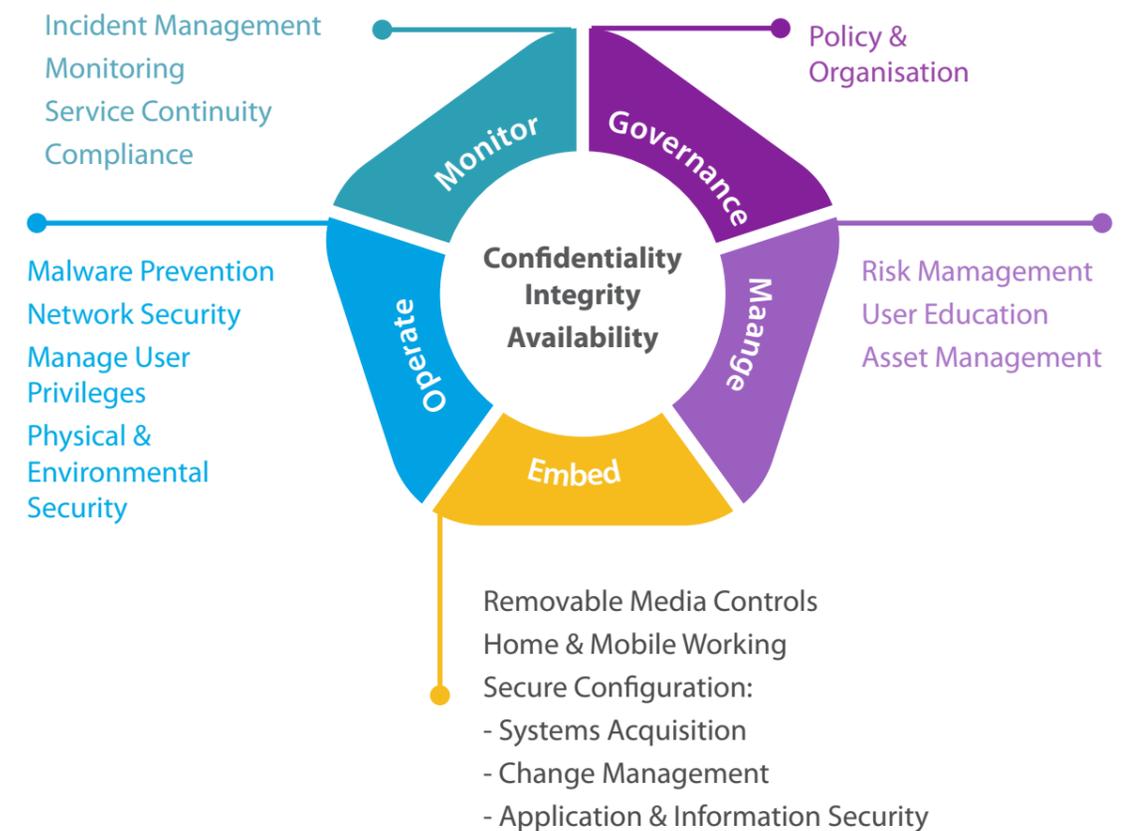
As health and care is increasingly digitised we need to ensure we have technology and processes in place to mitigate cybersecurity risks that arise internally or externally. A risk that becomes an incident can prevent access to information, cause reputational damage, lead to financial penalties and make future information sharing projects less likely to be approved.

The Cybersecurity Framework is our strategy to embed Information Security into our organisation and reduce our risk exposure.

- We will align policy to industry standard bodies, such as Network & Information Systems (NIS) Directive and GDPR (General Data Protection Regulation).
- We will ensure that all products or services adhere to Information Security Policy and NHS national Technical standards.
- We will inventory and patch all IT hardware and software with latest versions to address high risk vulnerabilities.
- We will perform proactive Threat Intelligence to update all IT operational defensive measures.
- We will ensure that IT security is at the core of all investment choices protecting both our infrastructure, business and clinical data by adhering to standards in the areas of data protection and cyber security.
- We will maintain an inventory of all network connected devices. This extends to medical devices, including the associated cyber security risk profile gathered as part of the global equipment register initiative.
- We will provide training, education and raise awareness of cybersecurity across the workforce – promoting a culture of cybersecurity and safety.
- We will work alongside national Cybersecurity colleagues, in particular the Cybersecurity Operations Centre (SOC), in the protection of critical Board and national infrastructure.



The following diagram represents the NHS Grampian Cybersecurity Framework.



Information availability and durability

Whether or not a citizen or member of staff can access the information they require depends on a number of factors including training, completion of the necessary Information Governance and Cybersecurity processes, device availability (e.g. tablet/laptop), network access and software support. For information Governance, we need to make sure that all these areas are considered. Our strategy is that staff will have access to the information they need to provide the best care to their patients/clients. This applies whether they are a hospital clinician, a social care practitioner or a non-GP contractor, such as an optometrist. We will ensure that citizens have access to the information they need in an appropriate format, for example via NHS Inform or via the Digital Front Door.

- Appropriate levels of support will be available at times and places that health and social care staff work. This may involve increasing support for business-critical systems at nights and weekends, which might require a change to existing arrangements.
- Digital solution design will aim to maximise availability and incorporate business continuity requirements.
 - In scenarios where the local network is down, access to core electronic record functions will be enabled where it is technically achievable. For example, a copy of prescribing and drug administration data can be stored on a local computer in case of disruption causing no access to the cloud based HEPMA solution.
 - This does not replace the need for the completion, review and testing of business continuity plans for each service area. Service area plans may need to include reliance on paper based systems for short periods until solutions for electronic alternatives are available.
- Sufficient hardware will be provided for health and social care staff to access records wherever administration is undertaken or care is delivered – wards, clinics and community. Additional funding will be required for this in many cases.
- A remote access solution was implemented as part of the coronavirus response – enabling secure system access from a staff member’s personal laptop/PC. This will be extended to those that require it.
- Self-service support will be established and increased where possible – e.g. for password resets; account lockouts; greater access to online help and training.
- We will explore opportunities for regional collaboration with support staff in other boards.

Underpinning infrastructure

NHS Grampian operates a secure and resilient IT infrastructure split between two data centres built with business continuity and disaster recovery in mind. This infrastructure provides services to 18,000 employees using 17,000 devices in 120 locations across hospital and primary care. This comprises 7 Acute hospitals, 11 community hospitals, 70 independent GP practices and numerous other contractors including Dental, Optometry and Pharmacy.

As digital technology supports an increasing range of services, the importance of our IT infrastructure will only increase.

We anticipate a “cloud-appropriate” approach to the deployment of infrastructure to support local, regional and national initiatives. This will include the North of Scotland HEPMA, Microsoft 365, GP IT and the National Digital Platform.

A cloud-appropriate approach offers a number of advantages relating to Efficiency, Security, Flexibility, Mobility, Increased Collaboration, Disaster Recovery and Control. Procuring and using Application, Platform and Infrastructure as a service will enable transition away from on-premise based systems located within NHS Grampian data centres. A hybrid mix of on premise data centre and cloud computing will persist in the medium term.

Digital Estate - NHS Grampian is working towards supporting the creation of a modern and digitised healthcare estate with a golden thread of information stretching across the entire portfolio of built assets.

This includes the adoption of a Building Information Modelling (BIM) strategy in refurbishment and new build projects which will help create a smarter built environment that will support the delivery of patient services through more efficient ways of working and the use of data analytics to enhance the ongoing operational effectiveness of facilities.

Our strategy supports the national technology delivery plan and we will seek to:

- Help develop a sustainable workforce by delivering a mobile device strategy improving both the user experience and patient care in a secure manner.
- Ensure continued resilience is factored into the core infrastructure and able to meet critical business continuity and disaster recovery requirements.



4. Resourcing the Strategy

Successful implementation of this strategy will require new investment.

Plan for the Future is heavily reliant on effective digitalisation of health and social care. This long and complex series of projects requires sponsorship at the highest level if it is to be a success.

Some digitally-enabled service transformation projects will involve entirely new systems and major change programmes. Examples include hospital ePrescribing (HEPMA), vital signs tracking, new image management systems and the move to adopt more citizen-staff communication approaches such as Connect Me. Other projects will involve gaining more value from existing investments. Examples of this include connecting more data sources to TrakCare and consolidation image management around a few core systems.

The level of investment required will therefore vary significantly between projects in the different programme areas. In all cases it will be essential to adequately resource the non-technical aspects of implementation, such as training and support, as these are key determinants of success or failure.

Where investment is required, funding options at a local, regional, or national level can be evaluated.

The business case for each project will include a description of the strategic, clinical and financial case. Each business case will also include an indication of the metrics by which any potentially realisable benefits could be measured.

Financial savings arising from redesigned and automated services can be re-invested to support further digitally-enabled service transformation.

Risks

Implementing this strategy will require collaborations that bridge normal departmental and sector boundaries; that is almost inevitable when services are being redesigned. The bulk of the work involved is likely to be change management rather than the development of new technologies, it is vital that this area is not neglected, and it needs to be led from the top.

Departments will need to allocate time to service redesign. Without this, the provision of new technology will not necessarily result in improved services.

While new technologies are introduced, existing ones will continue to need support until they are superseded. Without corresponding expansion of support services, there's a risk of loss of service availability.

Laying the foundations for a digital future

NHS Grampian will adopt a nimble approach to implementing new technology by:

1. Adopting a Digital by Design principle when developing or transforming services.
2. Building capacity to manage technology projects smoothly
3. Ensuring appropriate organisational prioritisation
4. Resourcing project management
5. Adopting a risk-based approach to Information Governance and cyber security
6. Enabling cost-effective access to IT infrastructure.





Section 3 – Evaluating the Implementation of the Strategy

Evaluation and benefits realisation

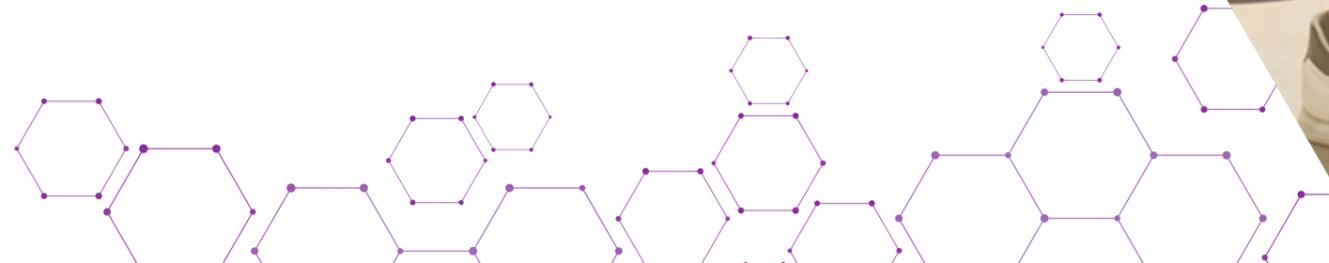
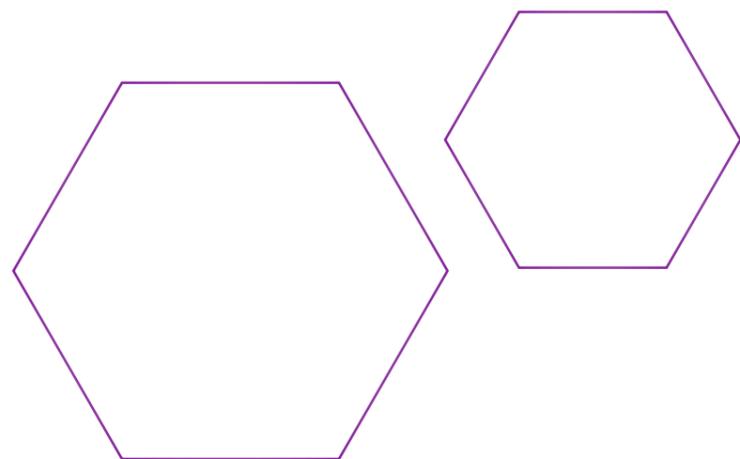
This strategy is a key enabler of Plan for the Future. If implemented, it will see the investment of millions of pounds and will alter the lives of 500,000 people.

Embedding evaluation and benefits realisation, as a core strand in the digital health care strategy, will support safe, efficient and effective change in a complex system.

In the 2020 strategy, there was a proposal for a formative evaluation of the strategy's implementation. This has been challenging to deliver, largely due to cost constraints.

2023 will see a repeat of the national Digital Maturity Assessment which will benchmark Grampian against an agreed standard and against other organisations. The 2019 assessment had shown that we were performing well compared to organisations of our size, but that we lagged behind the largest health boards due to the economy of scale.

The authors of this strategy recommend that further evaluations should take place, ideally structured around the overall transformation goals of NHS Grampian and partners. Discussions are ongoing about the options



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Section 4 – The Consultation Process

The 2020 version of this strategy was developed by a Digital Health & Care Strategy Group, comprising a group of senior leaders, clinicians, management and citizens.

Membership of the Digital Health & Care Strategy Group Chaired by Mr Paul Allen (Director of Infrastructure & Sustainability)

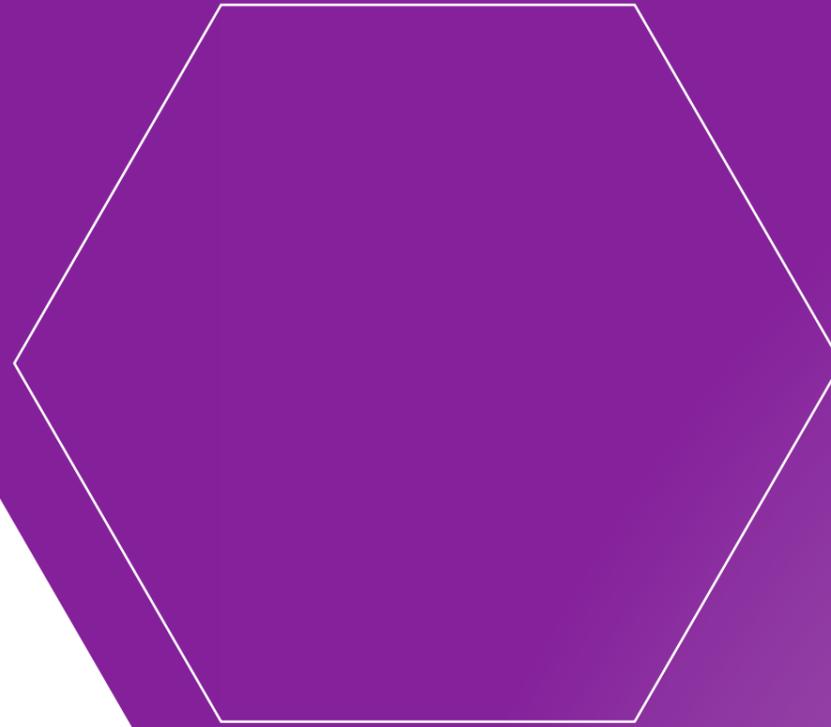
SLT/Executive Lead Director of Modernisation Non-Executive Board Member Deputy Director of Modernisation Executive Nurse Director General Manager of eHealth Clinical Director of eHealth Clinical Lead for the TrakCare programme	HSCP Chief Officers Local Authority Digital Leads Acute Medical Director Senior Information Risk Owner Deputy Medical Director Employee Director Head of Information Governance Head of Mental Health & Learning Disabilities	Head of Health Intelligence Clinical Leads for Innovation Primary Care GP Sub Representatives Deputy Director of Finance Head of Workforce & Development Clinical Director Medical Physics Director of Pharmacy Patient Public Representatives
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Consultation on the previous version of the strategy has included many individuals and groups. The strategy development team is very grateful for everyone who took time to contribute.

- The Equality and Diversity team
- Patient involvement on the strategy development group.
- A stall at the Health & Social Care Alliance 'Discover Digital' event in Aberdeen, October 2019
- Presenting to the advisory structure of NHS Grampian:
 - GP sub-committee – October 2019
 - Consultants sub-committee – October 2019
 - Grampian Area Partnership Forum – February 2020
 - The Area Clinical Forum – January 2020
 - Board Seminar – March 2020
- Presenting to the Aberdeen City Health & Social Care Digital event, October 2019
- An electronic survey seeking feedback from citizens which was run during October 2019.
- A workshop with Police Youth Volunteers in Elgin - March 2020

This 2022 refresh of the strategy has been developed by members of the Digital Delivery Transformation Group, comprising a broad membership across NHS and HSCPs.





Appendix



Political, Economic, Social, Technological, Legal and Environmental drivers for change

There are many factors driving increased adoption of digital technology in health and care.

1. Political factors

The overarching policy document is the 2016 Health and Social Care Delivery Plan. This describes a future where people will be supported to be active and independent in their communities. Digital Health is described as a cross-cutting enabler: “Digital technology is key to transforming health and social care services so that care can become more person-centred.” Plus “Everyone will have online access to a summary of their Electronic Patient Record and digital technology will underpin and transform the delivery of services across the health and social care system.”

Other political or organisational drivers

NHS Grampian’s Plan for the Future - published autumn 2022.

Scotland’s Digital Health & Care Strategy 2018-2023 proposed collaborative work across six domains to maximise the benefits that digital could bring to health and care.

NHS Grampian’s Clinical Strategy 2016-2021 highlighted four connected themes: Prevention, Self-Management, Planned Care and Unscheduled Care. The strategy identified a number of enablers that would create a conducive environment in which these themes could be developed.

The **Strategic Plan** of each Health and Social Care Partnership in Grampian identifies digital technology as a key enabler of service transformation and effective resource use.

The Aberdeen City HSCP Strategic Plan says “We aspire to reach a point when digital services are an integral part of everything we do and have become not only the first point of contact with health and care services for many people but also how they will choose to continue to engage with us.”

The table shows some of the overlap between these aspirations.



National Digital Health & Care Strategy	Regional or National Collaborative Priorities	Grampian Clinical Strategy Enablers	HSCP Strategic Priorities
National Direction and Leadership The delivery of this strategy is directed by a national decision making board made up of executive representatives of the Scottish Government, Local Government and the NHS – Digital Health and Care Strategic Portfolio Board supported by a cross-sector Digital Citizen Delivery Board, a Data Board, and an Enabling Technology Board,	Collaboration with national boards – SAS, NES, NHS24		
Information Governance and CyberSecurity Invest in information governance (IG) and cyber skills across our entire workforce by developing appropriate tools and training resources.	Information Governance Cybersecurity	Information Sharing across the system	
Service Transformation “A clear national approach to supporting... co-designed service transformation.” To achieve benefits for people and staff.	Telehealth & Care Digitally-assisted self-management. Radiology Transformation. Rural broadband availability.	Promoting staff health and wellbeing. Developing our Workforce. Collaborative working and networking. Shifting from unscheduled to planned to self-managed to prevented.	Spread and adoption at scale of proven digital Technology Enabled Care: <ul style="list-style-type: none"> • Home and Mobile Health monitoring • Phone and video Consultation Capture service redesign opportunities offered by digital telecare
National Digital Platform Making real time data from health and care records available to those who need it.	Electronic health & care records		
Transition Process An assessment of digital maturity across the country. Working with eHealth, NSS and COSLA to manage the transition to a new technical environment that’s compatible with the National Digital Platform.	Business Systems workstream – digital as usual.	Continuous improvement	Transition from analogue to digital telecare Assess and monitor our digital maturity as part of a national process

2. Economic factors

There is a need to shift the economic balance of North East Scotland away from Oil & Gas related industries. Lifesciences, including health data science, have been highlighted as an area of development.

The National Digital Health & Care Strategy includes the vision “digital technology and data will be used appropriately and innovatively to enable research and economic development”

3. Social factors

Citizens

People are increasingly using digital technology to complete everyday transactions, enrich their lives and increase their autonomy. Access to information and services around the clock are things that are taken for granted in many industrial sectors such as finance, retail, entertainment and travel.

Although generic information on health and care is widely accessible, the information that a citizen can access about their own health and care situation remains limited. The ability to transact with the sector (e.g. request or manage services such as prescriptions, consultations, investigations) is at a very immature stage compared to other industries.

Increasingly citizens expect that businesses will offer digital access to information and services and some become frustrated that this is often not possible from public health and care organisations.

Facilitating access to information can support self-management, increase autonomy and potentially improve outcomes, with additional benefits for healthcare staff and organisations.

The workforce environment and the expectations of staff

Workforce development is a major challenge for Scottish Health & Care organisations, particularly those in the North of Scotland. Many vacancies remain unfilled and clinical staff are under greater pressure as the needs of patients become ever more complex. Access to information and digital tools can potentially help to improve the working lives of staff by reducing frustration and increasing efficiency.

During the coronavirus pandemic digital technology can play an important role in reducing the risk that staff acquire or transmit the virus through their interactions with other staff members or with patients.

While digital technology has made some tasks easier for staff, there remains much frustration and many missed opportunities. For example, although the community is the default place for care to be delivered and is the centre of our health strategy, non-GP community workers, whether NHS or other contractors often have the lowest level of access to computers, electronic records or basic digital technology such as mobile phones.

The policy of creating new Community Treatment and Care Services and Community Investigation Hubs will require novel care pathways for investigations and results which will only be possible through the use of digital technology.

More generally, despite some advances, information often remains in silos and inaccessible to those that need it. The basic, essential technology, such as label printing software, is unsupported at the times that we expect our staff to be working.

4. Technological factors

The cost of state-of-the-art Information technology remains relatively constant while its capabilities continue to increase. The pace of development is rapid and it is hard to predict what technologies will be in common usage in the late 2020s. However, current trends suggest that citizens will have access to an increasing number of digital technologies to support their self-management of long-term conditions.

Networks of environmental sensors, point-of-care testing and genetic analysis will capture ever more data about citizens and our world; with cloud storage as its most likely home. Augmented intelligence will play a greater role in the delivery and support of healthcare through machine learning and the use of autonomous devices; perhaps for phlebotomy and transport.

5. Legal factors

The main themes here are compliance with data protection and cyber security legislation. The General Data Protection Regulation needs to become embedded in our practice, as will the Medical Devices Regulations and Network. This will require:

- Development of relevant policies and service management processes
- Managed by appropriately skilled IT staffing
- With focus on our culture to promote good practice to minimise events such as privacy breaches or cybersecurity incidents.

These drivers need to be balanced with the key Caldicott principles to ensure health and care information is used ethically, legally and appropriately.

6. Environmental factors

The Scottish Government placed climate change at the centre of its Programme for Government for 2019-20. Digital Health & Care has a major role to play here – reducing travel through telemedicine and cloud computing, reducing the size of buildings by removing paper record stores, and even heating buildings using the waste heat from data centres.

