

eHealth Strategy 2014-2017

Cabinet Secretary's Foreword



The Scottish Government's Vision is that by 2020 everyone is able to live longer, healthier lives at home or in a homely setting. NHSScotland is engaged in a continual process to improve healthcare services so it can be recognised by the people of Scotland, and wider afield, as one of the best healthcare systems in the world.

We have a related 2020 eHealth Vision that everyone's health and wellbeing can be better supported through greater use of digital technology. eHealth is the key to how we access, use and share information within and across NHS Boards and with partner organisations in order to deliver integrated health and social care; how we support patients and their carers to make informed decisions to manage their health and wellbeing; and how we use health data appropriately to improve the effectiveness of services and treatment and make significant advances in medical research.

Since 2011, and the publication of the second eHealth Strategy, much has been achieved. This includes the widespread implementation of the national Patient Management System across Scotland's hospitals, the implementation in all GP practices of the award-winning Key Information Summary for patients with long-term conditions who are likely to require care at weekends or out-of-hours, and the adoption of clinical portals by NHS Boards to enable improved information sharing between clinical professionals. This has been achieved through collaboration and collective leadership at local, regional and national levels.

But eHealth has even greater potential to enable service change, and this is reflected in this refresh of NHSScotland's eHealth Strategy. The existing six eHealth aims have been retained, together with a new aim relating to innovation. These aims have been the pillars of successful delivery over the last three years and they will guide development over the period to 2020. In summary, they are: enhancing the availability of patient information; supporting people to communicate with NHSScotland; contributing to care integration; improving the safety of medicines; enhancing the availability of clinical and management information; maximising efficient working practices; and contributing to innovation. The new aim is specifically intended to increase academia's and industry's contribution to developing new and innovative solutions in health and care, and to grow Scotland's economy in health and care technology.

The period to 2017 is the focus of this eHealth Strategy, and in that time I expect that considerable progress will be made across Scotland in all of these areas. By 2020 I anticipate that eHealth will be making a truly transformational contribution to the way health and care professionals work and to how patients access safer, more person-centred and more effective health and care services. This refresh provides NHS Boards with the next chapter to continue their journey of collaboration to deliver joined-up eHealth solutions that are focused on patients and their needs, regardless of where they come into contact with NHSScotland and the wider health and social care system.

Whilst this Strategy sets a shared vision and direction, it will be successful delivery of key local, regional and national projects over the next few years that will ultimately resolve the many complex challenges, provide sustainable eHealth solutions, and result in benefits for patients and staff. I recognise that past success in eHealth in Scotland is due in no small part to the many eHealth professionals who keep current systems working effectively whilst delivering critical new capability, and also to the many health and social care workers who champion eHealth as a means of improving their own effectiveness and hence delivering better outcomes for patients.

I welcome and appreciate the leadership, commitment and effort shown by this community which will be crucial to the delivery of this eHealth Strategy and ultimately the 2020 Vision of health and care in Scotland.

A handwritten signature in black ink, appearing to read 'Shona Robison', written in a cursive style.

SHONA ROBISON
Cabinet Secretary for Health, Wellbeing and Sport

Contents

1	Executive Summary	1
2	Introduction	6
3	Public Policy and the eHealth Vision	8
4	eHealth Progress, Challenges and Priorities	17
5	eHealth Strategic Programme	23
6	Governance and Delivery	43
7	Appendix 1: Summary of eHealth Aims and Strategic Responses	52
8	Appendix 2: Roadmap	58
9	Appendix 3: Views of Clinicians	61

1 Executive Summary

The 2011–2017 eHealth Strategy¹ included a commitment to undertake a review and refresh of that document in 2014. During the period since 2011 there have been significant developments. The Scottish Government's 2020 Vision now provides the key context for health services and for implementation of the Healthcare Quality Strategy². Together they set the strategic narrative for NHSScotland and for eHealth. In addition, the publication of Scotland's Digital Future: Delivery of Public Services³ has set out a collaborative public sector approach to ICT and a focus on the needs of citizens. More recent developments have increased the emphasis placed on health and social care integration.

This document is the refreshed 2014–2017 eHealth Strategy. It reflects developments since 2011 and includes a perspective out to 2020. Not unexpectedly, it retains a significant focus on healthcare and the needs of NHSScotland. However, it is important to note that the strategic direction in Scotland is towards the provision of integrated health and social care, and this will be reflected in the future development of eHealth. Associated with this will be a further shift in focus from the internal needs of NHSScotland towards joint requirements with local government and third sector partners, and, in particular, the expectations and requirements of citizens and patients for electronic information and digital services.

NHSScotland has made significant progress on developing an interoperable and clinically rich eHealth ecosystem, covering local and national needs, by taking an incremental and pragmatic approach which makes best use of historic investments, while focusing on developments that directly support safe, person-centred and effective health and care. The current position compares well with similar health systems and has been delivered at reasonable cost. Whilst these achievements are substantial, there remain significant challenges and opportunities for eHealth over the coming period. These challenges include:

- reducing variation in infrastructure and applications, and maintaining the resilience of systems that now need to be available 24/7/365;
- ensuring the availability of funding for replacement and modernisation of existing systems;
- filling gaps in electronic information coverage and systems integration (the most significant being community systems and HEPMA);
- providing citizens with the means to access their health and care information, and utilise secure interfaces between consumer health and care products / tools and core health and care information systems;
- building greater capability for clinical and business intelligence;

¹ <http://www.scotland.gov.uk/Publications/2011/09/09103110/0>

² <http://www.scotland.gov.uk/Topics/Health/Policy/2020-Vision/Quality-Strategy>

³ <http://www.scotland.gov.uk/Publications/2012/09/6272/downloads>

- further developing information governance so as to balance the need to protect the confidentiality of patient information with the need to share information in order to provide integrated care.

These challenges and opportunities make on-going investment and support for eHealth essential, although, it has to be recognised that NHSScotland remains subject to significant financial pressures and other demands for its resources.

This eHealth Strategy is supported by a separate eHealth Finance Strategy and an eHealth Technical Strategy, and the various delivery programmes are set out in an eHealth Business Plan. These will form the basis for national and local work with the NHS Boards to ensure affordable eHealth plans that focus on the strategic priorities and are cognisant of the need to deliver operational efficiencies that can help to alleviate the pressures on service delivery.

The eHealth Vision

The revised vision for eHealth in Scotland is shown below.

The eHealth Vision

By 2020 eHealth in Scotland will:

- Enable information sharing and communications that facilitate integrated health and social care across all settings from the patient's home to the hospital.
- Provide information processing, analysis and intelligence that supports and complements the work of health and social care professionals and improves the safety and quality of care.
- Support people to manage their own health and wellbeing and live longer, healthier lives at home or in a community setting.
- Contribute to a partnership between the Scottish Government, NHSScotland, the research sector and industry to enable Scotland to be a long term leader in digitally enabled care.

The eHealth Aims

A set of six eHealth Aims were developed as part of the 2011 eHealth Strategy. These remain appropriate for the next period of eHealth development and, together with a seventh aim specifically in relation to innovation, are consistent with the 2020 Vision. These aims, which reflect the business and clinical needs of NHSScotland, are shown overleaf.

The eHealth Aims

1. To enhance the availability of appropriate information for healthcare workers and the tools to use and communicate that information effectively to improve quality.
2. To support people to communicate with NHSScotland, manage their own health and wellbeing, and to become more active participants in the care and services they receive.
3. To contribute to care integration and to support people with long term conditions.
4. To improve the safety of people taking medicines and their effective use.
5. To provide clinical and other managers across the health and social care spectrum with the timely management information they need to inform their decisions on service quality, performance and delivery.
6. To maximise efficient working practices, minimise wasteful variation, bring about measurable savings and ensure value for money.
7. To contribute to innovation occurring through the Health Innovation Partnerships, the research community and suppliers, including the small and medium enterprise (SME) sector.

eHealth Outcomes

Achievement of the 2020 Vision for eHealth is expected to result in substantial benefits for citizens, patients and health and social care staff as follows.

Citizens and Patients, in addition to their face-to-face care, will be able to:

- use a patient portal to access their own **Personal Health Record** and make their own contributions to the record;

- have structured access to information about prevention, managing their health and the availability of relevant health services, and a route to access peer and community support, for example as currently being trialled through the Living it Up programme;
- order repeat prescriptions and book appointments online and use secure two way electronic communication with their health and social care providers to receive information, make enquiries and track their care arrangements;
- access a portfolio of proven technology enabled solutions, such as home health monitoring, tailored to match individual patient's condition(s) and circumstances. This will enable them to undertake a much larger role in managing their own health care.

Clinicians, Social Care Staff and other third sector partners will be able to:

- quickly access at the point of care an **Electronic Patient Record** that provides the information that they need to make their contribution to the patient's care within the context of the wider health and social care team;
- electronically record their findings, and share these with the rest of the care team, and quickly and easily initiate care processes, such as investigations, referrals, and treatments, and generate clinical correspondence. Workflow will co-ordinate the inputs of other staff and monitor the patient's progress;
- have quick and easy access to increasing amounts of clinical guidance and decision support that is relevant to the specific patient context, including highlighting any substantial variation from expectations, and generating appropriate prompts and alerts.

Managers, Planners and Researchers will have:

- better access to appropriately anonymised and summarised data, arising from the myriad of patient contacts taking place across NHSScotland, that will enable individual and teams of clinicians to analyse, better understand and improve their clinical practice;
- support from immediate information that enables them to take operational decisions on an hour-to-hour and day-to-day basis that can improve patient flow and the management of outpatient, inpatient and community services;
- a greater capacity to analyse and understand specific patient populations, whether by geography, age group or condition(s), and undertake risk stratification and predictive analytics that can inform prevention measures and early intervention with a view to improving health and reducing unplanned admissions.

As a result of the above, eHealth will contribute towards a continuing **shift of the location of care** along the spectrum from acute hospitals towards the patient's own home, with eHealth support for community health and social care teams and capabilities to support self-management such as **remote monitoring and teleconferencing**. eHealth will enable care and treatment to be more **personalised and continuous**. People will be **healthier for longer** and when they have health problems these will be **predicted and managed more effectively and more efficiently**, benefitting not only the patient but also the **overall sustainability and total capacity of the health system**.

A more structured summary of the eHealth Aims and the key Strategic Responses is provided in Appendix 1 and a Roadmap for key eHealth developments is provided in Appendix 2.

2 Introduction

2.1 Background

eHealth is defined as the use of information, computers and telecommunications (ICT) to meet the needs of individuals and improve the health of citizens. It covers the electronic information recorded and shared between individuals and healthcare providers, peer-to-peer communication between individuals and/or healthcare professionals, and organisation-to-organisation transmission and sharing of information. eHealth is also the overarching term that encompasses other disciplines such as Telehealth and Telecare, Telemedicine, Digital Health, Mobile Health and Health Informatics. The term eHealth has been retained for the purposes of this document. However, it is important to note that the strategic direction in Scotland is towards the provision of integrated health and social care, and this will be reflected in the future development of eHealth. Associated with this will be a shift in focus from the internal needs of NHSScotland towards joint requirements with local government and third sector partners, and, in particular, two-way electronic communication and information sharing with citizens and patients.

The 2011–2017 eHealth Strategy⁴ included a commitment to undertake a review and refresh of that document in 2014, including the identification of new deliverables. This document is the refreshed 2011 – 2017 Strategy. Whilst there is clear continuity between the two documents, this document has been renamed the eHealth Strategy 2014-2017 in order to avoid any confusion.

2.2 Document Purpose and Role

Healthcare and eHealth are delivered across Scotland by the 14 geographic NHS Boards, the six special NHS Boards and two public bodies (NHS National Services Scotland and Healthcare Improvement Scotland). Increasingly they work in partnership with local authorities and the third sector, in particular through the Health and Social Care Partnerships.

This document is a national eHealth Strategy for Scotland and its primary purpose, therefore, is to set a national direction through a common vision and set of key aims. The Strategy will be delivered through an appropriate mix of national, regional and local initiatives and developments that should be appropriate to the circumstances of individual NHS Boards. However, the Strategy also has a role to help ensure that wherever possible unnecessary duplication and variation are avoided, and to highlight that patient pathways often transcend organisational divisions and NHS Board boundaries, which requires interoperability of systems to enable sharing of information. Current and future developments should contribute to coherent longer term outcomes that are person-centred, benefit patients and clinicians, and provide value for money. In summary this document is intended to:

- provide a brief overview of the context for eHealth, the current circumstances in Scotland and the key challenges and opportunities;

⁴ <http://www.scotland.gov.uk/Publications/2011/09/09103110/0>

- describe the high level aims for eHealth over the short (3 years to 2017) and medium (6 years to 2020) terms with some cognisance of possible developments beyond these periods;
- set out a high level programme of activities and developments, including governance and working arrangements, for how eHealth in Scotland will be taken forward.

This refreshed eHealth Strategy has been developed through consultation with stakeholders and work with key governance groups, in particular the eHealth Leads Group, the national Clinical Change Leadership Group (CCLG), and the eHealth Strategy Board. As such, it is a strategy that has been agreed with NHSScotland. It is not a top-down mandated set of tasks, but an agreed direction and set of goals. The primary audience is intended to be clinicians, senior managers, including Chief Executives and Chairs, and eHealth staff, but it is expected that the eHealth Strategy will be of interest to those organisations working directly in partnership with NHS Boards, the wider public sector and suppliers, and, not least, the public.

The eHealth Strategy and the separate eHealth Finance Strategy are the formal responsibility of the Head of eHealth Strategy and Policy within Scottish Government who will ensure they are subject to regular review and update. This will be facilitated through the development of a series of thematic papers on key strategic topics, which will form the basis for ongoing national debate about the current and future strategic direction, will identify interim deliverables, and ultimately will inform a new eHealth Strategy. However, delivery of the eHealth Strategy is a joint responsibility of the Scottish Government, the NHS Boards and other partners, both public and private.

Individual NHSScotland organisations will continue to have their own local eHealth delivery plans which will reflect national priorities and developments in the context of their own local circumstances, and the national Technical Strategies will be updated to reflect this eHealth Strategy.

3 Public Policy and the eHealth Vision

This section provides a brief overview of the public policy setting for eHealth, and sets out the eHealth Vision and Aims.

3.1 Public Sector Policy

In September 2011, the Scottish Government set out its response⁵ to the Christie Commission Report on the Future Delivery of Public Sector Services⁶. It stated a commitment to intensify public service reform based on:

- a decisive shift towards prevention;
- greater integration of public services at a local level driven by better partnership collaboration and effective local delivery;
- greater investment in the people who deliver services through enhanced workforce development and effective leadership;
- a sharp focus on improving performance, through greater transparency, innovation and use of digital technology.

Clearly, the commitment to digital technology affirmed the importance of eHealth. However, these proposals also gave rise to a requirement for eHealth to reflect integration with local government and third sector partners and, wherever possible, contribute towards the prevention agenda.

Alongside this the Government published its response⁷ to the McClelland Review of ICT Infrastructure in the Public Sector in Scotland⁸, where it highlighted the Review's recognition that *'the health service... is somewhat more advanced than the public sector in general in its adoption and deployment of ICT for enabling internal processes and in areas of service delivery'* and also that *'there is a strong track record of sharing ICT and other capability'*. In its response the Government restated its expectation of collaboration and more active deployment of ICT to support on-line provision of public services, to unlock further operational and delivery efficiencies, and to respond to demands from service users.

Scotland's Digital Future: Delivery of Public Services⁹ was published in 2012 and placed an emphasis on innovation in public service delivery. It promoted a "digital first" approach wherever possible, utilising digital technology to redesign existing services and enable better information access and online transactional services for

⁵ <http://www.scotland.gov.uk/Publications/2011/09/21104740/9>

⁶ <http://www.scotland.gov.uk/Publications/2011/06/27154527/0>

⁷ <http://www.scotland.gov.uk/Publications/2011/09/21103403/0>

⁸ <http://www.scotland.gov.uk/Publications/2011/06/15104329/20>

⁹ <http://www.scotland.gov.uk/Publications/2012/09/6272/downloads>

the public. National approaches and collaboration were proposed across a range of areas including governance structures, ICT procurement, data storage, information assurance and workforce development.

Since 2012, developments have taken place from which the eHealth programme will benefit including:

- development of the mygovscot portal infrastructure to simplify and better signpost access to public services information and online transactions;
- the Citizen Account structure and system (myaccount) to enable members of the public to verify their identity and register for online services;
- the cross public sector Scottish Wide Area Network (SWAN) contract for communications infrastructure. This is the first time such an all-embracing contract has been awarded in Scotland. As the major partner, NHSScotland led the procurement. SWAN will support sharing of services and integration within the public sector through providing SWAN users with common, shared Virtual Routing and Forwarding technology. The contract will also deliver significant financial savings;
- the Next Generation broadband programme which will provide both patients and mobile health and social care staff with improved coverage and data speeds to access eHealth systems;
- legislation to enable NHS National Services Scotland (NHS NSS) to provide technology and procurement services not just to NHSScotland but across the entire Scottish public sector.

In summary, digital delivery of services is front and centre in the Government's plans for developing and sustaining public services for citizens. Healthcare is recognised as a leading sector in both its current use of digital technology and its plans for future digital enhancement of services, and is encouraged to progress rapidly within an environment of cross public sector collaboration.

3.2 Health and Social Care Vision and Strategy

The Scottish Government's 2020 Vision¹⁰ sets the strategic narrative for the delivery and development of healthcare in Scotland:

Our 2020 Vision

Our vision is that by 2020 everyone is able to live longer healthier lives at home, or in a homely setting.

We will have a healthcare system where we have integrated health and social care, a focus on prevention, anticipation and supported self-management. When hospital treatment is required, and cannot be provided in a community setting, day case treatment will be the norm. Whatever the setting, care will be provided to the highest standards of quality and safety, with the person at the centre of all decisions. There will be a focus on ensuring that people get back into their home or community environment as soon as appropriate, with minimal risk of re-admission.

The 2020 Vision provides the current context for implementation of the Healthcare Quality Strategy for NHSScotland¹¹ which sets out the Quality Ambitions:

The Quality Ambitions

Mutually beneficial partnerships between patients, their families and those delivering healthcare services which respect individual needs and values and which demonstrate compassion, continuity, clear communication and shared decision making.

There will be no avoidable injury or harm to people from healthcare they receive, and an appropriate clean and safe environment will be provided for the delivery of healthcare services at all times.

The most appropriate treatments, interventions, support and services will be provided at the right time to everyone who will benefit, and wasteful or harmful variation will be eradicated.

¹⁰ <http://www.scotland.gov.uk/Topics/Health/Policy/2020-Vision/Strategic-Narrative>

¹¹ <http://www.scotland.gov.uk/Topics/Health/Policy/2020-Vision/Quality-Strategy>

Achievement of the 2020 Vision through delivery of the Healthcare Quality Strategy is brought together in the Route Map to the 2020 Vision for Health and Social Care¹². The route map describes the challenges facing NHSScotland over the next decade including:

- projections of the impact of demographic change on the volume of demand for health services suggest there might be an increase of 22% between 2012 and 2032 if healthy life expectancy does not change. For health and social care services the projected increase is 29%;
- a continuing shift in the pattern of disease towards long-term conditions, with growing numbers of people with multiple conditions and complex needs such as dementia;
- relatively little progress to date in addressing health inequalities in Scotland despite the effort undertaken.

A key development has been the focus on integrated service provision, which was a clear recommendation of the Christie Review¹³, both within NHSScotland and with social care and other service providers. The objective is the delivery of person-centred services, and implementation has been taken forward through the legal requirement for greater joint working between NHSScotland and Local Government¹⁴, manifested in the new Health and Social Care Partnerships, and enabling NHS National Services Scotland to service both parties. The Health and Social Care Partnerships are still in the early stages of their development. However, they will deliver revised models of care for patients with long term conditions as well as increasing management of acute patients by community staff with hospital outreach support. It is absolutely clear that integrated services can only be delivered in the context of shared information and clear communication.

Substantial work has been ongoing to enable this to be achieved in the context of the recommendation from the recent review chaired by Dame Fiona Caldicott¹⁵ that '*the duty to share information can be as important as the duty to protect patient confidentiality. Health and social care professionals should have the confidence to share information in the best interests of their patients*'. The results of this work are set out in the recent report from the Information Sharing Board¹⁶ and place a responsibility on eHealth to facilitate the required information sharing to enable service integration to be successful.

Other key initiatives supporting the 2020 Vision and the quality agenda include:

- Prescription for Excellence¹⁷ which describes a model of pharmacy care where pharmacists work in partnership with patients and health and social care

¹² <http://www.scotland.gov.uk/Topics/Health/Policy/Quality-Strategy/routemap2020vision>

¹³ [Commission on the Future Delivery of Public Services, 2011](#)

¹⁴ [Public Bodies \(Joint Working\) \(Scotland\) Bill, 2014](#)

¹⁵ [Information to Share or not to Share? The Information Governance Review, March 2013](#)

¹⁶ [Health and Care Information Sharing – A Strategic Framework 2014 - 2020](#)

¹⁷ [Prescription for Excellence](#)

professionals to obtain optimal outcomes with medicines and eliminate adverse events whenever possible;

- The National Telehealth and Telecare Delivery Plan for Scotland¹⁸ which sets out Scotland's approach to deploying these technologies to enable integrated health and social care.

Finally, in addition to the above challenges, there is no obvious or single endpoint to the improvement of health and social care. Technology will continue to drive both incremental and disruptive improvements leading to increasingly stratified and personalised healthcare through fields such as genetics, molecular pathology, immunology, sensors and robotics, and the analysis of complex data to evaluate outcomes and identify opportunities. This will be accompanied by changes in the organisation and delivery of care in multiple locations by larger, more highly trained teams of health and social care professionals. In turn this will place continuing demands on eHealth in relation to growing complexity of information recording, retrieval and display, decision and process support, and information analysis and governance.

3.3 The eHealth Vision

The role of eHealth is to support the achievement of the 2020 Vision and the Healthcare Quality Strategy. Indeed, eHealth is a key enabler for NHSScotland's Quality Strategy ambitions for safe, effective and person-centred health and social care. Consequently, it will be fundamental to delivering the 2020 Vision.

Primary and secondary care services depend more than ever on secure, resilient and reliable ICT systems. This dependency also reaches beyond NHSScotland as NHS Boards work in integrated partnerships with local authorities and the third sector. Health and social care workers require access to the right information, whenever and wherever they need it, to inform their decisions and ensure the best possible care is given to each individual. The move to seven day working will require NHSScotland to enhance its current infrastructure, and the associated support services, to provide much broader "always-on" capability.

Whilst much has already been achieved, the demands of delivering the 2020 Vision will require considerable further progress over the intervening period. In recognition of the crucial role of eHealth in delivering the 2020 Vision, the Scottish Parliament held a debate in March 2014 during which the following motion was endorsed.

¹⁸ <http://www.scotland.gov.uk/resource/0041/00411586.pdf>

Scottish Parliament Motion, March 2013

That the Parliament recognises that innovation through technology is vital in delivering Scotland's 2020 Vision for health and social care, whereby everyone is able to live longer, healthier lives at home or in a homely setting; considers that enhanced home-based monitoring services are instrumental in reducing levels of hospital readmission; acknowledges that digital healthcare should be a catalyst for people interacting with services and information online, building on examples such as the Key Information Summary and the internationally acclaimed Emergency Care Summary, and recognises that Scotland has a clear opportunity to be a leader in the growing global digital healthcare market, following the establishment of organisations such as the Digital Health Institute, welcomes innovations such as WardView, which can help to reduce the length of patient stays, improve patient safety and make more efficient use of clinicians' time; believes that technology will play an important role in meeting the challenges of the future, especially from the growing population of older people and the extra healthcare that they will need; further believes that Scotland should establish national-scale telehealth services, and would welcome the establishment of a specific HEAT target for NHS boards to mainstream the use of telehealth in the delivery of patient care.

As a result, a refreshed vision has been developed for eHealth that is consistent with the 2020 Vision for Health and Social Care, the Parliamentary Motion, and the Cabinet Secretary's subsequent commitment that patients will have access to their own **Personal Health Record** by 2020.

The eHealth Vision

By 2020 eHealth in Scotland will:

- Enable information sharing and communications that facilitate integrated health and social care across all settings from the patient's home to the hospital.
- Provide information processing, analysis and intelligence that supports and complements the work of health and social care professionals and improves the safety and quality of care.
- Support people to manage their own health and wellbeing and live longer, healthier lives at home or in a community setting.
- Contribute to a partnership between the Scottish Government, NHSScotland, the research sector and industry to enable Scotland to be a long term leader in digitally enabled care.

3.4 The eHealth Aims

A set of six eHealth Aims were developed as part of the 2011 eHealth Strategy. These remain appropriate for the next period of eHealth development and, together with a seventh aim specifically in relation to innovation, are consistent with NHSScotland's 2020 Vision.

The eHealth Aims

1. To enhance the availability of appropriate information for healthcare workers and the tools to use and communicate that information effectively to improve quality.
2. To support people to communicate with NHSScotland, manage their own health and wellbeing, and to become more active participants in the care and services they receive.
3. To contribute to care integration and to support people with long term conditions.
4. To improve the safety of people taking medicines and their effective use.
5. To provide clinical and other managers across the health and social care spectrum with the timely management information they need to inform their decisions on service quality, performance and delivery.
6. To maximise efficient working practices, minimise wasteful variation, bring about measurable savings and ensure value for money.
7. To contribute to innovation occurring through the Health Innovation Partnerships, the research community and suppliers, including the small and medium enterprise (SME) sector.

3.5 Achievement of the eHealth Vision and Aims

There is no doubt that eHealth has massive remaining potential to assist clinicians to do their job better and to provide citizens and patients with better information and services. To meet these demands eHealth will need to continue to address several complex areas:

1. **A focus on integrated person-centred information.** Data and information about any individual patient may reside in different NHSScotland organisations and in different systems. Together it comprises that patient's information which documents their health history over the course of their life and their current known health status. In principle, whenever and wherever (from the home to the hospital) a patient has an encounter with health and social care services this information should potentially be available to the health and social care practitioner and the patient. In practice all levels of detail may be unnecessary,

and indeed excessive, and accurate, up-to-date summary information will suffice, whilst viewing of some information may be restricted for reasons of privacy and confidentiality. However, the principle should be that organisational and system boundaries should not prevent person-centred care which requires integrated person-centred systems and management of information.

2. Many vital pieces of patient information are still held on paper which frequently makes them unavailable when needed. Patient information in digital form can be accessed immediately from multiple locations and reused without delay for multiple purposes, thereby greatly enhancing its value and its contribution to the quality of care. The ongoing process of **full digitisation of patient information must be completed**, with minimal resort to paper which needs to be scanned in order to be added to the electronic record. A key principle of this digitisation is the importance of using structured and coded formats whenever possible. Whilst this can be a burden and time-consuming for front line practitioners, it results in much more valuable data which will have benefits for patients, through enabling more intelligent support from systems, and for research.
3. Digitised information will ultimately provide the basis for a comprehensive **Electronic Patient Record** which can, in principle, follow the patient between services and across organisational boundaries, and be shared between health and social care professionals. In addition, it can also be viewed by the patient as their **Personal Health Record**, and they can add information that they wish to share with their health and social care professionals.
4. Digitised information and associated electronic communication must be exploited to organise, co-ordinate, monitor and evaluate inputs to the patient's care. **Information and tasks can be more quickly and effectively shared** between care team members who can be facilitated to work together through shared directories and calendars for easy identification and referral, secure messaging and **system based workflow**, so staff are fully informed about the patient and the wider care context. This needs to include patients who can be kept informed about their care electronically, as well as exploiting this capability to electronically order repeat prescriptions, book appointments, message with their carers, and access healthcare information.
5. Healthcare is characterised by vast volumes of research and guidance that in theory can be applied to individual patient care decisions to improve outcomes. In practice, health professionals who see a vast variety of patients cannot be up to date with all this information, and typically they have to rely on their training and memory, and developments such as the SIGN guidelines, whilst working under significant time pressure. The value of digitised patient information is that this knowledge base, with appropriate, and complex, design of rules and ergonomics, can be applied electronically to provide clinicians with reliable, automated advice and support that is sensitive to a patient's specific circumstances and can be integrated into existing clinical working practices (so called **clinical decision support**). To be effective at the most sophisticated levels it will require coded and consistent patient data which can be processed and analysed to produce intelligent support, with the objective of reducing some of the cognitive load on clinicians and supporting less experienced staff.

6. Digitised information with associated intelligence provides options to evaluate and, where appropriate, **significantly redesign some care processes**. The most senior and experienced staff need to be reserved for the most complex cases, whilst other staff care for simpler situations with intelligent support. Ideally, this will mean that clinicians can focus and spend more time with those patients who have complex problems, whilst quickly and effectively providing the required service to those who need more standard care. Patients can also be provided with, or acquire themselves, measuring devices or sensors and associated intelligence that monitors the results and determines whether any escalation or intervention is required (home health monitoring). Although healthcare is definitely not a factory environment to be automated, it still has opportunities to increase capacity and productivity, and reduce cost, through the application of eHealth, whilst always ensuring that new models of care are evidence based, carefully trialled, and at least as good, and preferably better, than those they replace.

The above areas are challenging, not only in terms of technology, but particularly in respect of the organisational, process and cultural change that they entail, and it will take considerable development and time to address them to their full potential.

4 eHealth Progress, Challenges and Priorities

4.1 eHealth Progress

Since the introduction of the first eHealth Strategy in 2008, and then throughout the period to date covered by the current strategy (2011-2017), the Scottish Government and the NHS Boards have been working collectively to deliver a more interoperable and clinically rich eHealth ecosystem covering local and national needs. The achievements highlighted below are only a few of the many initiatives that have come to fruition over recent years.

This progress has been based on a continued incremental and pragmatic approach that makes the best use of historic investment. Much still remains to be done, however the position that has been achieved compares well with similar health systems and has been delivered at reasonable cost (a Gartner review¹⁹ that benchmarked £147m of eHealth costs identified that NHSScotland spends £39m p.a. less on IT services than a comparable peer group). Some of the most notable past achievements include:

- the national systems that have been the foundation of electronic communication and shared information. These are the Community Health Index (CHI), SCI Store and SCI Gateway which were adopted universally across NHSScotland and provide a core component of infrastructure and the ability to communicate and share patient information safely;
- widespread implementation of the national Patient Management System across Scotland's hospitals providing patient administration and clinical management functionality and increasing paper-lite operations. The system now has 60,000 users and covers 70% of the population. A number of other NHS Boards are planning to implement the system and this would bring coverage up to circa 90% within the next two years. Importantly, the NHS Boards collaborated on procurement and have committed to maintaining a common core system to realise the benefits of a standardised way of working and shared maintenance and development;
- the implementation in all GP practices of the award-winning Key Information Summary (KIS) for patients with long-term conditions who are likely to require care at weekends or out-of-hours. This is modelled on Scotland's pioneering Emergency Care Summary (ECS) which covers the entire population, and is now accessible by many clinicians in scheduled care from where it is currently receiving 338,000 accesses per month. The KIS record is extracted from the GP record and is a richer information source for clinical professionals including details from the ECS, such as medications, allergies and adverse reactions, plus anticipatory care plans, carer details and particular wishes the patients wants recorded. It can be accessed by any clinical professional who is caring for the patient. The KIS is now available for 120,000 individuals in the target group. In a similar manner a Palliative Care Summary (PCS) is now available for patients

¹⁹ [Gartner Consulting: IT Overview Benchmark Report, March 2013](#)

with a terminal condition, addressing the key area of recording people's priorities and wishes for this stage of their life;

- the widespread introduction across Scotland of clinical portals based on joint procurement and implementation by three regional groupings of NHS Boards, and national agreement of 14 priority items of patient clinical information that would be displayed. The portals are used to provide clinicians with a single point of access to data held in a range of background clinical systems and to present an integrated view of patient information appropriate to their role in the care of the patient;
- consolidation of GP systems to two commercial suppliers and provision of increasing access for primary and community care staff to a wider range of electronic patient information and support for patient related communication between the professions. Practices are now able to offer electronic repeat prescriptions and some have commenced offering online appointment booking. The provision of GP2GP electronic transfer of patient records between practices is anticipated in 2015/16 and will bring substantial administrative time savings and data quality and patient safety improvements;
- use across Scotland of the same system, Aداstra, for the management of out-of-hours care. The system is electronically integrated with NHS24 for referral information and onward to general practice and other services for notification and referral. A national framework has been put in place which offers further opportunities for convergence;
- development of the ePharmacy system to improve the management and flow of prescriptions data and support the background administrative processes and the ability to analyse prescribing and dispensing activity, as well as enabling the Chronic Medications Service;
- introduction of single sign-on at NHS Board level. Although this is currently largely within secondary care, take up has been substantial and it is of significant benefit to users;
- the Renal and the SCI-Diabetes systems are providing specific support for these specialist areas and groups of patients, including significant inbuilt clinical decision support. Both systems are operated across Board boundaries (in SCI-Diabetes case on a national basis). In addition, the 'Renal Patient View' and 'My Diabetes My Way' patient portals are delivering tailored support and information to patients, including access to their own records and two way secure communication with their carers;
- a range of other developments have been undertaken by one or more NHS Boards that add to eHealth capability and afford important learning and experience that can be used across Scotland:
 - NHS Boards have introduced a range of systems to support community staff, with a gradual shift taking place to mobile devices to provide access to records in the patient's home or local community facilities;

- a number of NHS Boards have introduced mental health systems supporting community and hospital settings and providing standardised care pathways to guide patient care;
- several NHS Boards are now able to run virtually paperless outpatient clinics with most patient information access and recording being undertaken electronically. Use of paper is decreasing at ward level, in some cases with paperwork being scanned and added to the electronic record at discharge;
- NHS Ayrshire and Arran has implemented a Hospital Electronic Prescribing and Medicines Administration (HEPMA) system across its hospitals addressing the critical area of safe and effective use of drugs;
- NHS Fife has introduced a system for recording patients' vital signs in hospital which can provide earlier warning of a deteriorating situation that requires clinical review;
- NHS Tayside provides access for secondary care staff to an information rich view of the GP record to support continuity of care;
- NHS Lothian is leading the development of a system to allow patients to receive clinical correspondence via email or SMS and communicate electronically with their care providers. This has been piloted and has potential not only to provide faster and more convenient communication for patients, but to also deliver significant savings in transaction costs for NHSScotland;
- Scotland has a national reputation for telehealth and telecare and substantial experience has been gained at national (NHS24, the Scottish Centre for Telehealth and Telecare, and the Scottish Government Joint Improvement Team) and local (various NHS Boards and Local Authorities) levels, and a number of innovative projects are underway including United4Health, SmartCare and Living It Up²⁰, some of which have European funding. In addition, NHS Boards are engaged in local disease specific initiatives such as hypertension, heart failure, diabetes, and COPD, as well as support for patients with multiple conditions. These developments are pioneering new models of patient interaction, support and service delivery and have significant potential to transform care in terms of patient and staff roles, capability and responsibilities.

4.2 eHealth Challenges

Whilst the above achievements are substantial, there remain significant challenges and opportunities for eHealth within NHSScotland over the next period to 2017 and 2020:

- eHealth systems are now vital to the delivery of patient care. Loss of systems or significant downtime have a major impact on NHS Boards' capability to deliver

²⁰ <http://portal.livingitup.org.uk/>

care and this will only increase in significance with a shift to more seven day working. Ongoing investment will be required for business as usual, including maintaining and upgrading the underlying technical infrastructure, ensuring greater system resilience, and enhancing the functionality of existing applications to support more effective working practices and to contribute towards the overall Electronic Patient Record;

- the views of clinical staff using eHealth to deliver patient care are of particular importance. In June 2014 a survey²¹ was conducted of 4,247 clinicians covering all professions and all NHS Boards seeking their views on priorities for future investment. A range of issues were identified including the requirement for more comprehensive information about patients, a desire for faster and easier operation of eHealth systems, and a need for more mobile access (further details are provided in Appendix 3). These views will need to influence and be reflected in eHealth developments;
- less consultation has, as yet, been undertaken with citizens and patients, although there are a range of developments that are informing an understanding of their requirements. Many general practices have electronic ordering of repeat prescriptions and some have online appointment booking. The Renal Patient View and the My Diabetes My Way developments have provided experience of patients accessing their own records, viewing results, contributing their input, and messaging with their clinicians. An ongoing proof of concept patient portal development, and a trial of patient access to their ECS and electronic results will provide further information. The evaluation of these developments together with further consultation will need to inform the sequence and design of information access and digital services to be provided for citizens;
- some national systems are ageing and no longer fit for purpose and will require replacement to provide the capability required by a modern health system. This includes the national Community Health Index system, the Child Health systems, the Support Needs System and the Breast Screening System. Significant specification and options appraisal work for replacing these systems has already been undertaken;
- substantial supplier contracts reach end of life or substantial break points in the period to 2018, including the GP systems contract, the PACS contract and the contract with the national Managed Technical Services supplier. These will require renegotiation or replacement which will require significant resource and effort, albeit they provide an opportunity to ensure NHSScotland's requirements are met for a considerable period into the future. Substantial work is already underway in relation to GP systems to update requirements and the Scottish Enhanced Functionality, to specify integration with other systems, for example to support data sharing and workflow between primary and community care, and with secondary care and social care, and to define an approach to system hosting. A consortium of Boards is currently undertaking similar work to progress replacement of their community systems;

²¹ eHealth Priorities as seen by Clinical Staff, Survey Findings, June 2014

- all NHS Boards still have gaps in their electronic information coverage and systems integration. The most substantial gap is Hospital Electronic Medicines Management and Administration (HEPMA), where significant work is already underway, but most have a number of areas that they wish to substantially improve, including addressing the range of more detailed issues and opportunities that have been identified by clinicians;
- delivery of solutions to support the Health and Social Care Partnerships will be a particular challenge over the next several years as they evolve new operating practices and care processes. Initially, the Partnerships can be expected to continue to use existing solutions and new technical requirements will emerge as new ways of working become established. The Health and Social Care Information Sharing Board has commenced work in this area and new developments can be expected that will require joint working and investment from the host NHS Board and Local Authority organisations;
- the historic investment pattern has resulted in variation across NHS Boards in systems coverage, infrastructure arrangements and applications. This approach has undoubtedly encouraged investment and allowed unrestricted progress based on local priorities. However, in regional and national terms it has resulted in some duplication of activities, effort and cost. Ongoing efforts to drive up healthcare quality that are seeking to minimise variations in care and ensure NHSScotland operates on the basis of a single set of clinical guidelines and, increasingly, decision support, together with substantial flows of patients across NHS Board boundaries, suggest that in future a path of increasing convergence and shared services around eHealth solutions will best serve the needs of patients and clinical professionals. This trend is apparent in developments such as having a national Managed Technical Services provider, the joint procurement and implementation of the national Patient Management System, and the regional consortium approach that has been adopted for a number of developments such as the clinical portals. This path will need to continue although not at the cost of significantly inhibiting local investment and progress;
- the SWAN contract for network services which was led by NHSScotland has demonstrated cross-public sector co-operation and offers substantial opportunities to improve communication within and between organisations, as well as financial savings. This is of particular relevance to the Health and Social Care Partnerships. However, to maximise these opportunities non-NHS organisations will need to fully adopt SWAN and participate in this public sector wide programme;
- the field of 'health maintenance and self-management' is subject to substantial innovation by private sector organisations and increasingly NHSScotland will need to facilitate not only patient access to their own health information, but possibly their interaction and use of other health consumer digital products and devices where interaction with NHSScotland systems may enable them to better self-manage their health and wellbeing. Patients can be expected to express greater ownership of their data and seek to download it for their own purposes;

- information governance that retains the confidence of patients, clinicians and the wider public regarding NHSScotland's management and use of confidential information will remain paramount. Increasing reliance on systems and greater information sharing mean that this will remain a substantial challenge requiring political and clinical leadership, and a continued open and informative approach, and engagement with the public and patient representatives;
- whilst the focus tends to be on operational information to support patient care, Scotland also requires a world class Information and Intelligence Framework²² if it is to develop its health and social care system to the highest levels of quality based on up-to-date evidence. All eHealth development must account for the need to build on the existing local and national information resources to build such an infrastructure and capability.

The challenges for eHealth are many and complex, ranging from long term convergence to highly desirable new developments and investments, to the everyday frustrations experienced by clinicians as a result of current limited system functionality or capability. It cannot all be addressed or resolved at once, and the aims discussed in more detail in the next section will need to guide where the available investment and effort are directed consistent with the 2020 Vision and sensible sequencing of activity.

²² <http://www.scotland.gov.uk/Topics/Health/Policy/Quality-Strategy/NIIF>

5 eHealth Strategic Programme

The Vision and Aims set direction, however it is equally important that this eHealth Strategy focuses the attention of all parties around a common strategic programme to enable effective delivery. This section sets out that programme describing in more detail the vision for 2020, consistent with NHSScotland's overriding strategic narrative, and identifying priority developments in the period to 2017. Its structure is based on the seven strategic eHealth aims (note that specific deliverables are highlighted in bold text, those carried over from the original 2011 strategy are identified by an asterisk, and timing references are to the end of the calendar year).

5.1 To enhance the availability of appropriate information for healthcare workers and the tools to use and communicate that information effectively to improve quality

5.1.1 Current Status

Overall, NHS Boards have made significant progress since 2011, with clinical portals becoming a core strategic capability and making a significant impact on the availability of the nationally agreed 14 priority clinical information items. However, there are remaining gaps in clinical information system portfolios and areas where substantial upgrades or system replacements are required. This applies for some NHS Boards to community and mental health systems, and also to the Patient Management System where a number of forthcoming implementations are planned by NHS Boards. Additionally, there remain a range of functionality and ergonomic issues, and many staff do not at present have easy access to electronic systems.

5.1.2 Vision and Priorities

This aim goes to the heart of the views expressed by clinicians that they want access to summaries of the patient records of their colleagues and that eHealth systems should support them in quickly and effectively undertaking their day-to-day patient care tasks.

The vision for 2020 is that NHS Boards will build on the existing infrastructure of electronic clinical systems, integration hubs, and the adoption of portal technologies so that:

- all appropriate staff have access in all locations where they work to an effective and resilient electronic clinical system that supports them in their daily work caring for patients, including accessing and recording patient information, accessing clinical advice and decision support guidance, and initiating and managing care processes by themselves and colleagues;
- all appropriate staff have access to a view of each patient's comprehensive **Electronic Patient Record** which will provide them with an overview of the key information recorded by any colleagues in health and social care, and, where applicable, by the patient or their carer(s). This will comprise of a view of

summary information from the major clinical systems, including general practice, community care, secondary care and others, and, ideally, will provide the capability to 'drill down' to an appropriate degree of further detail;

- patient care processes will be supported as these systems will enable staff to refer to colleagues, triage referrals, request investigations and receive results, generate clinical correspondence, and track care and receive prompts and alerts;
- information can follow patients irrespective of departmental and organisational boundaries, facilitating the work of the clinician, including mobile access where required.

5.1.3 Strategy and Deliverables

During the new Strategy period:

- **NHS Boards will, over the period to 2020, provide staff across health and social care with appropriate electronic access to an increasingly broad view of patient information as it is digitised to create a comprehensive Electronic Patient Record.** For most NHS Boards this is expected to be through their clinical portal infrastructure and to include access to summaries from all major clinical systems, including general practice and community and secondary care. A key feature will be retention of the patient-centred context, ease of navigation between datasets, and management of appropriate privacy and confidentiality controls. It will also include removing blockages arising from NHS Board boundaries through greater interoperability of systems to allow sharing of information. This will also help to future proof systems in the event of changes to organisational structures;
- **By 2017 NHS Boards will complete making the nationally agreed 14 priority clinical information items available electronically.** NHS Boards will continue the process of widening access to their electronic patient clinical information to support patient flows and clinical need, including across NHS Board boundaries. This is already occurring through providing wider access to individual NHS Board's clinical portals. These developments will see the functionality of portals being enhanced beyond a viewing space to one that includes a simple, intuitive and fast interface for the use of clinicians that enables them to fully manage their work and support safe care. Further work will be undertaken to consider the requirements for patient information in varied clinical circumstances, and whether there should be an expansion of the national set of 14 patient information items;
- **By 2017 NHS Boards will complete the introduction of appropriate single sign-on for healthcare workers.** This has been widely introduced in secondary care but requires completion of roll-out and extension to primary care;
- **By 2017 NHS Boards will complete the roll-out of privacy breach detection tools;**
- **NHS Boards will continue to broaden access to the dataset that is co-created with the patient and is currently held in the Key Information**

Summary system. This will extend access to all health staff, and with appropriate consent arrangements social care staff, who require this information as part of their role;

- **By 2016 eHealth Division, working with key partners such as Healthcare Improvement Scotland, will sponsor development of a clear strategy and organisational arrangements for the future creation, adoption and management of clinical decision support information and tools, and the intelligent use of patient electronic information to enhance safety, care quality, and clinical knowledge and learning.** This will need to recognise that a considerable volume of clinical decision support material already exists and is in use across NHSScotland, including the SIGN guidelines and a wealth of clinical assessment, procedural and other guidance. At this stage, it is expected that this area will continue to be led by the national Clinical Decision Support Steering Group working closely with the CCLG and Healthcare Improvement Scotland;
- **NHS Boards will continue the process of acquiring, improving and widening the scope of their major clinical information systems portfolio.** This includes for several NHS Boards replacement / rollout completion of their community systems and mental health systems, and for some replacement of their patient management system (HEPMA is discussed separately below);
- **By 2017 the process to put in place a contractual environment to support the future provision of GP systems and associated community system requirements will be completed.** This will need to address a range of issues, including web-based server solutions, integration with community systems, both existing and new, future provision of the functionality of the current ECS/KIS/PCS solutions, and support for clinical portal and patient portal developments related to the Electronic Patient Record and the Personal Health Record in the form of enabling appropriate summary views of GP patient information. This will need to be accompanied by the necessary governance and access protection for such summary patient views, which may be facilitated by agreeing at national level a definition of content and associated processes for use;
- **Over the period to 2017 and beyond NHS Boards will further progress making patient information available to health and social care staff in all appropriate care locations.** This will be facilitated by the Scottish Wide Area Network (SWAN) contract and the Next Generation Broadband developments which will help to provide network access from community locations, care homes and patient homes. However, it will require a significant expansion of access devices in hospitals and in the community, including, in particular, mobile devices. It will also require a focus on screen design and ergonomics given the amount of patient information, and the need to present it in a way that facilitates efficient and safe working practices. Given the growth in number of devices that this will involve and their importance in allowing staff to do their work, consideration will be required as to how best to manage this in the most economic fashion across Scotland, and the revenue consequences associated with funding timely support and a realistic replacement cycle in order to ensure reliability.

5.2 To support people to communicate with NHSScotland, manage their own health and wellbeing, and to become more active participants in the care and services they receive

5.2.1 Current Status

Considerable progress has been made in the provision of online information to help people to manage their wellbeing and conditions and to organise their healthcare, for example through NHS Inform²³, together with wider wellbeing initiatives such as 'Living It Up'. This is already contributing to supporting patients to manage their own health. In other area progress is more limited and experimental but is significant, including:

- some general practices that have adopted electronic repeat prescribing and online appointment booking;
- the use of teleconferencing to enable patient consultations, for example to remote locations and to care homes, as well as to support minor treatment centres;
- a current initiative to provide patients with the option to receive their health correspondence by email;
- the work with My Diabetes My Way and Patient View which enable co-created records, access to results, and secure messaging for these specific groups of patients;
- work being undertaken through Patient View to assess patient access to their ECS record and the impact and effect of providing test results online.

In addition, a Proof of Concept scheme for a patient portal is currently being developed. The challenge moving forward is to broaden the support that can be provided, design and implement patient access to their own records, and incorporate these models into routine care at scale.

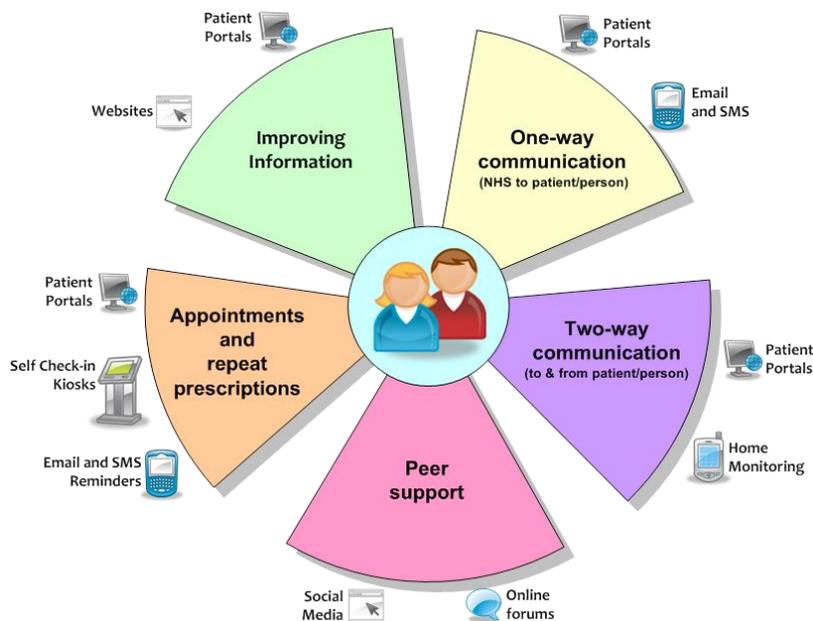
5.2.2 Vision and Priorities

The vision for 2020 is that citizens and patients will be able to use a patient portal to access their own **Personal Health Record** (in essence Electronic Patient Record data enhanced and presented as required to make it accessible, informative and useful for patients and their carers), and make their own contributions to the record. They will also be able to access structured information about managing their health, prevention and self-management of conditions. In addition, they will use secure two way electronic communication with their health and social care providers to book and manage appointments, order repeat prescriptions and, where appropriate, use eConsultation facilities, resulting in convenience for patients and reduced transaction and administration costs for NHSScotland. These services will be designed and built based around the preferences of citizens and patients.

²³ <http://www.nhsinform.co.uk/>

It is also expected that patients will be able to download their data for personal use in their own applications and devices. Again this will be intended to support health maintenance, prevention and self-management. The result will be more empowered, educated and supported citizens, patients, carers and families, who can play a much greater role in orchestrating their own care and taking informed decisions about their health, its monitoring and treatment.

Person-Centred Support and Communications



5.2.3 Strategy and Deliverables

During the new Strategy period:

- **NHSScotland will continue to adopt the products and infrastructure available as part of the public sector Digital Services Strategy.** Specifically, the Citizen Account system (myaccount²⁴) will be the service through which patients will authenticate their identity and register for online transactional services. The service will be developed to allow registered users to link to their CHI number which will be the key to retrieving their personal information and data;
- **By 2015 eHealth Division will sponsor the definition of a national approach to a patient portal that will provide a single point of access for patients and the public to their information and digital services, together with a development and implementation approach and an associated business case.** This will address the need for integration with authentication services and the requirement for a simple and intuitive interface for citizens with access to appropriate support services. The work will need to define those services that will be offered through the portal. There will need to be further consultation with patients regarding their priorities and learning and evidence from the Proof of Concept initiative on what works well, and input from industry in respect of the

²⁴ <https://signin.mygovscot.org/home/>

tools and capabilities that they may provide to patients that may seek to interact through the portal and associated services;

- **All GP practices will be encouraged to provide online repeat prescribing and online appointment booking as online services, with a view to at least 90% of practices offering this service by 2017.** This will provide benefits for patients and administration time savings for practices as well as important experience of the impact of these options which will inform wider developments;
- **By 2017 NHS Boards will have implemented electronic communications** by which correspondence with patients, such as appointment letters, clinical instructions and clinic letters, can, optionally, be done online. This development will provide all patients with the option to receive their health correspondence from NHSScotland by email or SMS and reply in similar fashion. As well as being quicker and more organised and convenient for patients this will have substantial financial savings for NHS Boards through reduced transaction and administration costs;
- The portal development with sequential incorporation of services as defined in the business plan and development approach to provide a **Personal Health Record** will be undertaken over the period 2016 – 2020, alongside the associated technology enabled care developments described under Aim 3 below.

5.3 To contribute to care integration and to support people with long term conditions

5.3.1 Current Status

SCI-Diabetes is an excellent example of system support for long term conditions. The single instance system is used by all diabetes services across Scotland and many general practices. It provides highly specialised functionality for the care of this specific condition, and is integrated into the wider eHealth infrastructure for information exchange. The My Diabetes My Way portal extends access to patients who sign in via myaccount, and a clinical decision support rules system is integrated to provide additional intelligence.

The renal system (lc) is another example of where long term condition support exists. In the west of Scotland a single instance operates across several NHS Boards allowing shared electronic patient records across care and treatment locations. Again the system includes significant professional guidance, and the Patient View portal is providing access for patients which has had very positive feedback.

Work remains, as described in relation to the other strategic aims, to provide wider and easier access to health and social care information for clinical professionals in the form of an **Electronic Patient Record**. This will have a major impact on the care of this group of patients with long term conditions who often have significant clinical information spread across locations and systems. In addition, completing the digitisation of patient information will provide a basis for the delivery of a **Personal Health Record**.

NHS Boards are working currently with their local authority, and third and independent, partners on the sharing of patient / client information, in particular through the Health and Social Care Partnerships. This has included not only adult care but also consideration of Getting It Right For Every Child which has been set in statute through the Children and Young People (Scotland) Act 2014. The National Information Sharing Board, coordinated by eHealth but with cross-public sector and third sector representation, has played a key role in setting out guidance and standards. Two key guidance documents have been developed that will support information sharing. Firstly, there is the Information Strategic Sharing Framework²⁵ which sets out the landscape in which partnerships will be expected to work and share information. The second is more technical in nature and is an Information Architecture Vision which can be used by partnerships to guide their ICT implementations and ensure conformance to standards that will enable sharing beyond partnership boundaries. A number of approaches have been adopted to facilitate information sharing according to local circumstances, including portal developments and Multi-Agency Stores. Further development will need to follow to provide workflow support for the co-ordination of care, including supporting cross-border patient flows.

Scotland has significant experience of Technology-Enabled Care and is now in the process of refining approaches that will work at scale based on evidence of what works in a cost-effective and impactful way. The approach to, and investment in, this area has recently been extended through the announcement of £10m to support the Technology-Enabled Care Programme. This programme will be key to setting the direction and development of this area in Scotland by clarifying the evidence on the best technology and organisational models. There are five priority areas:

- **Expansion of home health monitoring** as part of integrated care plans to move beyond the small/medium scale initiatives that have been introduced in a small number of areas to substantial programmes across Scotland;
- **Expanding the use of video conferencing** through using the experience of the NHS video conferencing systems to enable partner organisations across all health and social care sectors to participate and benefit, as well as growing its use for clinical/practitioner consultations;
- **Creating a national digital platform framework**, learning from, and potentially building on, national initiatives such as Living it Up and ALISS to expand supported self-management information, products and services for Scottish citizens;
- **Expanding the take up of Telecare**, with a particular focus on upstream prevention, support for people at transition points of care and people with dementia and their carers;
- **Exploring the scope and benefits of switching current provision of Telecare from analogue to digital Telecare**, scoping a move for Telecare from the

²⁵ [Health and Social Care Information Sharing – A Strategic Framework: 2014 - 2020](#)

current analogue systems to digital in order to facilitate integration with Telehealth.

These developments will, in due course, make a major contribution to the care of patients with long term conditions, in particular enabling and supporting their self-management, as well as helping those in remote and rural locations.

5.3.2 Vision and Priorities

The agenda in this area is set by All About Me²⁶, the action plan to improve care and support for people with multiple morbidities, the Home First²⁷ actions to transform discharge, and the work of the Joint Improvement Team as set out in their Strategic Plan 2013 – 2016. Clearly, it is also a major area that is intended to be addressed through the creation of the Health and Social Care Partnerships.

The vision for 2020 is that the integrated health and social care teams that support people with long term conditions and multi-morbidities will easily process information and communicate electronically to co-ordinate their activities to ensure seamless, more effective and higher quality care for patients. This will include supporting current and emerging forms of care delivery including single point of care community hubs, hospital at home, and community wards that are all aiming to provide supported discharge and alternatives to acute care and admission.

Additionally, standardised models of technology enabled care, such as home health monitoring, will become available directed at enabling patients to remain at home or in the community. eHealth services will be developed to ensure that these developments in patient care are accommodated within the eHealth architecture.

All of this will be directed at providing patients with the reassurance and confidence to manage their own condition(s) and care, and to seek and receive more timely help and support, enabling them to remain at home or in the community for longer. In effect it will help to include the patient and / or their carer as appropriate as an active member of the care team, and increasingly allow them to decide on the support they seek from health and social care professionals.

5.3.3 Strategy and Deliverables

During the new Strategy period:

- **NHS Boards will continue to work with the Health and Social Care Partnerships to fully define their information management requirements and develop appropriate solutions**, building on the work of the Health and Social Care Information Sharing Strategic Framework;
- **The current deployment of initial capability to enable sharing of information between health and social care will continue;**

²⁶ All About Me: My Conditions, My Care, My Outcomes: An Action Plan to improve care and support for people living with multiple conditions in Scotland, Scottish Government

²⁷ Home First, Ten Actions to Transform Discharge, Joint Improvement Team, Scottish Government

- **By 2016 NHS Boards will have improved capability to stratify their patients to identify those with multiple morbidities and long term conditions;**
- **By 2015 eHealth Division will sponsor work to establish the future approach to systems that support the management of long term conditions.** The SCI-Diabetes and Renal developments have shown the potential of specialist systems that bridge patients and clinicians, and primary and secondary care, however there are a range of other specialties and long term conditions that do not have such support;
- **Over the period to 2017 and beyond to 2020, NHS Boards will support the improvement work to develop intermediate care options for people with long term conditions and multiple morbidities.** This will be through taking advantage of developments under other eHealth strategic aims that will address improvements in patient information access, communication and workflow between teams of health and social care staff, and support for patients to manage their own health;
- **Over the period to 2017 and beyond, as technology enabled platforms and solutions become proven at scale, they will be adopted by NHSScotland clinicians as appropriate to individual patient's conditions and circumstances.** The key consideration will be that solutions have clear evidence that they are beneficial for patients, cost effective, and are at least as good as current services. NHS Boards will also develop their information systems to ensure that they support individual patients with multiple morbidities and long term conditions. eHealth will have a role to ensure that emerging technology based solutions are supported within these information systems.

5.4 To improve the safety of people taking medicines and their effective use

5.4.1 Current Status

Electronic prescribing in general practice is universal and is linked into the ePharmacy systems that support dispensing, with community pharmacists also having access to the Chronic Medications Service system to manage patients' repeat prescriptions and reduce the burden on GPs. There are still gains to be had, however, from widespread utilisation of patient access to GP systems, as opposed to email messaging, to order repeat prescriptions. The Emergency Care Summary provides the current capability to share medications information between healthcare sectors, and the range of staff able to access this has been widened, with professional and public consent, to include scheduled care.

However, acute hospital prescribing and recording of medicines administration remains predominantly paper based reflecting that it is considerably more complex. The exception to this is NHS Ayrshire and Arran which has successfully undertaken a long and complex implementation and, consequently, has gained substantial experience of the specific challenges of implementing HEPMA.

HEPMA is commonly viewed as a vital missing-piece of the digital medications jigsaw. A national outline business case has been completed and approved for HEPMA systems, and the Closing the Loop clinical blueprint work has defined the requirements in relation to medicines reconciliation at transitions of care. In addition, a current project is working to define a 'dose syntax' that will enable translation between the different prescribing formats utilised in primary and secondary care.

However, there remains considerable work to implement HEPMA and medicines reconciliation in a safe and sustainable format that takes account of existing investment at NHS Board level and meets both local and national requirements. Development in this area is widely regarded as a particularly high priority, however it is recognised that the requirements are complex, will result in considerable change to working practices, and can impact safety if not implemented carefully.

5.4.2 Vision and Priorities

The safer use of medicines is key to patient safety and the quality of care as it sits at the centre of the therapeutic process in the vast majority of patient care events. There are also crucial requirements for local and national monitoring and research regarding the use and administration of drugs. In the period to 2017 and on to 2020:

- significant progress will be made in enabling hospitals to adopt electronic prescribing and medicines administration (HEPMA) systems. These systems will enable digitisation of a key component of the patient's care and information such that the drug record is available within the **Electronic Patient Record**. In addition, with appropriate built-in clinical decision support, full recording of the reasons underlying prescribing decisions, and other intelligence such as support for polypharmacy reviews, these systems have enormous potential to reduce risk and improve the quality of patient care and provide important national clinical intelligence on prescribing practices, outcomes and adverse events;
- in addition, as an associated development, NHSScotland will develop electronic capability to support the reconciliation of patient medications across all transitions of care, in particular between primary and secondary care at admission and discharge (Closing the Loop). This will also target providing access to a full summary of patient medications, including those prescribed by community staff, specialist clinics and community pharmacists, and including information on prescription dispensing. This will allow more effective medicines reconciliation, safer transitions and reduced risk for the patient, and the elimination of all re-keying of prescription data.

Achievement of the above, together with developments under the other strategic aims, will enable all appropriate health and social care workers to have access to a comprehensive view of a patient's medications summary and to record any updates or changes, which will make a major contribution to patient care and safety. A longer term aim will be the electronic interaction of patients with their own medication records, for example to record aspects such as side effects they have experienced and non-prescription drugs that they have taken.

However, it remains the case that implementation of these solutions will be particularly complex as they impact a critical area of care where mistakes can have serious consequences, and they will have a significant effect on current working practices. Experience suggests that whilst eliminating some risks to patients, they can introduce new problems, and, therefore, they require particularly careful design and implementation. As a result, this area is not subject at present to specific target dates for completion, although the benefit from early implementation of these systems is clearly recognised.

5.4.3 Strategy and Deliverables

During the new Strategy period:

- **By 2015 eHealth Division will sponsor work to be undertaken collaboratively to confirm and agree a way forward for Scotland.** This will involve:
 - reviewing the existing specification for HEPMA solutions and ensuring it is appropriate for current needs in the context of the overall vision for medications information management across NHSScotland. This will take account of experience gained in Scotland in the use of this type of system, with a particular focus on safety, but also including more extensive functionality and requirements for clinical decision support, and the need to provide flexibility to support varying clinical processes between specialties and hospitals;
 - completing the ‘dose syntax’ work and considering the impact of the ‘Closing the Loop’ requirements, and defining how these will be addressed and the impact on HEPMA solutions, existing GP systems and ePharmacy systems. This may require approaches involving a separate patient medications summary record, but this remains to be determined;
 - reviewing the key integration between pharmacy management solutions and HEPMA and patient management systems and HEPMA, and system operation at an enterprise level;
 - considering the market solutions and procurement options available to NHSScotland, and the relative advantages of a single common solution as opposed to a framework for NHS Boards to choose from given relative solution quality and cost, and the possible impact on existing investment;
 - confirming and agreeing a way forward for NHSScotland and the NHS Boards that will deliver the medications information management vision, and maximise effective working for staff, and safety and quality for patients. This will confirm procurement and implementation approaches, including the initial scope of solutions, and address how data and messaging standards in this critical area, and ideally the user interface, will be consistent across Scotland, for example through the work being undertaken by the Professional Records Standards Board on medication messaging standards;

- **NHS Boards will implement the agreed way forward**, collaborating on all aspects where there may be advantage to NHSScotland and patients, such as common datasets, system design and infrastructure, and shared maintenance and support. Some NHS Boards will progress HEPMA and medicines reconciliation solutions as an earlier development than others, depending on local priorities and business cases, availability of resources and implementation capacity. It is expected that most NHS Boards will have some elements of HEPMA operational by 2020.

5.5 To provide clinical and other managers across the health and social care spectrum with the timely management information they need to inform their decisions on service quality, performance and delivery

5.5.1 Current Status

Scotland has historically performed well in the collection and analysis of health data, including clinical datasets to support audit. Much is already undertaken through local data warehouse capabilities and analysis tools, and the national datasets managed by NHS National Services Scotland. Additionally, substantial research capability exists in Scotland's universities, for example the Farr Institute for health informatics at Dundee and Edinburgh Universities, to work with complex, unstructured data. The challenge will be to meet the needs of local clinicians whilst also ensuring continued effective and efficient capture and integration of increasing amounts of data from operational to national levels. This will require definition and stricter adherence to agreed national data sets and standards, access to the tools, and continued development of the capabilities and skills that will support measurement of performance and quality across the health and social care spectrum. It will also require education and training for staff to ensure they understand and can respond to the requirement to record structured, consistent data if it is to be useful for these purposes.

The area as a whole is subject to demand growth as a result of the pressure on services and the degree of scrutiny, increasing complexity, including the integration of health and social care, and the need to keep up with new tools and technologies. The need for effectively planned and integrated infrastructure and data collection and collation mechanisms, together with the capacity and skills to manipulate, analyse and interpret that data, has never been greater.

Recognising the above, a new National Information Leads Group (NILG) has been established to take the lead for NHSScotland on all aspects of data definitions and recording, information analysis and reporting, and associated with this the development of skills and capacity. In particular, it is well placed to ensure that across the range of stakeholders from the operational frontline to research and public uses of health information, there is a co-ordinated process to ensure information is managed appropriately and effectively.

In addition NHS National Services Scotland which manages the national datasets has initiated an Information Redesign Programme to consider how the collection and analysis of health and social care data across Scotland should be developed to

enhance effectiveness and efficiency, including reducing the burden on NHS Boards, enhancing the services that can be provided in complex areas such as predictive analytics, and contributing to the Scottish Government's goal of increased publishing of Open Data.

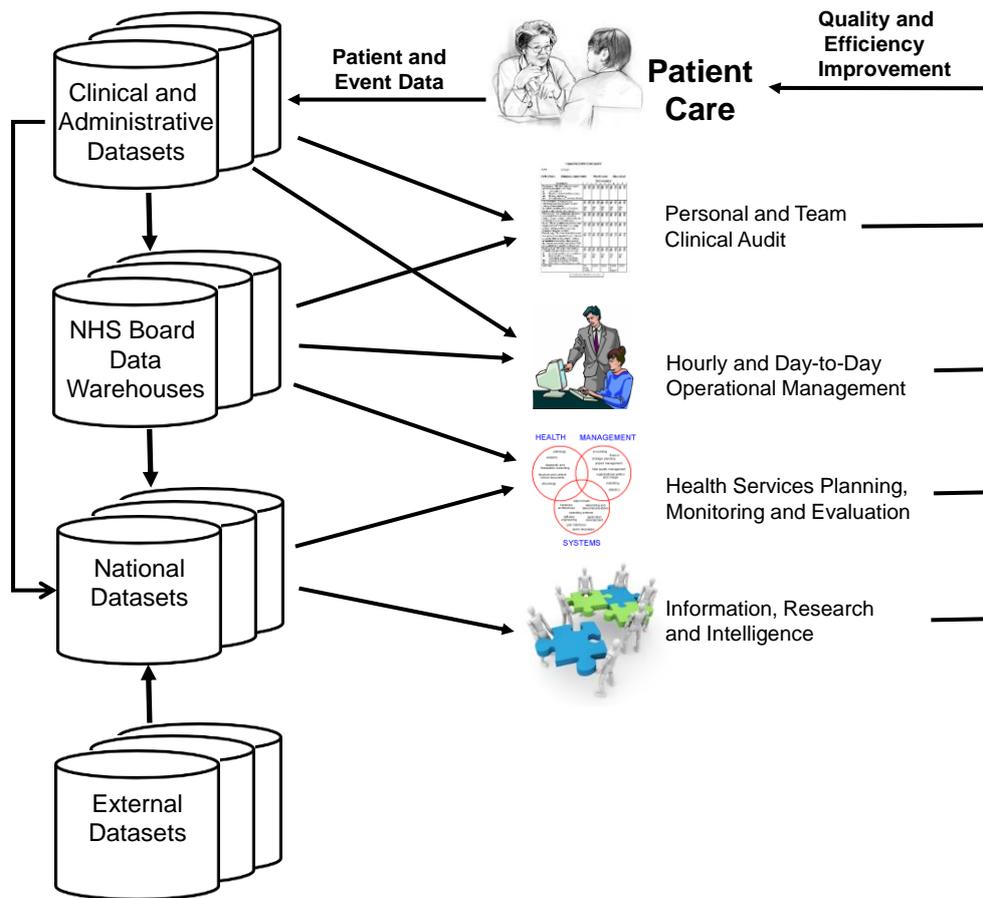
5.5.2 Vision and Priorities

The vision for 2020 recognises that frontline operational activities and eHealth systems provide the data that can be collated and analysed at local, regional and national levels. This can then generate information that can be utilised for a range of purposes:

- clinicians may utilise datasets to enable examination of their own clinical practice, to carry out personal, team and hospital / practice clinical audit for quality assessment and improvement purposes, and to work with their colleagues locally, regionally, nationally and internationally to improve outcomes;
- immediate, essentially real-time, local operational decision taking, and associated planning monitoring and evaluation of activity levels to maximise capacity and use of resources;
- local and national evaluation of service delivery in terms of its timeliness, safety, quality and outcomes;
- national and international research and innovation using multiple data sets, unstructured data, and data linkage, to answer complex questions which generates new knowledge and intelligence that provides a basis for revised policy and practice.

All of this contributes to generating a cycle of continual improvement in the health and social care delivered in Scotland and also supports reporting to the public and Government.

Record Once, Use Many Times and the Cycle of Improvement



It can be expected that significant additional value can be generated in future. For example, as systems such as HEPMA are rolled out, which can provide data on prescribing practices, it should be possible to better support work in areas such as polypharmacy, antibiotic resistance and hospital acquired infections, whilst greater electronic coverage and use of eForms and structured data will support linkage across care pathways and improved understanding of resource use and outcomes.

Scotland requires to continue progress and developing capabilities towards:

- integrated and person-centred information and intelligence to support integrated and person-centred care;
- increased capacity to analyse, interpret, and use data, information and intelligence;
- having the infrastructure to support information and intelligence and knowledge creation²⁸.

²⁸ [National Information and Intelligence Framework for Health and Social Care for Scotland: 2012 - 2017](#)

There will also need to be parallel and ongoing development of information governance arrangements and patient consent models to retain the public's confidence, and to ensure it keeps pace with developments, including the continued use and development of Safe Havens for information management.

In addition to supporting NHS related research, this infrastructure will also impact positively on the wider field of informatics for health and biomedical research and innovation as set out in the recent draft strategy²⁹ for this area.

5.5.3 Strategy and Deliverables

During the new Strategy period:

- **By 2015 eHealth Division will review the process for development, maintenance and use of clinical content and messaging standards and datasets in Scotland, reflecting both UK and wider international developments.** This will include resource requirements and a plan for the adoption and maintenance of standards, including the need for education and training programmes, and data quality improvement, and arrangements for ongoing engagement with suppliers in relation to this key requirement. This will need to build on existing standards in Scotland and be a clinically-led process that is dynamic and informed by national, international and industry developments and standards, and can inform future system development and procurement. It should provide a basis for common and compatible clinical information across Scotland, and enable clinical audit and quality improvement as well as systems integration. A key component will be Scotland's continued participation in the Professional Records Standards Body for Health and Social Care;
- **A focus will be maintained on the need for immediate monitoring and reporting information, including track and trigger capability, that is focused on patient safety, care quality, and clinical audit;**
- **By 2015 NHS Boards will assess the requirements and approach to the future use of SNOMED CT within NHSScotland eHealth systems.** This will result in eventual replacement of the current use of READ codes and a standard approach across Scotland. Training and support will be required to enable staff to make the best use of a new coding structure where accuracy and completeness will be an important part of getting maximum value from eHealth systems;
- **By 2015 eHealth Division will embed a process to ensure that all aspects of information management are fully considered from the outset of considering new operational systems,** including use of national standards and data sets, and the availability and use of collated data to support analysis and research. This will involve close working with various bodies including Clinicians, NHS Research Scotland, the Health Informatics Research Advisory Group (HIRAG), the Farr Institute and a multitude of other interested parties;

²⁹ [A Health and Biomedical Informatics Research Strategy for Scotland, 2014](#)

- **By 2016 eHealth Division will sponsor work to review with key parties, including the NHS Boards, the National Information Leads Group, NHS National Services Scotland and Health Analytical Services Division, as well as other research and industry organisations, the requirements to ensure alignment between information system developments at local level and business intelligence activities at NHS Board, regional and national levels.** This will include the generation and maintenance of local and national data sets, and the best approach to ensuring a co-ordinated and effective information architecture, infrastructure and governance. It is expected that this will take the form of an Information Strategy for NHSScotland which will address these issues;
- Work will be undertaken in the periods to 2017 and to 2020 to improve this alignment based on the Information Strategy, NSS' Information Redesign Programme, the National Information and Intelligence Framework, and the Health and Biomedical Informatics Research Strategy.

5.6 To maximise efficient working practices, minimise wasteful variation, bring about measurable savings and ensure value for money

5.6.1 Current Status

Paper-lite environments and reduced travel are increasingly common within NHSScotland as a result of digital dictation, voice recognition, scanning, videoconferencing and electronic requesting and reporting. Work is ongoing to broaden and extend this use which was an original aim for 2014 and will continue in the period to 2017. However, much opportunity still remains to streamline, workflow and automate many elements of care processes. Whilst paper-lite operations are indicative of progress, the real goal is to relieve clinical staff of as much documentation and administrative burden as possible and enable them to focus on care delivery within a highly planned and co-ordinated healthcare environment following standardised processes and protocols.

5.6.2 Vision and Priorities

eHealth developments under the other strategic aims should make a substantial contribution to improving efficiency through making staff activity more effective, and enabling better informed and more timely decisions about patient care which inherently will generate greater value and avoid mistakes and duplication. Additionally, clinical decision support and workflow will standardise care processes and reduce variation whilst at the same time allowing enough flexibility to adapt to individual patients and local situations. The net effect will be an upward drive to care quality, a reduction in delays and faster treatment times, and an associated increase in efficiency. The focus on enabling self-management includes a clear objective to release NHSScotland capacity, whilst clinical decision support should also enable staff to increase their knowledge and capability to care for a broader range of patients.

However, all of these developments will require recognition of the need for a full change management process of investment appraisal and benefits realisation, including effective consultation with staff, process definition, and appropriate levels of user training and support.

There are also opportunities from the ongoing convergence process across Scotland in terms of both operating practices and the infrastructure and support of eHealth systems. NHS Boards already share a number of eHealth services and further sharing options will be pursued on a regional and national basis. Delivery will be dependent on strong eHealth and clinical leadership to meet the challenge of effecting, in some cases, disruptive change to established ways of working.

Corporate business systems, specifically finance, payroll and human resources play a key role in enabling efficient management of NHSScotland. Common finance systems across the NHS Boards are already in place and the roll-out of the new Electronic Employee Support System (eeSS) is currently underway. The future of the payroll system in the context of the anticipated retirement of the current mainframe infrastructure is currently under consideration. The convergence of these systems will provide a platform for any future development of shared services in these areas within NHSScotland.

The vision for 2020 is that this will be reflected in a largely paperless environment where communication will be electronic with reduced transaction costs and time. Staff and physical assets will be utilised in the most effective and efficient way, including seven day services where appropriate, as a result of increased capacity to organise, manage and control the healthcare delivery environment. Consequently, patients will receive care quickly and efficiently, confident that they are receiving the best available quality. Additionally, where possible care will be in the patient's home or community, with travel for patients and staff reduced through electronic communication, including videoconferencing, and supported self-care.

It is acknowledged, however, that eHealth can result in some tasks taking longer, albeit with better information recording and management as a result, which has longer term benefits for patient care. Additionally, purchasing and maintaining an electronic infrastructure has significant costs, in particular given the requirements for a regular schedule of technical refresh. This needs to be accounted for in assessing investments and making financial provision.

5.6.3 Strategy and Deliverables

During the new Strategy period:

- ***NHS Boards will focus on taking advantage of the economies of scale available from eHealth convergence and common infrastructure, both hardware and software, shared services, and associated benefits of overall simplification of the eHealth systems architecture and support.** This applies to system procurement, operations and ongoing support, and also provides an opportunity to improve resilience. SWAN reflects this direction, and it is expected to be a continuing trend in the period to 2017 with more dramatic progress in the period to 2020 and beyond as key systems and contracts are replaced.

Examples include greater shared system hosting and development, common desktop and mobile hardware and software, more Category A (mandatory) and Category B (preferred new replacement) applications and fewer instances of systems, with shared helpdesk and other support arrangements. NHS Boards will be expected to include within their local delivery plans, and report at their annual reviews, their assessment of opportunities and progress with convergence with NHS Partners and on a regional public sector basis;

- **Advantage will be taken of the annual IM&T Survey to collect information on eHealth convergence that will allow NHS Boards to compare progress and share learning.** This will also be linked into the reporting work on common measures with the aim of enabling robust annual eHealth reviews;
- **Implementations will focus on identifying, defining and supporting real change to care models and processes.** This is undoubtedly challenging and disruptive. However, for eHealth technology solutions to enable self-management and to impact efficiency, significant effort will be required to ensure they complement or replace existing care activities and are not just an add-on to current practices. This will require close relationships and joint working with the Joint Improvement Team at national level, and clinical redesign teams and the Health and Social Care Partnerships at local level;
- **By 2016 eHealth Division will sponsor a study to consider the opportunities available from enhancing the systems support for exploiting NHSScotland's property and facilities.** This eHealth Strategy envisages extensive development in supporting NHS staff and the management of medications, two of the largest areas of cost. This aim recognises the substantial investment and spend in the area of estates and the need to maximise the value and quality from the healthcare environment, and the opportunities available from flexible use of space enabled by mobile access to systems, space booking systems, and conferencing and collaborative working support. Some work has already been undertaken in this area, and these developments will enable any future developments around shared services related to the maintenance and use of property and facilities.

5.7 To contribute to innovation occurring through the Health Innovation Partnerships, the research community and suppliers, including the small and medium enterprise (SME) sector.

5.7.1 Current Status

The digital health sector is recognised globally as a very significant economic opportunity. Key initiatives to encourage innovation in healthcare have been established in Scotland over recent years including the Innovation Partnership Board, the Health Innovation Partnerships and the Digital Health Institute (DHI), whilst NHS Boards work directly with a number of SME partners on various eHealth developments.

Scotland's reputation for health innovation within Europe is strong based on significant success. Within the European Commission's flagship programme – the European Innovation Partnership for Active & Healthy Ageing – the Joint Improvement Team's Telecare Development Programme was recognised as one of the top ICT enabled programmes in Europe. With SPARRA (Scottish Patients at Risk of Readmission and Admission) and the National Falls Programme also recognised, this put Scotland within the top three regions in Europe for the use of technology enabled care in support of the older population in their own homes, with Scotland now one of the few formal 'Reference Sites' within Europe.

A key development has been the creation of the Digital Health Institute (DHI) in Scotland. This is an innovation centre established by NHS24, the University of Edinburgh and Glasgow School of Art, with funding from the Scottish Funding Council specifically to consider the role that digital technologies can play in addressing major health and social care challenges. It works with the public sector, the research community and the private sector with the objective of stimulating economic development in this area in Scotland, including inward investment. The DHI has significant funding and can progress proposals arising from all sources, and is able to facilitate areas such as procurement, commercial arrangements and intellectual property rights. Currently, there is a significant range of live projects, with substantial involvement from NHS Boards and Local Authorities.

5.7.2 Vision and Priorities

This aim recognises that a prime purpose of Scottish Government is the development of the Scottish economy. NHSScotland has an important role to work closely with its suppliers to innovate and develop existing deployed systems and tools. However, given its scale and footprint it is also in a position to co-develop innovative solutions and services with the wider industry which contribute towards the 2020 objectives and the economic development of the health technology industry in Scotland. This will include the co-operation of current and future strategic suppliers to enable this objective through open data standards and supporting access to their APIs to allow interoperability. This could, for example, be considered for inclusion as a contractual requirement in future procurements.

The vision for 2017 is that NHSScotland will be working in an effective partnership with the Scottish Government, the academic sector and industry, including SMEs, to promote Scotland as an attractive location for organisations active in the area of eHealth research, development and innovation. This applies to NHSScotland's existing suppliers of eHealth systems and tools, from which continuous innovation is expected, as well as other potential suppliers.

NHSScotland will continue to expect any new eHealth products, developments or upgrades to be affordable, effective and resilient, and to offer significant benefits not currently available to NHSScotland and its staff and patients. The best way to achieve this will be to involve users in the researching, planning, development and trialling of new systems and tools from the outset. It is expected that key relationships will continue to be established at international, national and local levels, with the ultimate aim of seeking additional research and innovation investment opportunities, and the momentum that can arise from a concentration of expertise

within a Scottish cluster. Such opportunities will include NHSScotland involvement in consortia bidding for European Union, Medical Research Council and Innovation UK Funding.

5.7.3 Strategy and Deliverables

During the new Strategy period:

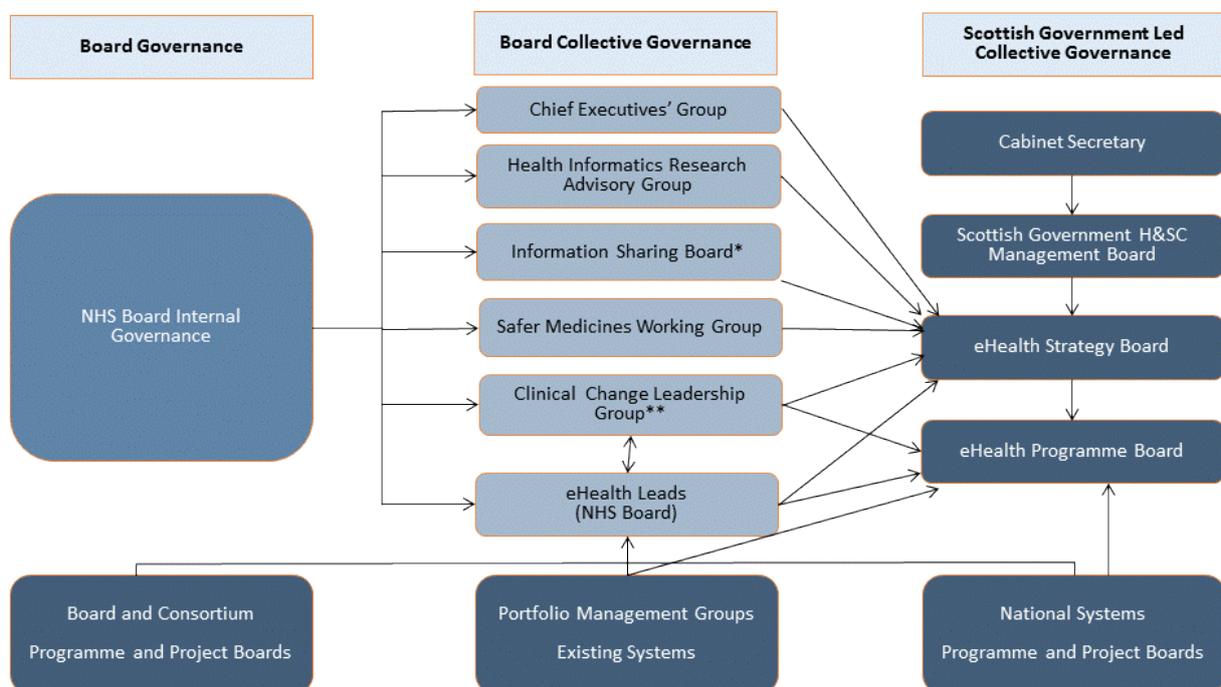
- NHSScotland will participate with academia, the Digital Health Institute, Scottish Government, the Enterprise Network and industry partners in the definition of a strategy for research and innovation in eHealth in Scotland, including identification of the key opportunities with potential for development at scale;
- NHSScotland will undertake to engage in a structured programme of periodic meetings with the industry and its representative bodies to share information on developments, key areas of interest and critical challenges. This will include participation in initiatives to promote Scottish eHealth science and technology internationally;
- NHS National Services Scotland will co-ordinate the activities of NHS Boards on leading growth in the publication of Open Data for external use and analysis to better facilitate research and innovation;
- NHSScotland will continue to pursue the widespread adoption of standard clinical datasets and messaging standards, and will encourage, including through possible contractual obligations, the opening up of APIs on eHealth systems to allow other suppliers to provide complementary innovations. This will include recognising that patients will, over time, expect to both download their own data for personal use in applications and devices, and record data that they have generated through their own personal health monitoring and assessment activities;
- NHSScotland will continue to work through the DHI, the Health Innovation Partnerships and other consortia to collaborate with commercial organisations including SMEs, as well as continuing to work directly with local partners and networks;
- The DHI and NHS national procurement will continue to act as advisers in relation to appropriate procurement arrangements and options for IP and suitable contractual terms and conditions.

6 Governance and Delivery

6.1 Governance Arrangements and Principles

National strategic oversight of eHealth is provided by the eHealth Strategy Board, whilst governance oversight of the delivery of Scottish Government funded 'pillar' programmes and projects is provided by the eHealth Programme Board. They are both supported by an infrastructure of other bodies as shown below, which includes local consortium or internal NHS Board governance groups for local delivery projects.

eHealth Governance Arrangements in Scotland



*Information Sharing Board also reports to Local Authority Sectoral Board

**CCLG is advised by the NMAHP eHealth Network

This overall structure will continue with membership of the various bodies reviewed and amended to recognise the increasingly closer links with social care.

In addition a number of national bodies will play key roles including:

- NHS Education for Scotland in relation to education and training in the use of eHealth systems, including their application to develop new models of care;
- Healthcare Improvement Scotland which is the lead improvement agency in healthcare in Scotland and views eHealth as a key enabler for driving improvements in health and social care. It is also the key organisation, together with processes undertaken by NICE, in the assurance and accreditation of clinical

advice, guidelines and decision support capability, and support material and systems;

- NHS National Services Scotland in relation to a wide range of technology services and advisory functions. These include the operation of the national managed technical services contract and a number of other national contracts and services, assembly, custody and management of the national data resources, the provision of information analytical services, and acting as the centre of excellence for procurement and legal advice;
- NHS24, the Scottish Ambulance Service and the Scottish Centre for Telehealth and Telecare which lead on a range of functions including triage, information for patients, and aspects of out-of-hours services.

NHS Board eHealth Delivery Plans with stage point milestones will continue to be the main vehicle for planning, delivering and evaluating progress on delivery of eHealth, including use of the developing set of eHealth common measures. Plans will be signed-off by the local NHS Senior Management Board and progress will be reported annually to the Scottish Government. The Scottish Government will report annually to the Scottish Parliament.

In addition eHealth governance will continue to be guided by a number of **key delivery principles**, including:

- a focus on benefits and outcomes that really make a difference to citizens, patients and health and social care staff;
- the confidentiality, availability and quality and integrity of data, information and information services will remain paramount;
- development work will be done once on behalf of NHSScotland with subsequent sharing of the solution. This will apply to development for existing and new applications, for example designing electronic clinical documentation, generating business intelligence solutions, and undertaking core system detailed design and configuration;
- to achieve maximum benefit for patients and staff there must be the level of change management and benefits realisation required to support clinical reorganisation and redesign where eHealth supports new care models and clinical processes;
- an incremental and pragmatic approach will continue to be adopted, integration will be pursued rather than the creation of new solutions, and the core delivery approach will continue to be to ultimately provide a comprehensive **Electronic Patient Record** assembled from multiple operational system sources;
- a collaborative NHSScotland wide approach will be pursued, with the avoidance of duplication in all areas, and eHealth convergence over an appropriate time period that takes account of local circumstances and existing investment;

- the acquisition of eHealth solutions will be based on re-use of existing systems before buying new technology and a preference for buying existing solutions over building new applications.

6.2 Leadership

Both Scottish and wider global experience have demonstrated the importance of committed and effective senior organisational and clinical leadership to encourage the adoption of new technology and acceptance of associated change, and to maximise the timely realisation of benefits for patients and staff. NHSScotland will continue the practice of identifying senior leaders to take the SRO role for major programmes and will continue to emphasise and ensure the requirement for senior clinical engagement.

In Scotland the NHS Boards have historically had significant freedom to pursue their own priorities and agenda in relation to eHealth, hence the current varied position in terms of progress and systems. Scotland needs to strike the right balance to achieve progress at a speed that can be absorbed by NHSScotland, and maintain local ownership and innovation, whilst aiming for an increasingly consistent and integrated set of eHealth systems. This is a leadership challenge for management and clinicians, and is likely to prove most challenging in the area of ensuring collaborative approaches and increased rationalisation of eHealth infrastructures. eHealth Leads have promoted regional collaboration and working, and experience over recent years with GP systems, PMS and Clinical Portals demonstrates that this is achievable and that the best approach involves both top-down governance and bottom-up change management and clear communication.

eHealth needs primarily to reflect and respond to clinical requirements and clinical change, which places a particular responsibility on clinical leaders to set direction and persuade their colleagues of the benefits of eHealth and the necessity of change in working arrangements and processes. Scotland has been well served by the Clinical Change Leadership Group and the NMAHP eHealth network, and the clinical eHealth advisers at national and local levels. Further action has been taken with the introduction of the NMAHP eHealth Leadership Programme, which is now on its third cohort of staff, and leadership programmes for eHealth staff and middle managers, and consideration is being given to additional eHealth content in the medical postgraduate programmes.

A proposal has been put forward that the importance of eHealth to service delivery and the 2020 Vision, and the critical role of clinical leadership, should be recognised in the creation of more formal clinical information leadership posts within the existing management structures at national and local levels. This would provide an enhanced focus for eHealth development, as well as a cohort of clinical leaders to support the development of this economic sector in Scotland. This will be considered during the course of 2015 and proposals will be brought forward to strengthen senior clinical leadership in eHealth. In addition, there is a need to recognise that clinical leadership is required at all levels of NHSScotland to lead change in clinical care and processes associated with eHealth. Investment will be

required in supporting clinicians who understand eHealth and are willing to lead change in individual clinical services and departments.

In addition to its own internal clinical leadership arrangements, NHSScotland will continue to ensure wide engagement with the clinical professions through the Royal Colleges and other representative bodies to ensure alignment with professional developments and guidelines and to ensure a collaborative approach to the development of eHealth.

6.3 Standards, Collaboration and Programme Delivery

Incompatible standards and data structures, and differing implementation approaches and decisions, have historically led to issues across NHSScotland with system integration and data sharing. As this is a capability that lies at the heart of enabling the types of care envisaged in the 2020 Vision, it must have the prominence and priority that it deserves. It will be addressed through a variety of measures including common applications, but also consistent data and messaging standards which will need to be adopted rigorously by NHSScotland and its suppliers.

The technical portfolio management groups (National Infrastructure Management Group and the National Applications Group), and in future the National Information Leads Group in relation to data standards, rightfully have ownership of this area on behalf of NHSScotland, and an increased emphasis will be placed on their review of the standards and integration aspects of significant developments and approval of proposed solutions. In addition, Scotland will continue its commitment to the Professional Records Standards Body for Health and Social Care.

Fundamental to the advancement of eHealth across NHSScotland will be collaboration and stronger programme delivery. Indeed, given the financial constraints on investment and the increasing complexity of care delivery, eHealth will struggle if these areas are not given the highest priority. NHS Boards will need to continue to adopt common approaches and solutions, and pool resources and expertise if they are to progress at the necessary speed. This is a leadership challenge for the eHealth Leads who sit at the centre of balancing local, regional and national priorities, and are faced with managing the local impact of collaborative decisions that may not reflect the immediately best or easiest solution for local NHS Board circumstances and pressures.

This has recently been recognised in the appointment of regional programme managers to support the Regional Planning Groups and this is likely to be an increased resourcing requirement, including at national level, to support collaborative approaches and developments. eHealth Division will work closely with the eHealth Leads Group to monitor this requirement to support collaborative programme delivery and, in particular, to ensure common standards and datasets for key developments such as:

- the information content of patient record summaries, for example of GP records or community records, that are viewed through the clinical portal;

- the content and format of a medications summary record, and associated reconciliation processes;
- the content and information that can be viewed through a patient portal that comprise a Personal Health Record;
- the content of shared health and social care developments.

6.4 Information Assurance

Effective information assurance is a foundational requirement for the successful exploitation of eHealth covering governance, confidentiality, security and availability, and integrity and quality of data, information and records. NHSScotland has a strong track record and has retained the confidence of the public, politicians and clinicians through the course of significant developments such as the Emergency Care Summary. The recent review chaired by Dame Fiona Caldicott³⁰ has signposted the way to acceptable further information sharing and has been adopted by the Scottish Government.

Scotland's information assurance framework will need to advance and keep up with eHealth developments such as the clinical and patient portals, health and social care integration, and the use of information for management and research, whilst retaining public confidence. In particular, there will be increased access from outwith the NHSScotland environment from public service partners and third sector organisations. eHealth Division has been reviewing existing documentation and its interpretation of data protection legislation, with a view to improving the clarity of guidance to health and social care workers across a number of areas. The review is taking account of the fact that eHealth systems and the information they hold will become increasingly vital to the provision of health and care services, and access to information will be from many more sources and a far greater range of devices.

During 2015 eHealth Division will review its existing programme. There will be particular focus on:

- embedding the Caldicott principles and guidance into NHSScotland and local government, including the Health and Social Care Partnerships;
- strengthening access monitoring and the incident reporting procedures;
- increasing capacity to undertake risk assessments and manage situations where the information governance risk from sharing information and the clinical risk from not sharing information can give rise to challenging decisions for eHealth and clinical professionals;
- policy development to better support information assurance for the emerging person-centred services and patient portals;
- policy, risk assessment and assurance for citizen identification when accessing NHS systems and services;

³⁰ [Information to Share or not to Share? The Information Governance Review, March 2013](#)

- continued reviews of ICT resilience and data integrity as NHS Boards increase their dependence on systems and move towards seven day working for some services;
- a continued programme of standards and guidance development, and delivery of training and support for local organisations and partner organisations.

The approach will continue to reflect past success through clear communication, consultation and openness with stakeholders.

6.5 Investment Appraisal, Benefits Realisation and Evaluation

There is a clear and established process to take eHealth concepts through appraisal to implementation and subsequent evaluation. It is not envisaged that this will change and conceptually it will continue to be an outcomes based approach – what will be the benefits for patients, staff, NHSScotland and the wider public sector? Given the financial pressures on NHSScotland it is only realistic that this process will continue to place an emphasis on operational efficiencies and opportunities to help address the demands on clinical services. Individual projects and programmes will be expected to demonstrate that consideration has been given to the process changes and training required to exploit new eHealth capabilities and realise benefits, and that an assessment has been made of the requirement for change management resources and skills. Suppliers will be expected to be cognisant of this, and, whilst it is difficult, a focus will remain on seeking to link supplier contractual commitments to outcomes and benefits.

However, given the complexity of the possible impacts of eHealth systems, and the breadth of outcomes in terms of behaviour, morbidity and mortality, consideration will be given to more extensive monitoring and evaluation of the most significant programmes, including academic and health economics approaches, to ensure rigour and sound evidence for further investment and development. This will include continuing to monitor worldwide developments in eHealth, drawing on the experience of the academic sector and bodies such as the Digital Health Institute, and engaging with industry and innovators. The focus will be on the identification and realisation of tangible benefits from eHealth investments in the form of improved safety, measurable improvements in service quality, financial savings, and increases in capacity and productivity.

With respect to monitoring progress by the NHS Boards, a set of Common Progress Measures were developed from analysis of NHS Board eHealth Plans, where a number of Boards had identified a similar approach to measurement of progress. These were developed into a set of measures which all Boards agreed to adopt. The measures came into use from April 2013 and are reported quarterly. They have been refined over time with Board input to ensure that they are meaningful and that the effort-to-value ratio is balanced. They will continue to be used to monitor progress and will form the basis of the evaluation framework for annual reviews and reporting, together with key pillar programme milestones and progress towards key deliverable targets.

6.6 Workforce Development

eHealth is about helping staff to do their jobs better and more efficiently, and inevitably it has a significant impact on their working lives. Success will only come from ensuring that not only is the technology appropriate but that staff are in the best possible position to exploit it for the benefit of patients and NHSScotland.

The focus of workforce development has shifted over recent years away from the more basic IT skills and system training. However, these remain important and a key component of undergraduate education, induction and new system implementation, but the burden across Scotland should reduce as eHealth systems become increasingly common and consistent. Going forward there will need to be an increased focus on ensuring that the clinical workforce is better educated and trained in the use of applied health informatics and exploiting eHealth systems to maximum benefit.

Recent work by NHS Education for Scotland has focused on the development of learning and training opportunities in the use of technology to deliver new models of care, with a focus on person-centred care in community and home settings, and the development of technology enabled learning. With the publication of the *Everyone Matters: 2020 Workforce Vision*³¹ for the health and social care workforce, there is a much greater emphasis on how technology is used to support workforce development, which will be particularly crucial with the move to seven day services.

To achieve success in this area there is a need to ensure that:

- staff working in health and social care are confident, and enabled to use technology to access learning as part of their everyday activity;
- high quality digital learning resources are available on an anywhere, anytime basis, and are easily accessible to all those who can benefit from them;
- organisations in both health and social care settings are encouraged to ensure that the infrastructure that they provide is optimised to ensure that their workforce can access the learning resources that they need.

During 2015, NHS Education for Scotland will work in collaboration with the Scottish Social Services Council (SSSC) and other stakeholders to develop an action plan based around the vision that *“People throughout Scotland’s health and social care are empowered and enabled to use technology to learn, improve and transform services.”* This work will involve strengthening the health links into the Digital Public Services workforce streams focussed on workforce development across public services and supporting the health and social care workforce to make best use of technology in their learning and in their day to day work.

NHS Boards and other employers in the health and social care sectors will also have a vital role to play in ensuring that their workforce are able to access digital learning resources whilst at work, utilising their employer’s infrastructure, and are equipped to

³¹ <http://www.scotland.gov.uk/Publications/2013/06/5943>

recognise the need to make appropriate changes in the organisation and delivery of care in order to fully exploit eHealth capability.

6.7 Supplier Relationships and Procurement

At present, NHSScotland has a number of strategic relationships with suppliers that provide key systems and services. NHSScotland's strategy is to integrate systems from multiple suppliers, an approach that reflects historic approaches and investment, and a current absence of proven, enterprise-wide solutions appropriate to the NHS environment. As a result, NHSScotland needs suppliers to co-operate in bringing forward developments and supporting integration that was not entirely predictable or foreseeable at the time of procurement.

These relationships with suppliers are commercial and clearly NHSScotland needs to look to its own interests, in particular to ensure its needs for interoperability and consistency of standards take priority, and that suppliers deliver their full contractual commitments in terms of system functionality, integration and performance. Nevertheless, historic performance and approaches in this area will be a key future consideration when NHSScotland is placing contracts for products and services, and NHS National Services Scotland is taking the lead in protecting NHSScotland's interests in respect of eHealth, and ensuring a robust commercial approach with suppliers in collaboration with the NHS Boards.

The objective in procurement processes will continue to be the establishment of relationships that protect NHSScotland, are efficient and cost effective (development done once for Scotland), and can be mutually beneficial over the long term as eHealth and NHSScotland requirements inevitably change. This will include options to include performance and gain share based contracts and to encourage investment by commercial partners or joint venturing to benefit both parties.

6.8 Planning and Managing Delivery

This Strategy sets a Vision and Aims for eHealth and identifies the developments that are anticipated over the period to 2017 and then the period to 2020. Delivery of the Strategy will be a substantial challenge in which many organisations will have a role, including the Scottish Government, NHSScotland, various other public bodies and suppliers.

The Strategy is supported by a number of other documents, in particular:

- a Business Plan which sets out the major delivery programmes, including their context, organisational arrangements, key objectives and anticipated milestones;
- a Finance Strategy which identifies the level of financial resources that are likely to be available for local, regional and national initiatives and the associated management arrangements;
- a revised Technical Strategy addressing both infrastructure and applications.

Ongoing work will be required to develop and implement the delivery programmes and decisions will inevitably be required, during the course of investment appraisal,

on relative priorities and the use of scarce investment resources. The eHealth Division of the Scottish Government will manage this process, working collaboratively with the NHS Boards through the various national eHealth management bodies. The focus will be on enabling an NHS-wide effort to collaborate, share experience and expertise, and, where appropriate, converge eHealth solutions, in order to deliver this eHealth Strategy and the associated benefits for patients, citizens and NHSScotland staff.

7 Appendix 1: Summary of eHealth Aims and Strategic Responses

eHealth Aim and Associated Requirements	Strategic Responses
<p>1. To enhance the availability of appropriate information for healthcare workers and the tools to use and communicate that information effectively to improve quality.</p> <p>The vision for 2020 is that NHS Boards will build on the existing infrastructure of electronic clinical systems, integration hubs, and the adoption of portal technologies so that:</p> <ul style="list-style-type: none"> the staff who currently record patient information on paper will have access to an effective and resilient electronic clinical system designed to specifically support them in their daily role and work caring for patients; the current situation where staff typically only see information recorded in their own sector (primary, community, secondary or social) which gives rise to risk for the patient and issues with continuity of care, will be addressed. Staff will have access to an appropriate view of each patient's comprehensive Electronic Patient Record, including information recorded by the patient; patient care processes will be supported as these systems will enable staff to refer to colleagues, triage referrals, request investigations and receive results, generate clinical correspondence, and track care and receive prompts and alerts; information can follow patients irrespective of departmental and organisational boundaries. 	<ul style="list-style-type: none"> By 2017 NHS Boards will complete making the nationally agreed 14 priority clinical information items available electronically. Additionally, over the period to 2020 NHS Boards will provide staff across health and social care with appropriate electronic access to an increasingly broad view of patient information as it is digitised to create a comprehensive Electronic Patient Record. This is expected to be through NHS Boards' clinical portal infrastructure and will include a focus on ensuring a simple, intuitive and fast interface for the use of clinicians that facilitates their work and supports safe care. NHS Boards will continue the process of acquiring, improving and widening the scope of their major clinical information systems comprising of their Patient Management System, Community System and Mental Health System. By 2017 the process to put in place a contractual environment to support the provision of GP systems, and associated integration with community systems will be completed addressing important new needs and integration requirements. By 2016 eHealth Division, working with key partners such as Healthcare Improvement Scotland, will sponsor development of a clear strategy and organisational arrangements for the future creation, adoption and management of clinical decision support information and tools, and the intelligent use of patient electronic information to enhance safety, care quality, and clinical knowledge and learning, ensuring a feasible, effective and affordable approach.

eHealth Aim and Associated Requirements	Strategic Responses
<p data-bbox="188 276 1088 419">2. To support people to communicate with NHSScotland, manage their own health and wellbeing, and to become more active participants in the care and services they receive.</p> <p data-bbox="188 464 506 488">The vision for 2020 is that:</p> <ul data-bbox="188 533 1088 1070" style="list-style-type: none"> <li data-bbox="188 533 1088 639">• citizens will be able to use a patient portal to access their own Personal Health Record, and make their own contributions to the record, promoting patient ownership of their information; <li data-bbox="188 679 1088 743">• patients will also be able to access structured information about managing their health, prevention and self-management of conditions; <li data-bbox="188 783 1088 927">• patients will use secure two way electronic communication with their health and social care providers to book and manage appointments and order repeat prescriptions, resulting in convenience for patients and reduced transaction and administration costs for NHSScotland; <li data-bbox="188 967 1088 1070">• patients will also be able to download their data for their own personal use in applications and devices. Again this will be intended to support health maintenance, prevention and self-management. 	<ul data-bbox="1115 312 2029 1334" style="list-style-type: none"> <li data-bbox="1115 312 2029 568">• *NHSScotland will continue to adopt the products and infrastructure available as part of the public sector Digital Services Strategy. Specifically, the Citizen Account system (myaccount) will be the service through which patients will authenticate their identity and register for online transactional services. The service will be developed to allow registered users to link to their CHI number which will be the key to retrieving their personal information and data; <li data-bbox="1115 608 2029 783">• By 2015 eHealth Division will sponsor the definition of a national approach to a patient portal that will provide a single point of access for patients and the public to their information and digital services. A development and implementation approach and an associated business case will also be required. <li data-bbox="1115 823 2029 999">• The patient portal business case and consequent development will be undertaken over the period 2016 – 2020. This will provide citizens with access to a Personal Health Record and the ability to contribute information, make use of secure messaging, and download data for their own use. <li data-bbox="1115 1038 2029 1150">• All GP practices will be encouraged to provide online repeat prescribing and online appointment booking as online services with a view to at least 90% of practices offering this service by 2017. <li data-bbox="1115 1190 2029 1334">• By 2017 NHS Boards will have implemented electronic communications by which correspondence with patients can, optionally, be done online thereby providing an improved service and reducing transaction and administration costs.

eHealth Aim and Associated Requirements	Strategic Responses
<p>3. To contribute to care integration and to support people with long term conditions.</p> <p>The vision for 2020 is that integrated health and social care teams that support people with long term conditions and multi-morbidities will use systems to:</p> <ul style="list-style-type: none"> • easily and effectively share information and communicate electronically to co-ordinate their activities to ensure seamless, more effective and higher quality care for patients; • support current and emerging forms of care delivery, including single point of care community hubs, hospital at home, and community wards, that are all aiming to provide supported discharge and alternatives to acute care and admission. <p>Additionally, standardised models of technology enabled care, such as home health monitoring, will become available enabling patients to remain at home or in the community. eHealth services will be developed to ensure that they accommodate these developments in patient care.</p>	<ul style="list-style-type: none"> • NHS Boards will continue to work with the Health and Social Care Partnerships to fully define their information management requirements and develop appropriate solutions, building on the work of the Health and Social Care Information Sharing Strategic Framework. • The current deployment of capability to enable sharing of information between health and social care will continue. • By 2015 Boards will have better capability to stratify their patients to identify those with multiple morbidities and long term conditions. • Over the period to 2017 and beyond NHS Boards will develop their information systems to ensure that they support individual patient's conditions and circumstances. eHealth will have a role to ensure that the emerging technology enabled care solutions that are expected to play an increasing role in patient pathways are supported within these information systems.
<p>4. To improve the safety of people taking medicines and their effective use.</p> <p>In the period to 2017 and on to 2020:</p> <ul style="list-style-type: none"> • significant progress will be made in enabling hospitals to adopt electronic prescribing and medicines administration (HEPMA) systems. These systems will allow electronic prescribing and medicines administration processes such that the drug record is available within the Electronic Patient Record. This will allow system intelligence to be applied to prescribing decisions and monitoring of administration with 	<ul style="list-style-type: none"> • By 2015 eHealth Division will sponsor work to be undertaken collaboratively to confirm and agree a way forward for NHSScotland. This will address the medications information management vision, including both a HEPMA solution and a 'Closing the Loop' roadmap. It will also include implementation approaches, phasing and funding arrangements. • NHS Boards will implement the agreed way forward, collaborating on all aspects where there may be advantage to NHSScotland and patients, such as common datasets, design and infrastructure, and shared

eHealth Aim and Associated Requirements	Strategic Responses
<p>risk reduction and quality of care benefits for patients;</p> <ul style="list-style-type: none"> in addition, as an associated development, NHSScotland will develop electronic capability to support the reconciliation of patient medications across all transitions of care, in particular between primary and secondary care at admission and discharge ('Closing the Loop'). This will address a key area of risk in patient care. 	<p>maintenance and support.</p>
<p>5. To provide clinical and other managers across the health and social care spectrum with the timely management information they need to inform their decisions on service quality, performance and delivery.</p> <p>The vision for 2020 is for significant further development of current capability to support:</p> <ul style="list-style-type: none"> integrated and person-centred information and intelligence to support decision making, quality evaluation and improvement, which can be used to assess performance and improve patient care; analysis, interpretation and use of data, information and intelligence. <p>There will also need to be parallel and ongoing development of information governance arrangements and patient consent models to retain the public's confidence, and to ensure it keeps pace with developments. In addition to supporting NHS related research, this infrastructure will impact positively on the wider field of informatics for health and biomedical research as set out in the recent draft strategy for this area.</p>	<ul style="list-style-type: none"> By 2015 eHealth Division will review the process for development, maintenance and use of clinical content and messaging standards and datasets in Scotland, reflecting both UK and wider international developments. This will include resource requirements and a plan for the adoption and maintenance of standards, and arrangements for ongoing engagement with suppliers in relation to this key requirement. By 2015 NHS Boards will assess the requirements and approach to the future use of SNOMED CT within NHSScotland eHealth systems, including engagement with suppliers regarding requirements in this area. By 2016 eHealth Division will sponsor work to review with key parties, including the NHS Boards, the National Information Leads Group, NHS National Services Scotland and Health Analytical Services Division, as well as with other research and industry interests, the requirements to ensure alignment between information system developments at local level, business intelligence activities at NHS Board and national levels, and the generation and maintenance of local and national data sets, and the best approach to ensuring a co-ordinated and effective information architecture, infrastructure and governance. It is expected that this will take the form of an Information Strategy for NHSScotland.

eHealth Aim and Associated Requirements	Strategic Responses
<p>6. To maximise efficient working practices, minimise wasteful variation, bring about measurable savings and ensure value for money.</p> <p>eHealth developments under the other strategic aims should make a substantial contribution to improving efficiency through making staff more efficient, and enabling better informed and more timely decisions about patient care which will increase available capacity.</p> <p>The focus on enabling self-management includes a clear objective to release NHSScotland capacity for redeployment, whilst clinical decision support should also enable staff to increase their knowledge and capability to care for patients.</p> <p>The vision for 2020 is that this will be reflected in a largely paperless environment. Staff and physical assets will be utilised in the most effective and efficient way, including seven day services where appropriate, as a result of increased capacity to organise, manage and control the healthcare delivery environment.</p>	<ul style="list-style-type: none"> • *NHS Boards will focus on taking advantage of the economies of scale available from eHealth convergence and common infrastructure, both hardware and software, and associated benefits of overall simplification and greater resilience of the eHealth systems architecture. NHS Boards will be expected to include within their local delivery plans, and report at their annual reviews, their assessment of opportunities and progress with convergence with NHS Partners and on a regional public sector basis. • Advantage will be taken of the annual IM&T Survey to collect information on eHealth convergence that will allow NHS Boards to compare progress and share learning. This will also be linked into the reporting of performance based on common measures and a robust annual eHealth review process. • Implementations will focus on identifying, defining and supporting real change to care models and processes. This is undoubtedly challenging and disruptive. However, for eHealth, and in particular technology solutions to enable self-management and to impact efficiency, significant effort will be required to ensure they complement or replace existing care activities and are not just an add-on to current practices.
<p>7. To contribute to innovation occurring through the Health Innovation Partnerships, the research community and suppliers, including the small and medium enterprise (SME) sector.</p> <p>The vision for 2017 is that NHSScotland will be working in an effective partnership with the Scottish Government, the academic sector and industry, including SMEs, to promote Scotland as an attractive location for organisations active in the area of eHealth research, development and</p>	<ul style="list-style-type: none"> • NHSScotland will participate with academia, the Digital Health Institute, Scottish Government, the Enterprise Network and industry partners in the definition of a strategy for research and innovation in eHealth in Scotland, including identification of the key opportunities with potential for development at scale; • NHSScotland will undertake to engage in a structured programme of periodic meetings with the industry and its representative bodies to

eHealth Aim and Associated Requirements	Strategic Responses
<p>innovation. This applies to NHSScotland’s existing suppliers of eHealth systems and tools, from which continuous innovation is expected, as well as other potential suppliers.</p> <p>NHSScotland will continue to expect any new eHealth products, developments or upgrades to be affordable, effective and resilient, and to offer significant benefits not currently available to NHSScotland and its staff and patients. The best way to achieve this will be to involve users in the researching, planning, development and trialling of new systems and tools from the outset. It is expected that key relationships will continue to be established at international, national and local levels, with the ultimate aim of seeking additional research and innovation investment opportunities, and the momentum that can arise from a concentration of expertise within a Scottish cluster. Such opportunities will include NHSScotland involvement in consortia bidding for European Union, Medical Research Council and Innovation UK Funding.</p>	<p>share information on developments, key areas of interest and critical challenges. This will include participation in initiatives to promote Scottish eHealth science and technology internationally;</p> <ul style="list-style-type: none"> • NHS National Services Scotland will co-ordinate the activities of NHS Boards on leading growth in the publication of Open Data for external use and analysis to better facilitate research and innovation; • NHSScotland will continue to pursue the widespread adoption of standard clinical datasets and messaging standards, and will encourage, including through possible contractual obligations, the opening up of APIs on eHealth systems to allow other suppliers to provide complementary innovations. This will include recognising that patients will, over time, expect to both download their own data for personal use in applications and devices and record data that they have generated through their own personal health monitoring and assessment activities; • NHSScotland will continue to work through the DHI, the Health Innovation Partnerships and other consortia to collaborate with commercial organisations including SMEs, as well as continuing to work directly with local partners and networks; • The DHI and NHS national procurement will continue to act as advisers in relation to appropriate procurement arrangements and options for IP and suitable contractual terms and conditions.

8 Appendix 2: Roadmap

2017 and 2020 Milestones

eHealth Development	Expected capability by 2017	Expected capability by 2020
Comprehensive Electronic Patient Record for Clinicians.	<ul style="list-style-type: none"> • Clinical portal available (or equivalent) in primary and secondary care. • Access to summary data: 14 clinical items, ECS / KIS / PCS; PMS, Test Results, Clinical Letters. • Access to summary of the GP record. 	<ul style="list-style-type: none"> • Clinical portal (or equivalent) available to all accredited clinicians. • Ability to access records for all patients where there is a legitimate relationship. • Patient summary information available (possibly utilising a record locator service) from all care sectors: GP summary, Community summary, Secondary care summary(s). • Drill down to detail information available. • Timeline view of patient events available. • Substantial clinical guidelines and decision support built into clinical systems with support for integrated care pathways.
Health and Social Care Integration.	<ul style="list-style-type: none"> • Sharing of summary information between health and social care. • Electronic messaging and referral support within health and social care team. 	<ul style="list-style-type: none"> • Social care summary an integral part of the Electronic Patient Record view. • Sophisticated workflow and alerts to support integrated care pathways and referral and hand-offs between multi-disciplinary health and social care teams.
HEPMA and Medicines Reconciliation.	<ul style="list-style-type: none"> • Defined strategic plan and, if required, completed procurement for HEPMA and medicines reconciliation solutions. • HEPMA implementation underway or complete in some NHS Boards. • Medicines reconciliation approach piloted in at least one NHS Board. 	<ul style="list-style-type: none"> • HEPMA solution implemented across a number of NHS Boards, with common data and messaging standards and national maintenance of drug, device and administration coding structures. • Medicines reconciliation implemented across a number of NHS Boards, with common notification and acceptance procedure, and all rekeying of prescription data eliminated.

eHealth Development	Expected capability by 2017	Expected capability by 2020
		<ul style="list-style-type: none"> • View available of comprehensive patient current medications record and history. • ePharmacy systems integrated into the overall electronic medicines management structure. • Sophisticated clinical decision support and analysis capabilities from patient interaction through to national intelligence.
<p>Primary and Community Care Systems Development.</p>	<ul style="list-style-type: none"> • Single sign-on implemented across Primary Care. • GP and community staff have access to the clinical portal for their patients. • Online repeat prescriptions, appointment booking and test results implemented in most practices across Scotland. • SMS widely used for appointment reminders and notification of other 'events'. • Some practices providing patients with a summary view of their GP record. • KIS data available to all health and social care staff for the majority of appropriate patients. • GP record summary view available in clinical portal. • New GP systems contractual arrangements in place addressing future functionality and integration requirements. • All GP systems moved, or in process of moving, to hosted server environment. • Community systems in process of being rolled-out across most of Scotland. • Widespread access in the community via mobile devices. 	<ul style="list-style-type: none"> • Completion of implementation of functionality and integration secured through the GP systems contractual arrangements. • Community systems support the entire health and social care team with sophisticated workflow to support co-ordination of care. • GP and Community record summary available through clinical portal. • All community staff equipped with mobile access. • Substantial clinical guidelines and decision support built into GP and community systems with support for integrated care pathways.

eHealth Development	Expected capability by 2017	Expected capability by 2020
Personal Health Record.	<ul style="list-style-type: none"> • National approach, business plan and development approach defined. • National portal with limited services in place. • Various partial and limited proof of concept projects implemented and evaluated to determine citizen usage and preferences. 	<ul style="list-style-type: none"> • Portal is single route to patient online services. • Route of access to GP systems for prescriptions and appointments. • Full suite of health information provided through portal. • View of Personal Health Record drawn from multiple sources, similar to EPR viewed through clinical portal. • Capability for patient contributions to be recorded. • Secure messaging for health correspondence. • Secure messaging with carers. • Capability to download data for personal use in applications and devices.

9 Appendix 3: Views of Clinicians

Of particular importance are the views of those using eHealth to deliver patient care. In June 2014 a survey³² was conducted of 4,247 clinicians covering all professions and all NHS Boards seeking their views on priorities for future investment.

The findings were essentially consistent across NHS Boards, staff groups and care locations, the top 3 priorities being:

1. Better information about my patients from all contributors to care, including accurate and up-to-date medication records:

- a. A GP patient information summary is identified as the key item, but the concept extends to a community staff patient summary, a medication summary, an inpatient episode summary, and the 'take' of other clinicians;
- b. To counter 'information overload', summary information at the top level that allows access if required to lower level detail. The argument is advanced that summaries should be nationally defined so as to avoid inconsistency which could impact patient safety, in particular in the context of cross-border flows;
- c. A shift from fragmented to integrated information. Where information is spread across systems the risk of missing something increases. Clinical portals have helped with this as has 'single sign-on' and this approach should be extended, including better capability to retain the 'patient context' when switching between applications;
- d. In addition to a display of information by category, an option that shows a patient-centred timeline view. This would speed up accessing the important and most relevant information. Ideally clickable tags would allow access to the more detailed information about an individual patient event;
- e. As well as being able to explore patient information through 'clicking', an option to employ search tools on the EPR.

2. More daily tasks more efficient: new or slicker IT to help me (e.g.) assess, plan, record, confer, vet, reconcile medicines, prescribe/administer drugs, discharge:

- a. Test requesting / tracking / results checking and sign-off. A mix of paper and IT exists and the need is for ease of access and clear presentation, and defined, consistent sign-off and workflow procedures that are owned by the clinicians / business;

³² eHealth Priorities as seen by Clinical Staff, Survey Findings, June 2014

- b. Slicker production and editing of all types of letters including internal and tertiary referrals;
- c. Email exchange with patients, and email / messaging with colleagues about patients, with messages being recorded within the EPR and workflow initiated and tracked;
- d. Intelligent workflow / pathway support. This includes active alerts for the arrival of information or results outside an expected range, and the capability to define an expected sequence of events for patients with prompts at appropriate points for various players to take action;
- e. Medicines: reconciliation and hospital prescribing / recording of administration. Reconciliation applies to the movement of patients between primary and secondary care (which has been considered in the Closing the Loop project) whilst hospital medicines would be addressed through a HEPMA solution.

3. Mobile device (laptop/tablet) to work with my patients' electronic records anywhere, with keyboards and large screens available to connect to in appropriate places.

- a. Clearly this applies to mobile staff and care provided away from NHS premises, but it also has resonance with hospital based staff. It can also be expected to include the third sector and private sector suppliers in the care sector.



© Crown copyright 2015

OGL

This publication is licensed under the terms of the Open Government Licence v3.0 except where otherwise stated. To view this licence, visit nationalarchives.gov.uk/doc/open-government-licence/version/3 or write to the Information Policy Team, The National Archives, Kew, London TW9 4DU, or email: psi@nationalarchives.gsi.gov.uk.

Where we have identified any third party copyright information you will need to obtain permission from the copyright holders concerned.

This publication is available at www.gov.scot

Any enquiries regarding this publication should be sent to us at
The Scottish Government
St Andrew's House
Edinburgh
EH1 3DG

ISBN: 978-1-78544-139-4 (web only)

Published by The Scottish Government, March 2015

Produced for The Scottish Government by APS Group Scotland, 21 Tennant Street, Edinburgh EH6 5NA
PPDAS45332 (03/15)

W W W . G O V . S C O T