SPICe Briefing
eHealth in Scotland

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This briefng discusses the current strategy for eHealth in Scotland. Considering the background to the programme's development over recent years, and the key policy drivers for taking it forward, there is a discussion of some of the key eHealth initiatives that are currently underway.

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INTRODUCTION

The term "eHealth" can be used to refer to the use of a range of digital tools and services used to support healthcare and systems. As such, it has a wide interpretation. The European Commission (2012b) states:

> "eHealth covers the interaction between patients and health-service providers, institution-to-institution transmission of data, or peer-to-peer communication between patients and/or health professionals. Examples include health information networks, electronic health records, telemedicine services, wearable and portable personal health systems and many other information and communication technology (ICT)-based tools assisting disease prevention, diagnosis, treatment and follow up."

Thus eHealth can refer to a wide range of programmes and initiatives, aimed at a variety of audiences. Its definition often encompasses a number of specific types of IT solutions, including "health informatics"[1] "telehealth"[2] and "telecare"[3].

Recently, Scotland has been referred to as one of the European leaders in taking forward eHealth programmes[4]. There has been a tradition in Scotland considering how information technology (IT) can be used for the benefit of patient care. Often seen in the past as a set of tools that would support the delivery of services in rural areas, the impetus to engage with eHealth over recent years, in Scotland as well as elsewhere, has come as a the response to wider issues, including:

- The development of more person centred services.
- Making health services more efficient.
- An ageing population and the desire to keep people in their own homes and/or living in the community for as long as possible.
- Prevention, not just in terms of people becoming ill in the first place, but also in terms of maintaining those with long term conditions in as good as health as possible, for as long as possible.
- Supporting the integration of services to improve the patient pathway.

The policy context for the current eHealth strategy in Scotland is the 'Healthcare Quality Strategy' (Scottish Government, 2010), which sees eHealth as a vehicle in supporting efforts to improve the patient experience and the quality of care. However, eHealth is also seen as a way of supporting delivery of other policy areas, including, but not limited to:

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[1] This can be described as the knowledge, skills and tools which enable information to be collected, managed, used and shared to support the delivery of healthcare and promote health (NHS Connecting for Health, online).

[2] The provision of health services at a distance using a range of digital and mobile technologies. It includes the capture and relay of physiological measurements from the home/community for clinical review and early intervention and "teleconsultations" where technology such as email, telephone, telemetry, video conferencing, digital imaging, web and digital television are used to support consultations between professional to professional, clinicians and patients, or between groups of clinicians (Scottish Government, 2012, Appendix 1).

[3] The provision of care services at a distance using a range of analogue, digital and mobile technologies. These range from simple personal alarms, devices and sensors in the home, through to more complex technologies such as those which monitor daily activity patterns, home care activity, enable 'safer walking' in the community for people with cognitive impairments/physical frailties, detect falls and epilepsy seizures, facilitate medication prompting, and provide enhanced environmental safety (Scottish Government, 2012, Appendix 1)

[4] For example, see European Commission (2012c) 'Denmark, England and Scotland are at the forefront of telehealth…Rethinking healthcare' and Accenture (2012) 'Connected Health: The Drive to Integrated Healthcare Delivery'

- The wider NHS strategy in Scotland – ['Better Health, Better Care'](#)
- The Scottish Government's [20:20 Vision](#) for health.
- Reshaping care for older people.
- The review of the ICT infrastructure across the public sector.
- The integration of health and social care.
- The Scottish Government's digital strategy.

In addition to national policies, the Scottish Government also seeks to develop eHealth in accordance with the European Union's eHealth Action Plan on eHealth. This is part of the [EU's wider Digital Agenda for Europe](#). The EU's first eHealth Action Plan was adopted in 2004, and it set out a plan to encourage the widespread adoption of information and communication technologies (ICT) in the healthcare sector by 2010. The NHS Confederation (Online) [notes](#) that although it did not define "eHealth", the plan's approach was broad, covering a range of programmes, from electronic prescriptions and health cards to new information systems to reduce medical errors and waiting times. The second and current [eHealth Action Plan](#) (European Commission, 2012a) is for the period 2012-2020. It is more focussed on the barriers to eHealth (see below) and its actions include work to devise guidelines on a dataset for patient summary records to be exchanged across borders; recommendations on legal aspects of interoperability; and areas of further research.

The approach taken in Scotland, over recent years, has been to coordinate eHealth programmes, making use of what already exists rather than inventing new systems, through a number of strategies and action plans. However, before discussing the Scottish approach to eHealth, it is useful to outline what benefits it can bring together with the challenges that can be faced when implementing its programmes.

The benefits of eHealth

The European Commission (2012a, p 3) states that, when applied effectively, eHealth can be of benefit to the citizen, the patient, all healthcare professionals and health organisations themselves. The benefits it refers to, are, perhaps unsurprisingly, related to the drivers discussed above:

> "…[eHealth] delivers more personalised 'citizen-centric' healthcare, which is more targeted, effective and efficient and helps reduce errors, as well as the length of hospitalisation. It facilitates socio-economic inclusion and equality, quality of life and patient empowerment through greater transparency, access to services and information and the use of social media for health."

It notes, in particular, how benefits have been demonstrated: when using telemedicine for managing chronic conditions, mental health and health promotion; in technology assisted therapies to complement routine clinical care and improve the cost-efficiency of the treatments; when using electronic health records; and, in ePrescribing. In cost terms it states that eHealth can help reduce costs and provide a net benefit, once the value of the system employed begins to cover investment costs.

The barriers to eHealth

The European Commission (2012a, p 4) makes note of seven barriers to the development of eHealth programmes, which will exist to a greater or lesser extent in different countries and systems:

- Lack of awareness of, and confidence in eHealth solutions among patients, citizens and healthcare professionals.

- Lack of interoperability between eHealth solutions.
- Limited large-scale evidence of the cost-effectiveness of eHealth tools and services.
- Lack of legal clarity for health and wellbeing mobile applications and the lack of transparency regarding the utilisation of data collected by such applications.
- Inadequate or fragmented legal frameworks including the lack of reimbursement schemes for eHealth services.
- High start-up costs involved in setting up eHealth systems.
- Regional differences in accessing ICT services and limited access in deprived areas.

eHEALTH IN SCOTLAND

It can be deduced from the sections above that eHealth can be complex to deliver, particularly given the number of strands to it and the number of players required to implement and sustain programmes. This is no different in Scotland, and it can be challenging to provide an overall picture of eHealth because of that. The following sections provide some background to recent developments, outline the relevant strategies applicable to eHealth and outline some of the key eHealth initiatives currently being taken forward.

BACKGROUND

As noted above, eHealth is not new in Scotland. For example, the mid-1980s saw the origins of the General Practice Administration System for Scotland (GPASS), an electronic health record for primary care (Lluch, 2011). However, prior to the mid-2000s, outwith the success of individual programmes, it was sometimes argued that the NHS in Scotland had a piecemeal approach to the development of IT systems[5]. The number of localised IT systems had increased with the advent of NHS Trusts in the 1990s. Although many Trusts adopted similar systems, and only five Trusts went their own way, it was argued that this approach had not been ideal in early attempts to converge data and records systems, and promote wider scale of eHealth technologies. The Scottish Government (2013) believes that the reunification of NHS Boards with the NHS Trusts that took place from 2001[6], helped to mitigate against this problem.

Recent impetus to deal with this problem, can be traced, in part, to Professor David Kerr's, 'Building a Health Service Fit for the Future' (Scottish Executive, 2005a) (the Kerr Report), which noted how health systems across the world were developing ICT, because it could help deliver better and more efficient care. It advocated a common ICT system for NHS Scotland, arguing this was essential if the NHS was to deliver the integrated, continuous care that was a feature of the wider report itself. It considered this single ICT system should have a range of features (some of which were already in development), including: an electronic health record; patient portals; the Picture Archiving and Communications System (PACS); electronic prescribing; telehealth and telecare. Finally, the Kerr Report recommended that the then Scottish Executive should establish a Telehealth Technology Resource Centre to develop nationally applicable approaches to telehealth. The then Scottish Executive's (2005b) response to the Kerr Report was 'Delivering for Health'. It accepted the recommendations concerning a common ICT system and for the creation of a technology resource centre. In terms of the latter, the Scottish Centre for Telehealth (SCT) was established in 2006, which had the aim of providing practical help to NHS Boards as they sought to realise the potential of telehealth development projects.

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[5] For example see Scotland on Sunday (2004) 'Microsoft accuses 'piecemeal' NHS Scotland of wasting money'
[6] For a discussion on the developments in this area, see Robson (2007 p 4-5)

Following the Scottish Parliament elections in 2007, the new Scottish Government published its own NHS strategy, 'Better Health, Better Care'. It made specific mention of eHealth and telehealth, noting the progress that had been made thus far in programmes such as the Emergency Care Summary, and reiterating the role of the SCT. However, it also made a commitment to publish a new eHealth strategy.

These reports and health service strategies led to a number of developments. The key strategies (including the first eHealth Strategy 2008-11), initiatives and reports that have influenced the current strategies are summarised in Appendix 1.

THE eHEALTH STRATEGY

The eHealth strategy can be described as providing a route map for the NHS in Scotland to follow in developing the programme. However, as well as outlining the plan for eHealth initiatives, it also provides direction for telehealth and telecare. Given there is now a delivery plan for telehealth and telecare, this is also outlined below.

The eHealth Strategy 2011-2017

The second and current Scottish Government eHealth strategy was published in September 2011. Set in the context of the Healthcare Quality Strategy (see Appendix 1), its aim is to build on what was achieved through the first strategy. Moving away from an emphasis on the development or implementation of technology products and services, the new strategy seeks to focus on outcomes and deliverable benefits to clinicians and patients. From the outset, there is an emphasis on how the strategy does not mandate a set of tasks from the top down. Rather, it sets out "an agreed direction and set of goals" with the NHS in Scotland, based on partnership between the service and the Scottish Government (2011c, p 3).

Originally published with five strategic aims, the document was revised in July 2012 to include a sixth. These strategic aims are the focus of eHealth policy over the lifespan of the plan:

1. Maximise efficient working practices, minimise wasteful variation, bring about measurable savings and ensure value for money.
2. Support people to communicate with NHS Scotland, manage their own health and wellbeing, and to become more active participants in the care and services they receive.
3. Contribute to care integration and to support people with long term conditions.
4. Improve the availability of appropriate information for healthcare workers and the tools to use and communicate that information effectively to improve quality.
5. Improve the safety of people taking medicines and their effective use.
6. Information and technology in a co-ordinated way to provide clinical and other local 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.

As well as taking account of the Healthcare Quality Strategy, there were two other policy areas that provided context to the new strategy. The first was joint working between health and social care, viewed as essential in dealing with the challenges brought by: an ageing population; increasing numbers of people with complex long term conditions; budget constraints; increasingly sophisticated (and expensive) treatments; and, rising expectations of what health and social care services should deliver. The strategy committed the NHS to work with local authority partners to develop an IT strategy that focuses on facilitating better joint working. The

second relates to the findings of the review into ICT infrastructure across the public sector (see Appendix 1). It noted that that the review challenged "the health sector to go further, both in relation to its engagement with planned "pan public sector" services and contracts and to further embed the national eHealth Governance within [NHS Scotland] to cover all national information and communication technology projects and services". (2011c, p 9).

Finance

The eHealth Strategy 2011-17 notes how its predecessor was focussed on capital expenditure, given that it was focussed on developing the eHealth infrastructure. The new strategy is a revenue based programme, which is focussed on delivering the commitments set out in the strategy. From 2011-12, the majority of eHealth funding has been distributed to NHS Boards, rather than being spent centrally by the Scottish Government or allocated on a project by project basis as in the past. It is believed that this will deliver greater flexibility and mean that funding will be closer to professionals and patients, which, in turn, will deliver better results. However, some funding is retained in order to: facilitate the change programmes necessary for the delivery of the strategic aims; to maintain products and services already in use (for example, PACS); and, to enable other infrastructure, such as broadband and email. (Scottish Government, 2011c, p 10).

The strategy (Scottish Government, 2011c, p 10-11) acknowledges the financial changes faced by the NHS, and therefore outlines a number of actions in addition to the majority of funding being released to NHS Boards directly, including:

- Releasing funds for new investment from areas of existing expenditure through efficiencies.
- Further convergence around common eHealth systems, particularly where costs can be reduced.
- Building on the success of previous collaboration, such as the Patient Management System, to establish shared services.
- Making funds available to support eHealth-enabled savings in the NHS.
- Not penalising where Boards have already invested.
- Not rewarding Boards with higher than average cost solutions.

In March 2012, the Scottish Government (2012b) published the 'eHealth Finance Strategy 2011-17'. It notes that over the course of the Spending Review 2011-12 to 2014-15, revenue funding will amount to £89m per annum. Over the course of the Spending Review 2011-13 to 2104-15 over 90% of these budgets will be allocated to NHS Boards. In 2012-13 around 67% of these budgets are to fund "business as usual" products and services, such as commitments to national IT services such as the Emergency Care Summary, the Community Health Index database and public health screening programmes. The remainder is the strategic fund which is used to implement the current eHealth strategy. As costs for "business as usual" services reduce, due to efficiencies, over the next 3 years the strategic fund grows from £17m in 12/13, to £21m in 13/14, and £25m in 14/15.

Delivery model

NHS Boards are expected to progress the strategic aims over the six years of the strategy, by incorporating them into their Local Delivery Plans (LDPs), which should be developed in consultation with stakeholders. The strategy states that this represents the "performance contract" between the Scottish Government and the Boards. LDPs run over a three year period, thus the lifespan of the eHealth strategy covers two LDP cycles. The current cycle began in 2011-12 and runs to 2013-14. However, as the LDPs for 2011-12 had been signed off before the eHealth strategy was published (this was referred to as a "shadow year"), Boards were expected to have the strategic aims incorporated into the 2012-13 plans. The strategy contains

nine output actions that are to be met by 2014. In addition, there are a number of "visions" and commitments over the course of the strategy to 2017:

| Actions for 2014	Visions and commitments for 2017
NHS Boards will have well established programmes to replace paper with digital equivalents, along with digital dictation, voice recognition, scanning and video conferencing.	A 'paper light' NHSS, where digital dictation, voice recognition, scanning and video conferencing are common place.
The eHealth Programme will have developed a national strategy covering the range of electronic contact that individuals have with NHSS. This will provide a coherent and citizen centred framework for these developments.	Over the course of the strategy hold a public debate on how eHealth should enable people in Scotland greater participation in the healthcare and services they receive from NHS Scotland.
A national strategy to guide further work in this area will have been developed and agreed.	The Scottish Government working with the Customer First Programme on areas where its infrastructure can be shared with NHS Scotland.
A new health and social care IT strategy will have been developed in partnership with local authorities. This will have paved the way for improvements in information sharing between health and social care workers and greater integration of health and social care services, for people of all ages, across Scotland.	The vision for 2017 is based on a common set of IT services and people being able to communicate with NHSS using the communication channel of their choice.
The electronic Palliative Care Summary and/or Key Information Summary will have been rolled out nationally across Scotland for those who need it.	Secure mainstreamed and integrated telecare / telehealth service provision through a mixed economy of care (public sector, private sector and Self Directed Support).
An eHealth research and innovation advisory group will have been established.	The further expansion of telehealth and telecare in the treatment and care of people with long term conditions and care for older people. We will collaborate with NHS24/SCTT to further expand technology enabled service redesign which is cost and clinically effective.
The local use of information for quality improvements will be enhanced by the eHealth Programme developing a strategy for real time and near time performance data.	All territorial Boards using portal technologies (or electronic windows to information) and the priority information items agreed by clinicians being available at the point of care.
All territorial Health Boards will be using clinical portals (or electronic windows to information) and the priority information items agreed by clinicians will be available at the point of care.	All territorial Health Boards will have introduced single sign-on for healthcare workers and have privacy breach detection tools, and we will have implemented an agreed Information Assurance Strategy and associated programme of work.
Work to implement an agreed Information Assurance Strategy will be well established.	Improved communication and reconciliation across all transitions of care, and making electronic patient medication summaries available to appropriate healthcare workers in both scheduled and unscheduled care.

The strategy states that all of these will be re-visited in 2014 alongside the next Spending Review to come up with a set of "deliverables" for 2017, which will be developed with NHS Boards. (Scottish Government, 2011c, p 11 and 2012b, p 13).

The strategy states that aligned to the LDPs are eHealth Plans, which also run for three years. These will become part of each NHS Board's annual review and should contain a range of information on how the Board is progressing in meeting the strategic aims, anticipated budgets, local priorities and activities, and collaborative working. The Scottish Government is also committed to reporting annually to the Scottish Parliament on progress in meeting the strategic aims, and to the promotion of best practice. (Scottish Government, 2011c, p 11-12). The Scottish Government (2013) has stated that it is working on the first full year report for 2012-2013, which it will aim to submit to Parliament in the autumn of 2013.

Governance

The eHealth Strategy 2011-17 noted how, over the course of its predecessor, there had been reforms and improvements around the governance of eHealth, leading to the arrangements that now exist. These are illustrated in Figure 1:

Figure 1: The eHealth Governance Structure in Scotland
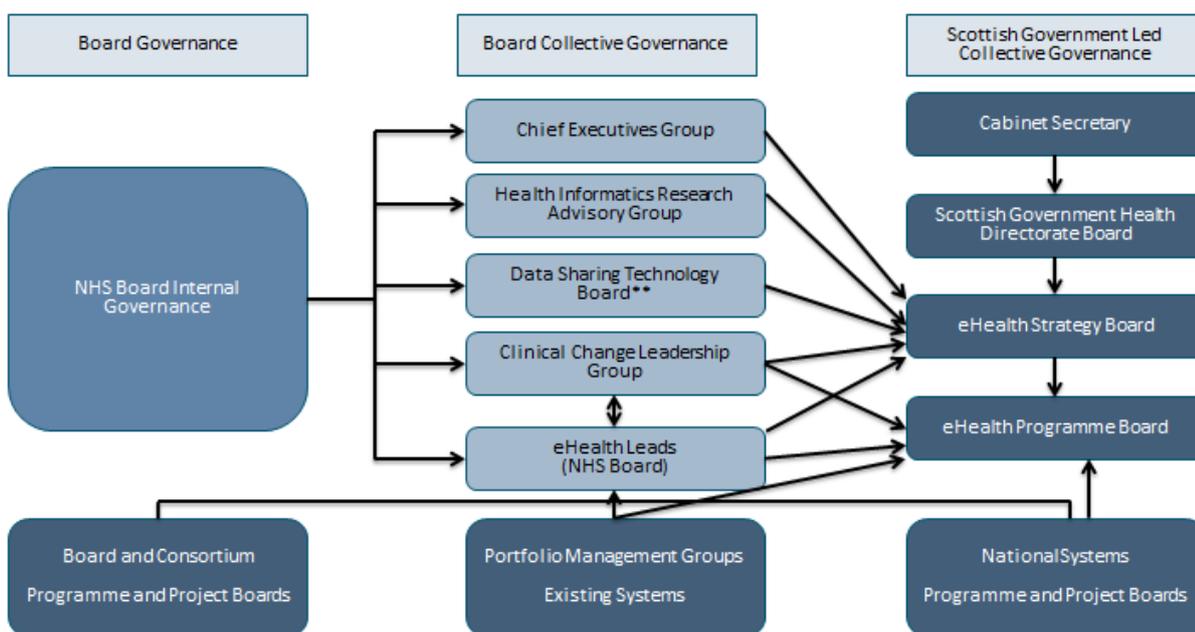
** DSTB also reports to Local Authority Sectoral Board

Source: Scottish Government (2013)

As can be seen from Figure 1, there are a number of key groups overseeing the governance of the eHealth Programme in Scotland, namely the:

- *eHealth Strategy Board* - the governance body providing overall strategic guidance and investment approval for the Programme.
- *eHealth Programme Board* - responsible for the overall management and implementation of the Programme.
- *Clinical Change Leadership Group* (CCLG) - established to ensure clinical input into the Programme and has a key role in presenting and consulting on the Programme with relevant clinical groups.
- *eHealth Leads Group* - provides a link between NHS Boards and the eHealth Programme at a management level and is key to the successful implementation of projects at NHS Board level. With budgets held by Boards for nationally used systems, a key delivery mechanism is ensuring this Group continues to act collectively.

- *Data Sharing Technologies Board* – established to improve the levels of collaboration between care partners and develop a sustainable way forward for data sharing and collaborative working using technology.

The terms of reference for each of the groups, together with additional information, are available here.

The governance arrangements for eHealth show that there are a significant number of players, ranging from IT experts, clinicians, Board managers and Scottish Government officials. As noted above this is what can make eHealth complex. However the Scottish Government (2013) notes that this also shows the importance of ensuring the different parts of the NHS are involved in the process from the outset, as well as emphasising the importance of planning if eHealth initiatives are to be successful. It also illustrates the Scottish Government's view that its strategy is ultimately about providing the NHS with a direction of travel, with deliverable outcomes. It is a matter for each of the NHS Boards themselves to determine how to reach the end point outlined in the strategy.

Sub strategies

In order to support the implementation of the strategy, a series of sub-strategies or delivery plans have been developed. One of these is the finance strategy already discussed above. The others include: the Patient Centred eHealth Strategy and Delivery Plan, which seeks to increase the options open to people for interacting and communicating with health services; and the NHS Scotland Information Assurance Strategy, which sets out further guidance on how to embed information assurance and governance into eHealth systems. These and other sub strategies are described in Appendix 2.

In addition, a Health and Social Care Information and Technology Strategy will be developed, which is one of the actions of the strategy to be implemented by 2014. The aim of this will be to support improvements in information sharing and technology to support health and social care professionals, in preparation for greater integration of health and social care services, for people of all ages, across Scotland. The Scottish Government (2013) has advised that consideration is being given to the scope of the strategy, and will evolve following discussions with key stakeholders over the next few months. It added that the current view is that the strategy should provide a framework of principles and guidance to support the information and technological developments that will be required to facilitate integration. In addition, the strategy is to be closely aligned with the Scottish Government's forthcoming legislation on health and social care integration. (Scottish Government, 2013).

Telehealth and Telecare Delivery Plan

The eHealth Strategy for 2011-17 refers to telehealth and telecare as "eHealth tools" that local partnerships (including health and social care) can use when implementing developments in service delivery. In April 2011, the Scottish Centre for Telehealth, and the Scottish Government's Joint Improvement Team's Telecare Development Programme (see Appendix 1) were amalgamated to become the Scottish Centre for Telehealth and Telecare (SCTT). This took place in response to what were considered to be the benefits that had resulted from collaborative and integrated working across health, housing and social care. SCTT continues to sit within NHS 24.

As well as the telehealth and telecare strategies and initiatives outlined in Appendix 1, other developments included the establishment of the National Telehealth and Telecare Advisory Board, to provide the strategic direction on Telehealth and Telecare, and the creation of the

Scottish Assisted Living Programme Board (SALPB). SALPB links with Scotland's Life Sciences Advisory Board and Technology Advisory Group, and its objective is to secure and take forward development and economic opportunities across academia, industry, third sector organisations and health, housing and care practitioners.

The Delivery Plan

In December 2012, the Scottish Government published 'A National Telehealth and Telecare Delivery Plan for Scotland to 2015' (Scottish Government, 2012c), which was developed with the Convention of Scottish Local Authorities (COSLA) and NHS Scotland. Set within the context of a number of strategies policy initiatives including the eHealth Strategy, the Healthcare Quality Strategy and Reshaping Care for Older People, it is also aligned to the 20:20 Vision (see Appendix 1), though it deals with the period 2012-15. It contains four milestones to be achieved by March 2015:

1. Telehealth and telecare will enable choice and control in health, care and wellbeing services for an additional 300,000 people.
2. People who use our health and care services, and the staff working within them, will proactively demand the use of telehealth and telecare as positive options.
3. There is a flourishing Innovation Centre where an interacting community of academics, care professionals, service providers and industry innovate to meet future challenges and provide benefits for Scotland's health, wellbeing and wealth.
4. Scotland has an international reputation as a centre for the research, development, prototyping and delivering of innovative telehealth and telecare services and products at scale.

In working towards these, there are a number of principles outlined, namely:

- Support individuals, users and patients to actively participate in the management and delivery of their own health and care.
- Facilitate flexible solutions that support the management of disease and wellbeing and also provide information, products and services which expand choice, control, coverage and accessibility through a range of familiar channels, e.g. Digital TV, phones, web.
- Build on existing and increasingly familiar technologies and favour the adoption of simple, low-cost approaches which can be tailored to the individual, utilising users, own technologies where and when practical to do so.
- Support service redesign to integrate new ways of working into mainstream service provision and pathways.
- Work across all sectors of Government to drive efficiency and realise best value.

The delivery plan for the strategy is set out according to six work streams – improve and integrate health and social care; enhance wellbeing; empower people; improve sustainability and value; support economic growth; and exchange learning, developing and embedding good practice. The eHealth Strategy commits the Scottish Government to provide SCTT with £1m of funding per year (Scottish Government, 2011c, p 24), though the Scottish Government (2013) has advised that SCTT also receives funding from other sources including the EU.

The Delivery Plan states that the SCTT, collaborating with the Joint Improvement Team, will work with key stakeholders to provide support in delivering the actions in the National Delivery Plan. In terms of monitoring the National Telehealth and Telecare Advisory Board has been charged with reviewing and reporting on an annual basis the progress made by NHS Boards, local authorities and other partners in progressing the Delivery Plan. Finally, to support improvement, the Scottish Government will work with NHS Boards, Local Authorities and other

key stakeholders to develop quality outcome indicators for telehealth and telecare. These are to align with Single Outcome Agreements, support the Scottish Government's Quality Measurement Framework and become a part of the a suite of outcome indicators for the integration of adult health and social care.

eHEALTH INITIATIVES

Both the Telehealth and Telecare Delivery Plan and the Scottish Centre for Telehealth and Telecare website, provide information on the programmes that have been developed in those areas. This part of the briefing concentrates on some of the key eHealth initiatives currently taking place.

eHealth initiatives are directed at the primary care sector and the secondary care sector. All these initiatives have been created for a given purpose. Whilst some of them exist to be standalone, others can be linked in order to provide pre-determined information that is useful for clinicians and other health professions in providing more effective and efficient care to patients.

The complexity of the governance of eHealth has already been discussed above. However, it is also worth noting that in order for them to be successfully implemented requires not insignificant resources, including the time and expertise of "backroom" staff to ensure the systems work properly.

The first eHealth Strategy for 2008-11 entailed developing a number of short-term individual projects, each of which would become stores of information that could be accessed through one browser to form an electronic health record. This is being taken forward through the clinical portal programme (see below). It was felt that this policy of utilising and converging existing systems, where possible and developing new systems where there were gaps, was an efficient use of existing resources as well as being cost effective. It was unlike the course of action taken in England at the time, which sought to develop a whole range of new IT systems rather than use existing systems. The following sections provide information on a range of national programmes, and their progress.

Community Health Index (CHI) Number

A reliable patient identifier is a prerequisite for composite electronic health records. In Scotland it was decided to use the CHI number, which is a unique ten-digit patient identifier. The programme ran from 2005 until 2010. By the end the 97% target on using the CHI in all clinical communications was exceeded (Scottish Government, 2012c, p 7), and now anyone born in Scotland or who is registered with a GP Practice now has a CHI number. The use of the CHI on all clinical communications is now mandatory. It helps clinicians to identify and share patient information safely and quickly. It can also help to reduce delays and negate against the need for repeat tests and investigations because results cannot be found (eHealth, CHI). The use of the CHI has also been integral to the other eHealth programmes, including the Picture Archiving and Communications system.

The Scottish Government (2013) has noted that a key issue for the future is how the CHI can be linked with personal identifiers in social care, so as to ensure sharing of appropriate information to ensure the patient care pathway.

Picture Archiving and Communications System (PACS)

PACS allows images such as x-rays and scans to be stored electronically and viewed on video screens. This means that professionals can access images immediately regardless of where they are. PACS was launched in the NHS in Scotland in 2005, and is now live across the NHS in Scotland, with thousands of images shared each day. It is is now integrated with the Radiology Information System, which is a national archive of electronic images and radiological reports. (National Information Systems Group, PACS and RIS). The eHealth Strategy 2011-17 states that PACS offers the opportunity for radiology reporting to be done remotely, utilising telehealth and potentially facilitating much more flexible working. (Scottish Government, 2011c, p 6).

The system is managed by National Information Systems Group of National Services Scotland. The funding for this continues through the "business as usual" funding stream, discussed in the eHealth Strategy 'Funding' section, above.

Primary Care IT Systems

These systems contain electronic patient records and are used in GP Practices. Typically, the data held on them will include details of a patient's medical history, medication records, laboratory results, and radiology investigations electronically posted back to a surgery from a hospital. Up to the early to mid-2000s the key system used was the General Practice Administration System for Scotland (GPASS). However, following critical reports and a loss in confidence in it by GP Practices, the eHealth Strategy 2008-11 made a commitment to replacing GPASS and provide funding to enable NHS Boards to have direct contractual relationships with their suppliers of GP systems. (Scottish Government, 2008b, p 12).

The eHealth Strategy 2011-17 notes that the Scottish Government commissioned a consortium of Boards, led by NHS Greater Glasgow & Clyde, to develop a business case and run the procurement process. (Scottish Government, 2011c, p 7). This led to two other existing systems EMIS and INPS (Vision) being selected to be on the framework contract, with each NHS Board holding mini-competitions to decide which to deploy. Ayrshire and Arran, Borders, Glasgow and Clyde, Forth Valley, Western Isles, Dumfries and Galloway and Shetland health boards chose EMIS. Highland, Lanarkshire, Grampian, Orkney, Lothian and Tayside chose INPS. Fife chose to purchase both systems, with 43 practices taking EMIS and 18 INPS. Migration to these systems was completed by February 2012, with GPASS being closed down at the end of March 2012. (eHealth Insider, 2012). The eHealth Strategy states that these systems will "deliver improved IT facilities to General Practice, choice consistent with the GP contract and with convergence on fewer more modern IT systems" (Scottish Government, 2011c, p 7).

The Scottish Government (2013) has advised that the value of the contract over its lifespan is £38m.

Emergency Care Summary (ECS)

The design and implementation of ECS began in 2004, through National Information Systems Group. It is a single, national ICT record system that contains key information from GP records concerning demographic, medication and allergy information. As Jones et al (2008, p 9) note ECS does not create or capture new information about patients. Instead, it copies items of data that already exist in GP practice systems and makes it available to users who need it as 'read only'. It is fully rolled out across the service, and holds information for 5.5 million patients. It

enables clinicians and other health professionals in out of hours services, accident and emergency units, NHS 24 and the ambulance service to access important patient information during unscheduled and emergency care situations.

The system has been recognised[7] and its benefits are seen as speeding up consultation time in NHS 24 as well as out of hours and emergency units, improving patient safety and saving clinical time in consultations (see also Jones et al, 2008). Both 'Better Health, Better Care' and the 2008-11 eHealth strategy stated that access to ECS should be extended.

In 2010, the electronic palliative care summary (ePCS) was included within the ECS. It holds a range of information on the patient's wishes concerning their care and end of life wishes, including place of care. It aims to reduce the number of end-of-life patients taken to hospital unnecessarily.

In 2012 it was agreed that the ECS should be used in scheduled care to support medicines reconciliation. This is currently being rolled out, starting with five NHS Boards – Grampian, Highland, Forth Valley, Tayside and Lanarkshire. The decision followed a pilot in NHS Lanarkshire where the ECS was made available in four scheduled clinical areas – cancer services, elderly day care, surgical pre-assessment and elective surgery. The study looked at 405 patients. The ECS was accessed in regards to 75% of these[8]. The results showed that in 22% of accesses the ECS contained information that was not available in any other sources, and of these clinicians considered that access to the information had prevented harm to 23 patients. The study report contains a range of other findings. Amongst its conclusions was that access to ECS in scheduled care had the potential to avoid significant patient harm by improving the accuracy of medicines reconciliation. Amongst its recommendations was that further consideration should be given to extending ECS access by health professionals in scheduled care settings. (NHS Scotland, 2011).

Also in 2012, the Key Information System (KIS) became an extension of the ECS. This is designed to support patients with long term conditions or who have anticipatory care plans in place. KIS contains information from the GP Practice, including patient demographics; details of staff involved in the care of the patient; the patient's current situation, including main diagnosis and current issues; carer and support details; and, information and recommended actions for out of hour's clinicians. (National Information Systems Group, KIS). However, the Scottish Government (2013) notes that a key aspect of KIS is that the clinician is required to work collaboratively with the patient to create the information that is included on the system. This is a change in emphasis from traditional systems where the clinician decides unilaterally what goes on patient record systems. The eHealth Strategy 2011-17 wishes to see the roll out of both ePCS and KIS for those who need it by 2014.

The funding for this continues through the "business as usual" funding stream, discussed in the eHealth Strategy 'Funding' section, above.

Patient Management System

The Patient Management System (PMS) is a key procurement project identified in the eHealth Strategy 2008-11. It aims to provide "both in-patient and out-patient efficient patient scheduling and waiting time management, with additional features such as online test ordering/ results reporting and scope for further functional modules such as A&E, theatres, electronic prescribing

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[7] For example it won the John Perry Prize, which recognises outstanding contributions to primary care computing, in 2011 (eHealth Insider, 2011).
[8] Reasons for not accessing ECS in 25% of study patients included that the patient was not on medication and that there were other sources of information

and maternity" (Scottish Government, 2008, p 13). Thus, it is a secondary care system that seeks to share information across the hospital according to the patient journey.

A consortium of five NHS Boards (Greater Glasgow and Clyde, Grampian, Borders, Ayrshire and Arran and Lanarkshire), supported by the Scottish Government, undertook a joint procurement and selected the TrakCare PMS, resulting in the placing of contracts totalling £44m (NHS National Services Scotland, 2010). The eHealth Strategy 2011-17 states that the benefits of this collaborative approach have been significant: "driving the convergence and standardisation of IT systems at substantially lower cost than could be achieved if Boards were working locally and individually, while maintaining the local ownership that is vital to the successful implementation of these complex changes" (Scottish Government, 2011c, p 5). It argues that this has helped to ensure better clinical and administrative management of patient information, which thus frees up staff to spend more time in front-line services. The working across Boards has led to increased standardisation, and led to a Scottish version of TrakCare known as the Scottish Foundation System.

The Scottish Government (2013) noted that NHS Greater Glasgow and Clyde is implementing a single PMS across all its hospitals, whilst in other areas separate systems are being employed in different hospitals. It further advised that NHS Highland has joined the consortium and will implement PMS in 2013/14. In addition, NHS Orkney will begin implementing in mid-2013, and NHS Shetland and Golden Jubilee National Hospital will begin implementing in 2014.

National A&E System

The Emergency Department Information System (EDIS) was rolled out across NHS Scotland in 2005-06. NHS Scotland's decision to install a nationwide A&E system was based on cost-effectiveness and on making nationwide data and statistics available. EDIS incorporates patient tracking in a 'whiteboard' feature that shows the status of each patient in the A&E department to enable the tracking patients after their admission in real or near-real time. The Scottish Government (2013) believes these capabilities came at a critical time and supported A&E services in meeting the four-hour government target for patients waiting in A&E. It added that some NHS Boards are now looking at using the A&E module of the recently procured TrakCare PMS (see above) or developing the capabilities of their existing patient administration systems to replace EDIS. This would support better integration of clinical systems and patient data.

ePharmacy

The origins of the ePharmacy programme can be traced back to 2001-02 when a pilot project in NHS Ayrshire & Arran considered the development of an electronic transfer of prescriptions (ETP) systems. Following a number of developments this pilot was widened to consider applications that would support the community pharmacist contract and better communications across healthcare teams. It then became known as the ePharmacy programme, and was an integral part of the wider eHealth programme. (NHS Scotland Community Pharmacy, Core Services). The Scottish Government (2013) notes that the infrastructure and services delivered provide a platform to enable further developments with other Primary and Community Care services, as well as other related process and system requirements.

Central to the configuration of ePharmacy systems is the ePharmacy Message Store (ePMS), which is the gateway and store for encrypted messages sent between GP Practice, community pharmacies and National Services Scotland's (NSS) Practitioner Services Division (PSD). It is adaptable for future developments and has been designed so that the data collected can be accessed through an electronic health record in the future. Other parts of the programme include:

- Connecting all community pharmacies to the NHS Net and allowing access to NHS Mail. Every Community Pharmacy is connected to the N3 network and can access all the ePharmacy services. The ePharmacy Message Store recently processed its 1 billionth message (Scottish Government, 2013).
- Developing a central patient registration system, in order that patients can be registered for the Minor Ailment Service and the Chronic Medication Service. This uses the CHI as the patient identifier.
- Introducing the ETP system between GP Practices, community pharmacies and PSD, which aims to reduce transcribing errors, modernise service delivery and increase the efficiency of the processing of prescriptions.
- Developing the Pharmacy Care Record system, a web-based care planning tool that is aimed at assisting pharmacists in providing pharmaceutical care to patients with long term conditions. It was developed and deployed nationally to support the Chronic Medication Service (CMS). By January 2013 there were nearly one million patients registered for the service. It has been agreed that CMS serial prescribing and dispensing should be rolled out to all practices and pharmacies. The rollout will take place in 2013. Approximately 100 practices and 200 Pharmacies are actively CMS serial prescribing and dispensing. (Scottish Government, 2013).
- Developing more efficient payment processing systems. NSS PSD utilises the electronic prescription and claim information to deliver significant efficiencies in their payment processing activity. In November 2012 55% of all items PSD process were fully automated by the 'ePay' system.

The eHealth Strategy 2011-17 states that the ePharmacy programme is also "exploring the potential benefits from sharing information on what has been dispensed for a patient, alongside what has been prescribed, through the Pharmacy Care Record, held in community pharmacies, to assist in medicines reconciliation" (Scottish Government, 2011c, p 29). It is believed this will help to ensure the ECS (see above) is an accurate record of what medication patients are taking.

The funding for this continues through the "business as usual" funding stream, discussed in the eHealth Strategy 'Funding' section, above.

Hospital Electronic Prescribing and Medicines Administration

This is another programme being implemented to support the eHealth strategic aim in relation to medicines reconciliation.

The eHealth Strategy 2011-17 (Scottish Government, 2011c, p 30-31) notes that the purpose of HEPMA is to assist in the proper prescribing, ordering, administration, reconciliation and supply of medicines. It also has an important role in ensuring there is a robust audit trail and in standardising good practice in these areas. One of the key drivers in pursuing the programme was the Audit Scotland report 'Managing the Use of Medicines in Hospital' published in April 2009 (see Appendix 1).

National procurement began in 2009. This system chosen was that implemented across several acute wards in NHS Ayrshire and Arran, a programme that had its beginnings in 1995[9]. The eHealth strategy notes that in NHS Ayrshire and Arran HEPMA was used in real time at the bedside. It supported clinicians in making prescribing choices, warned them of allergy risks, and supported them in making formulary choices. NHS Ayrshire and Arran found that the benefits of the system included: identification of high risk medicines; targeted antimicrobial management; fewer missed doses; fewer transcription errors; medicines reconciliation

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[9] See Minutes of the NHS Scotland Clinical Change Leadership Meeting from 27 May 2009 (Agenda Item 8.1).

throughout the patients stay; and, improved communication with the GP. By 2011 over 64,000 individual patients had been registered on the system (many of whom had multiple admissions), in excess of 2,600,000 medicines had been prescribed; and, over 13,500,000 dosages had been administered. (Scottish Government, 2011c, p 31).

The national approach to procuring HEPMA is being delivered through the national Patient Management System contract on an optional basis. The eHealth strategy notes that a number of Boards are developing business plans to implement HEPMA in secondary care settings. It adds that most are taking an incremental approach to implementation, and focussing on specific higher risk patient groups. The longer term vision set out in the eHealth strategy is for all Boards to implement HEPMA and for it to link with other clinical IT systems, such as laboratory systems. (Scottish Government, 2011c, p 31).

Finally, the eHealth Strategy Board has established a short life working group consider the shorter term objective of improving medicines reconciliation alongside the longer term objectives of HEPMA, but taking into account the reduction in the capital available for eHealth developments. The eHealth Strategy states that the Group has been asked to: consider the needs of all stakeholders in the medicines process; focus on pragmatic and incremental solutions, including better use of what exists; and consider a range of incremental options leading to full HEPMA implementation. The group is to report to the Strategy Board in late 2014, and the eHealth strategy commits the Scottish Government to implementing its recommendations. (Scottish Government, 2011c, p 31).

As HEPMA is one of the eHealth strategic objectives, funding comes through the "strategic" funding stream discussed in the eHealth Strategy 'Funding' section, above.

eCare

The eCare programme was a partnership between the Scottish Government, NHS Boards, local authorities and other agencies, aimed at pursuing appropriate electronic information sharing. Developed in the early to mid-2000s, its key aim was to streamline information sharing between agencies. The policy context for its development included initiatives surrounding shifting the balance of care, the joint futures agenda and integrated children's services.

The then Scottish Executive (2005c) noted a range of benefits to delivering eCare, these included:

- The quality of public service delivery was improved through increased information availability, for example core assessment details were available to practitioners performing specialist assessments therefore negating the necessity to gather information repeatedly. This meant that errors were reduced and practitioners were better informed and prepared.
- Direct financial savings are achieved through the removal of duplication of effort.
- Client needs could be recognised quickly and comprehensively by the ability to efficiently share core assessment data.
- Client waiting times for assessment were reduced by a reduction of referral time for specialist assessment.
- A much greater understanding of roles and responsibilities across the care sector, which grows from joint working under the Single Shared Assessment process.

However, three major challenges were also identified:

- For the benefits presented by eCare to be comprehensively delivered, it had to be consistently implemented.

- Meeting the challenge of local adoption, and the infrastructure required, demonstrated the need to strike a balance between consolidating existing local projects and rolling out the national building blocks of eCare to new sites.
- eCare had to manage expectations around the balance of what the programme would provide and the degree to which the products were not a panacea for all problems.

The Scottish Government (2013) has stated that progress was slow in meeting these challenges, and while five partnership areas connected to national eCare technology for the sharing of Child Protection Messages, the outlined business benefits were never fully realised. The Scottish Government (2013) added that, following a series of reviews, in 2012, the decision was taken to close the programme and replace it with a fresh approach. It added that this new approach will be more closely aligned with the eHealth Strategy 2011-17. The Health and Social Care Information and Technology strategy, when it is published, will set out the overall direction of travel.

Clinical Portal

A key feature of the first and second eHealth strategies is to promote actions that will allow clinicians and other health professionals the ability to see a range of clinical information through a single online location. The clinical portal programme is aimed at the secondary care sector. An incremental approach is being taken, with the aim of ensuring all NHS Boards reach a minimum baseline, but which is also flexible to allow NHS Boards who are developing systems at a quicker pace to do so. NHS Boards have agreed to use one national integrated platform for pulling together defined information from different clinical systems, though they are free to select the system or "electronic window" that clinicians will use to access the information.

The current eHealth Strategy (Scottish Government, 2011c, p 26) notes how such systems improve patient care, by, for example, clinical information being available at the point of care to improve clinical decision making, and reduced harm to patients due to increased knowledge of medical information. It also argues it helps support the NHS become more efficient, by, for example: health professionals spending less time spent looking for and retrieving clinical information; reduced reliance on paper based systems; and, the potential for single sign-on to multiple clinical systems. However, it also points to the importance of information governance, and noting the commitment to an information assurance strategy (see above and Appendix 2).

Given the incremental nature of the programme, it is perhaps unsurprising that NHS Boards are at different stages of implementation. This is emphasised on the eHealth Clinical Portal webpage and the latest Clinical Portal Programme Board update report from August 2012. However, the eHealth Strategy 2011-17 (Scottish Government, 2011c, p 6) notes that:

> "NHS Boards are also working in three regional consortia, each developing different aspects of the Clinical Portal programme. The South and East region Boards have been working to deliver a prototype portal solution and in February 2011 awarded a contract to deploy a portal across the four Boards during 2011/12. Meanwhile actual use of NHS Greater Glasgow & Clyde's clinical portal continues to increase rapidly, demonstrating the value placed by clinicians on improved availability of patient information in support of direct patient care."

The eHealth Strategy 2011-17 commits all territorial NHS boards to be using clinical portals (or electronic windows to information) at the point of care by 2014.

As the clinical portal programme is one of the eHealth strategic objectives, funding comes through the "strategic" funding stream discussed in the eHealth Strategy 'Funding' section, above.

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APPENDIX 1: KEY eHEALTH INITIATIVES AND STRATEGIES IN SCOTLAND SINCE 2005

Publication	Summary
Telecare Development Programme (TDP) for Scotland – began in August 2006	This was launched as a policy initiative to encourage the use of telecare amongst local social and health care service providers. The aims of the programme included: increasing the number of people in receipt of telecare services, reducing the number of avoidable admissions to care homes and reducing the number of unplanned admissions and readmissions to hospital. (Newhaven Research, 2011). It ran until 2011, and the eHealth Strategy states that over this period the programme provided £20m of support to telecare projects, and over that period 29,000 people received telecare services. (Scottish Government, 2011c, p 24).
'Seizing the Opportunity: Telecare Strategy 2008-2010' – June 2008 (Scottish Government, 2008a)	This strategy sought to develop telecare services to take account of the aging population, the expectations of those in need of services and technological innovation. Its aims were for: • telecare to contribute significantly to the achievement of personalised health and social care outcomes for individuals • telecare to contribute significantly to delivering wider national benefits in areas such as shifting the balance of care and the management of long-term health conditions • local partnerships to mainstream telecare within local service planning It aimed to see local partnerships: extend telecare services; increase awareness of telecare; improve assessment processes for services users; ensure staff had the necessary skills; ensure provision met recognised standards; enhance innovation and telehealth/care convergence.
'eHealth Strategy 2008-2011' – August 2008 (Scottish Government, 2008b)	This was a nationally co-ordinated strategy, but it allowed for localised projects given that no single delivery model suits every situation or area. It contained a range of actions, but there were a number of priority areas, including: • Establishing eHealth expertise within improvement collaboratives throughout NHS Scotland. • Achieving a new information governance consensus focussed on better use of information and safeguarding information confidentiality. • Clinical portal - beginning an incremental programme, starting with technology and procedures to enable 'single sign-on' to different sources of patient information for authorised clinicians. • Ensuring the integration and interoperability of core systems. • Establishing a fund to support eHealth improvements in primary and community care settings that would address modernisation of GP systems, a programme to support community-based health professional services, and support for data sharing with partner agencies. • CHI-based patient identification: replacing the technology and improving the service. • Build the platform for an electronic patient record. The strategy made commitments to the continuation of programmes such as the Picture Archiving and Communications System and ePharmacy. It also wanted to see developments in telehealth and telecare in order to support the delivery of care closer to home, to improve chronic disease management and anticipatory care. The stated benefits of pursuing the strategy included: improving communication between services; less time wasted searching for information; reducing the need for numerous logins; giving patients access to their own information; more efficient results reporting; and, safer prescribing.

Publication	Summary
['Review of the Scottish Centre for Telehealth: November 2008 to January 2009'](#) – October 2009 (Scottish Government, 2009)	In 2008, the Scottish Government undertook a review of the SCT. Whilst finding support for the retention of a centre for telehealth and that the SCT had achieved success in some areas, it also found that poor communication, confusion over the SCT's role and purpose, and the absence of a clear strategic direction are damaging its reputation, success, influence, and staff morale. Its recommendations were: • The SCT's governance arrangements should be streamlined and improved. • The telecare landscape should be simplified with the SCT joining one of the Special Boards; the best fit would be NHS24. • The telehealth and telecare programmes should be more closely integrated, and the terms (and definitions) used should be simplified. • The SCT should become more strategic, focusing on a few clinical areas initially, for example stroke and paediatrics, moving them from pilot to universal use. • The SCT requires a telehealth strategy that this underpinned by an IT infrastructure plan. • Action is required to improve bridging and videoconferencing services. • Consideration should be given to the introduction of an element of core funding for national telehealth solutions. The recommendations were taken forward and the new Scottish Centre for Telehealth and Telecare began operating in April 2011.
['Scottish Centre for Telehealth Strategic Framework'](#) – April 2010 (Scottish Centre for Telehealth, 2010)	The development of a telehealth strategy was one of the recommendations of the SCT review (see above). However, it was also required so that the SCT could consider its approach to aligning itself to the strategic direction of NHS 24, namely improving health, unscheduled care and improving access to NHS services. The overall "vision" set out by the strategy was to ensure telehealth was an integral part of the delivery of health services. The actions in meeting this included: playing a key role in the delivery of the eHealth strategy; directly managing the implementation and subsequent evaluation of national telehealth projects; promoting joint working between Health Boards; and, analysing relevant worldwide research evidence. In line with the review recommendations, SCT concentrated on a small number of programmes of work – stroke, paediatrics, mental health and COPD.
['The Healthcare Quality Strategy for NHS Scotland'](#) – May 2010 (Scottish Government, 2010)	Flowing from commitments in 'Better Health, Better Care', this aims to create high quality, person-centred, equitable, clinically effective and safe healthcare services, and to be recognised as being world-leading in its approach. It has three overarching quality ambitions: 1. 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. 2. 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.

Publication	Summary
'The Healthcare Quality Strategy for NHS Scotland' – May 2010 (cont)	3. 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. Telehealth and telecare were discussed in the strategy as tools to be used to deliver more efficiency, such as to support more people at home, achieving better outcomes at less cost. The eHealth strategy was discussed in relation to patient safety, with discussion of building a virtual patient record. The eHealth programmes identified as contributing to better quality care, included: the development of the Emergency Care Summary and the Emergency Palliative Care Summary; implementing the 'clinical portal' programme to enable better sharing of patient information; continued development of 'patient portals'; and, working on ways to bring clinical data to frontline staff.
'Telecare to 2012: An Action Plan for Scotland' – March 2011 (Scottish Government, 2011a)	This Action Plan builds on the 2008-10 telecare strategy (see above), with the aim of providing strategic direction and support for local partnerships and other stakeholders in the development and implementation of telecare programmes. However, it takes account of a number of policy strands that had emerged since the 2008-10 strategy, including the Healthcare Quality Strategy, Reshaping Care for Older People, and the strategies for carers and young carers.
'Scotland's Digital Future: A Strategy for Scotland' – March 2003 (Scottish Government, 2011d)	This outlines the Scottish Government's approach to achieving its "digital ambitions" concerning the availability of broadband. However, it also reflects on the benefits that can be gained by public services through investing in digital technology. In particular it discusses how this can be achieved in health and social care through telehealth and telecare. It announced that the approaches to telehealth and telecare would be integrated, and made a commitment that the new governance and accountability structures would be made available by July 2011. This took place in April 2011 when the Scottish Centre for Telehealth, and the Scottish Government's Joint Improvement Team's Telecare Development Programme amalgamated to become the Scottish Centre for Telehealth and Telecare. A progress report on the strategy was published in October 2012 (Scottish Government, 2012d), which noted that development as well as the development of the eHealth and telehealth / telecare strategies.
'Review of ICT Infrastructure in the Public Sector in Scotland' – June 2011 (Scottish Government, 2011b)	Undertaken on behalf of the Scottish Government by John McClelland, a recognised expert in ICT, the review found that despite some good work in some areas, public sector organisations tended to rely on standalone systems rather than developing shared systems which would reduce costs, and better meet the needs of customers. Within the health ICT "landscape", the review did make note of the significant progress being made, but also found that ICT was still structured in a way that meant each NHS board had its own standalone IT function including self-sufficient data processing facilities. McClelland considered that if the recommendations from the review were implemented savings in ICT investments across the public sector could result in a cumulative saving over five years of between £870m and £1bn.

Publication	Summary
20:20 Vision – September 2011 (Scottish Government, online)	This aims to provide a context for taking forward the quality strategy – "by 2020 everyone is able to live longer healthier lives at home, or in a homely setting and, that we will have a healthcare system where: • We have integrated health and social care. • There is a focus on prevention, anticipation and supported self-management. • 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."
'A review of telehealth in Scotland' – October 2013 (Audit Scotland, 2011)	Amongst Audit Scotland's findings, included: • Targeted appropriately, telehealth offers the potential to help NHS boards deliver a range of clinical services more efficiently and effectively. To achieve this, NHS boards should consider the use of telehealth when introducing or redesigning clinical services. • The combination of the integration of SCT with NHS 24 and a new eHealth strategy provides a much stronger focus to drive the development of telehealth nationally. Although NHS boards are making use of telehealth, development and investment in this area has not been a priority. • Telehealth offers a range of potential benefits for patients such as reducing travel, receiving a quicker diagnosis and avoiding hospital admissions. Patient experience is broadly positive and there are high levels of satisfaction. The experience of NHS staff involved in telehealth initiatives is also positive. However, opportunities for them to gain experience remains limited and more training and education are needed. • Better-quality evaluations are required to provide reliable evidence on the overall effectiveness of telehealth and whether it offers better value for money than traditional patient care. Three large-scale telehealth projects in the UK will improve the availability of evidence. Its own economic modelling work suggested that using telehealth to monitor patients with COPD at home had the potential to help NHS boards avoid costs of around £1,000 per patient per year. It called for: the new strategy (see main part of briefing) to contain specific and measurable objectives; that the SCT should continue to work with the Scottish Government and NHS Boards to identify how to fund developments; better evaluation of programmes; and, that NHS Boards should ensure telehealth intiavives are supported by business cases that consider the longer term clinical, organisational and cost benefits resulting from the use of telehealth.

APPENDIX 2: SUB STRATEGIES OF THE EHEALTH STRATEGY 2011-17

Sub strategy	Summary
'Person-centred eHealth Strategy and Delivery Plan: Stage One' – December 2012 (NHS Scotland, 2012a)	This has been developed to specifically addresses the eHealth Strategic aim: "use information and technology in a coordinated way to support people to communicate with NHS Scotland, manage their own health and wellbeing, and to become more active participants in the care and services they receive." It seeks to increase the options open to people for interacting and communicating with health services. The plan (p 2) itself states that its delivery plan has been influenced by surveys, focus groups and a review of NHS Boards' eHealth Plans. From these, five priority areas have emerged: • Improving information and providing opportunities for patients to give feedback - through improvements to websites, advice linked to electronic records, SMS social media and apps. • One way communication (from the NHS to the person) - using a combination of email, SMS text messaging and postings via patient portals. • Two way communication (to and from the NHS to the person) - using patient portals, home monitoring devices (telecare and telehealth) and e-consultation. • Carrying out transactions - such as managing appointments and requesting repeat prescriptions through the implementation of the patient portals that are offered as part of the two GP IT systems now in use in NHS Scotland. • Peer support - providing ways that people can communicate and support each other through greater use of web forums, social media and improved access to information. It is intended this plan will be implemented incrementally, and will be governed by the eHealth Strategy Board, which itself will link with the Person-centred delivery Group. An updated version will be issued in 2014.
'Infrastructure Strategy' – June 2012 and 'eHealth Applications Strategy' – June 2012 (NHS Scotland, 2012b and 2012c)	The purpose of these strategies is to provide direction eHealth planners and decision-makers in NHS Scotland. Both seek to address current financial pressures, supporting the increased need to share information outside existing boundaries (such as between NHS Boards and local authorities) and taking advantage of new technologies, such as mobile technology. Shared themes across both strategies include: • Rationalisation, by removing unnecessary duplication. • Extracting more value by making use of existing assets. • Increasing flexibility, allowing for easier integration and sharing of information. • Making strategic choices, so as to achieve best long term value from the investment made. Both contain a number of agreed actions that Boards will need to complete in order to obtain the required objectives.

Sub strategy	Summary
'NHS Scotland Information Assurance Strategy' (NHS Scotland, online)	Sets out the strategic direction for further developing the information assurance (IA) capability in NHS Scotland, and ensuring IA principles are embedded in the collecting, holding, using and sharing of information. The document presents a range of principles and actions, before outlining how it supports eHealth strategic aims, namely: • More efficiency, for example cost avoidance through continuity planning, avoiding duplication of processes, improving data quality brings clinical benefits as well as increased security. • Raising awareness of eHealth and the benefits it can bring. Individuals will make greater use of technology if they are confident that the mechanisms used to share data are safe and secure. • Greater utilisation of new digital methods for self-management (e.g. social media via broadband); if securely these can empower patients for example online appointment bookings which are cheaper than traditional methods. • Making the right information available to the right people at the right time irrespective of physical boundaries and taking into account the data protection and Caldicott principles. The eHealth Strategy itself also makes reference to other core guidance available to the NHS on information governance, including: • Records Management: Code of Practice • Mobile Data Protection Standard, which requires all mobile devices to be encrypted • NHSS Code of Practice on Protecting Patient Confidentiality • Information Governance Educational Competency Framework

NB: The Finance Sub Strategy and the Health and Social Care Information and Technology Sub Strategy are discussed in the main part of the briefing, under 'Finance' and 'Sub strategies' respectively.