

eHealth Strategy 2008 - 2011

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Foreword

The potential of information technology to support improved healthcare is recognised across the world. There are many approaches to delivering this potential, Scotland is building an approach that best fits the needs of NHS Scotland.

In Scotland, the eHealth Strategy is setting a course which focuses on improved healthcare more than technology. It also seeks to build on the significant progress we have already made to move to progressively stronger and more integrated support for the provision of care..

The Strategy is firmly rooted in the aims of the *Better Health Better Care* Action Plan. It therefore targets effort on the key priorities we have set for health while also looking to build the wider vision of more integrated care and the use of information to promote better, more efficient and safer care for patients.

NHS Scotland will achieve more and more quickly when the skills, energy and commitment from across Scotland play a full part in the changes. The Strategy has built consensus about the next steps and delivering the benefits will be taken forward in the same way.

Nicola Sturgeon, MSP

Deputy First Minister and
Cabinet Secretary for Health and Well-being

1 Executive summary

“If medicine is to achieve major gains in quality, it must be transformed, and information technology will play a key part, especially with respect to safety¹.”

eHealth is the use of information, computers and telecommunications in support of meeting the needs of patients and the health of citizens.

Our **vision** for eHealth is simple: support for the overall NHS Scotland goals as set out in the *Better Health Better Care* Action Plan. This is about exploiting the power of electronic information to help ensure that patients get the right care, involving the right clinicians, at the right time, to deliver the right outcomes. It is therefore as much about transforming traditional processes as it is about technology.

The **benefits** that eHealth can help bring about are the same as those sought in *Better Health Better Care*. Sharing information for the benefit of patients is a key responsibility of NHS services to provide good quality services and, on occasion, to help protect vulnerable individuals. Our eHealth Strategy is about improving patient safety and effectiveness through information.

This Strategy shows how these improvements will be supported over the next few years; as part of a longer term series of steps towards electronic patient records and electronic communication becoming the primary means to manage healthcare information within our healthcare system.

We believe the **incremental and pragmatic approach** Scotland has taken to date is the right one, building on what exists and filling gaps where necessary. We want a programme that is focused on the priorities for NHS Scotland and for each NHS Board, meaning we can see the benefits of our efforts as we progress and therefore help build confidence of the public, patients and healthcare professionals that we are on the right track.

The cornerstone of **delivering the Strategy** will be a nationally co-ordinated approach, collaborative at all levels, and closely aligned to our delivery priorities for NHS Scotland. Scotland can benefit from its size to move forward more quickly, but only if it is able to make full use of the expertise that exists around NHS Scotland. No single delivery model suits each and every initiative, and there will also be space for local flexibility and innovation. Whichever model is chosen must comply with good governance and must have roles and responsibilities which are clear to those who need to deliver them.

Section 9 summarises the actions which flow from this Strategy. Of these, the priorities over the next three years are:

1. Ensure that the people issues associated with eHealth are our priority by establishing eHealth expertise within improvement collaboratives throughout NHS Scotland, with a common support team;
2. Achieve a new information governance consensus focussed on better use of information and safeguarding information confidentiality;
3. ‘Clinical portal’: begin an incremental programme, starting with technology and procedures to enable ‘single sign-on’ to different sources of patient information for authorised clinicians;
4. Ensure the integration and interoperability of core systems, if necessary through acquisition of modern tools for the job.

¹ Dr. David Bates & Dr. Atul Gawande. Improving Safety with Information Technology. New England Journal of Medicine. 348:2526-34. 2003

5. Establish a fund to support eHealth improvements in primary and community care settings that will address modernisation of GP systems, a programme to support community-based NMAHPs (nurses, midwives and allied health professionals) services and support for data sharing with partner agencies;
6. Continue to develop and deploy our 'change and benefits' methods to help ensure that the potential of our new and existing systems is fully reached;
7. CHI-based patient identification: replace the technology and improve the service;
8. Through steps 1-7 above, build the platform for a electronic patient record that, in due course, will support patients' journeys through the NHS and support patient needs.

The delivery of prioritised actions will include an appropriate equality and diversity impact assessment to ensure that we are able to highlight positive impacts for staff and patients and address any potential negative impacts for all stakeholder groups in the development and delivery of the eHealth Strategy.

The Strategy is designed to be affordable and reflects the increased investment being made available by the Scottish Government over the spending review period. New national systems will be funded from the Scottish Government who will also contribute to the operation of existing national systems. Any further eHealth investment at NHS Board level will be at the decision of NHS Boards. The Strategy will be underpinned by an agreed investment plan developed by the national eHealth Programme and NHS Board. It will also be clear at the planning stage what the balance of national and Board funding would be in any new investments.

eHealth will have a positive impact on the Scottish Government's overall purpose by supporting a more efficient and effective Health Service which supports a growing economy, both through the direct contribution of the service and the people employed in it, and through the better outcomes for patients, enabling them to have longer, healthier lives and more productive lives.

This Strategy is intentionally high level. Further detail will be published in a range of more detailed papers, including a Technical Plan, a Programme Plan and a Finance Strategy.

2 Where we want to get to

The long term aims for eHealth's contribution are that it will:

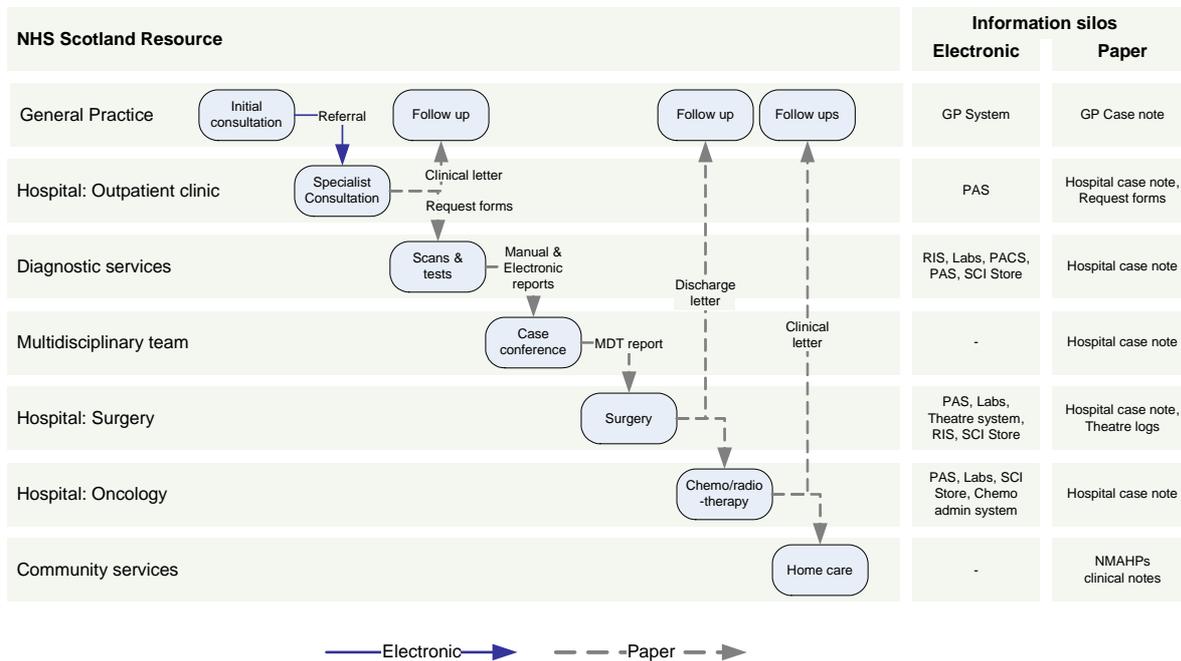
- help transform NHS Scotland services;
- make patient care safer and more effective by making available the right information in the right place at the right time;
- contribute to 'health literacy' to ensure that all citizens have the necessary skills, knowledge and confidence to manage their own health;
- safeguard confidentiality by handling patient information securely;
- enable more efficient use of healthcare resources through replacing paper-intensive processes and providing better management information.

Clearly this ambition places eHealth as an integral part of the much bigger change programme that is set out in *Better Health Better Care*.

3 The challenge

NHS Scotland delivers many patient contacts with many staff in many locations, with each contact requiring a record. Making these records and other useful information available electronically will make patient care more informed, safer and independent of where the patient makes contact with the NHS.

To illustrate this, the diagram below shows a patient's journey through cancer-related services. Even though simplified, it demonstrates the extent of hand-overs of care and the multiple 'silos' of patient information which can result. Moreover, if these silos are pieces of paper in cabinets then essential communication becomes even more difficult.



A 'paper-light' NHS Scotland will offer fast, local and reliable access to patient services through the use of appropriate technologies. Achieving that will require investment and systematic change in the way we work, right across the Service. Where IT systems do exist, they are often ageing, sit in silos, vary between NHS Boards and are mainly administration focused as opposed to helping healthcare professionals get access to the information they need to provide the most effective help to patients. We have already successfully implemented initiatives such as SCI Store, SCI Gateway and the Emergency Care Summary which help us to join systems and share information but we need to move further.

An attempt to move to this new world in a single bound, even if achievable, would take a number of years and would be disruptive. NHS Scotland has to date chosen to approach this vision step-by-step; by building on what we have already successfully achieved, carefully addressing risks and resources to gain benefit from our effort as we go. The investment plans over the next three years will balance changes intended to provide immediate benefits to patient care and meeting today's challenges with steady progress toward a longer term vision.

Patients and their carers also need information. If we want to support patients to take more responsibility for their health, then they need more ready access to their personal health information, guidance on its interpretation and its potential to support improvement in their well-being.

Added to these challenges is the fundamental need for robust information governance as part of a wider information assurance² strategy. This is about making sure appropriate information is available when it is needed, accessed only by those who should have access to it, and that it is correct and up-to-date. We need to assure ourselves that we have balanced arrangements which support both duties of confidentiality and the interests of patients in receiving safe and effective care. These arrangements must carry the trust and confidence of both patients and healthcare professionals.

4 Where we are now

We are not starting from scratch. Both in NHS Boards and nationally there has been investment in modern eHealth systems that have made a difference to how we work. Much of what this Strategy calls for is already happening, but not systemically.

Some case studies illustrate the point:

The Emergency Care Summary now contains key clinical information for over 5.1 million patients and is currently used in around 25,000 care occasions per week, if the patient explicitly consents to its access. Having access to key details such as current medication and allergies makes care safer.

NHS Lothian and NHS Fife are rolling out modern patient record systems which support the clinical process, not just administrative functions.

We have a secure electronic messaging system, primarily used at present for outpatient referrals by GPs at a rate of some 17,000 per month. A key added benefit is that referrals can be based on specialty or condition specific protocols.

The roll-out of the NHS Scotland PACS services – digital X-rays – has reached the point of 21 sites live and over two million images stored. Among the benefits are fewer unnecessary X-rays being taken due to lost films.

Our ePharmacy programme is going well. Following completion of the Minor Ailment Service the second phase – prescriptions sent electronically from GP to community pharmacist then onwards for payment – is now live with around a million prescriptions a month being transmitted.

5 Key strategic principles

Six principles will underpin the programme of work which leads towards this vision:

1. Confidentiality safeguards are an obligation

The NHS cannot deliver effective care without information. In the patient's interests, there needs to be a balance between the security of information systems and health records and their availability.

Paper-based records and communication are not particularly secure, and while every effort is made to protect them they can potentially be seen by inappropriate people, and can be misplaced or lost.

Electronic records and communication can address some of these issues, for example through access control measures. Electronic records nevertheless introduce new challenges relating to safeguarding large volumes of information, and such measures allow access to be restricted to

² Information assurance is an umbrella term which covers all aspects of proper management of information, including information governance.

authorised individuals with professional codes and contracts which prohibit inappropriate use of information.

NHS Scotland already has in place comprehensive arrangements to address these issues and support the duty of safeguarding patient confidentiality³. We are not complacent, at a time when as we are designing new systems to improve patient care and patient safety there have been high profile breaches of information security elsewhere which serve to undermine public confidence. In this context, we regard the following as important in designing and implementing improvements:

- access to information must be based on legitimate reason and the interests of the patient
- key stakeholders are the public, patients and healthcare professionals
- eHealth currently has the support of key stakeholders, and we need to retain that support through consultation.

2. Continuing an eHealth journey, exploiting what exists and filling gaps

Our approach to introducing eHealth improvements will not be via a 'large complex national IT project'. The last decade has seen good progress by putting in place relatively simple 'bridges' between existing IT systems, and replacing many instances of paper-based arrangements with computers and telecommunications. This incremental approach will continue. We will assist in the filling of both gaps which currently exist and new gaps caused by older systems no longer supporting NHS Scotland requirements. Delivering on this eHealth Strategy requires greater integration and this will be a key priority for the NHS in Scotland.

3. Focus on benefits, supported by technology and change

eHealth is not about technology, but about improving the outcomes of care, the safety of care and the efficiency with which care is provided. IT systems will not deliver these benefits of themselves. Clinicians and other staff will deliver these benefits in hospitals, in surgeries and in patients' homes.

We want IT investment and implementation to be led by this focus on benefits to NHS Scotland's patient care. Over the next three years we will increase our investment in helping NHS Boards to plan changes to patient pathways and to support change and benefits management.

We will also ensure that we improve our focus on gaining benefit from the investment we have already made as well as planning new investment.

4. Virtual, not a large single database, electronic patient records (EPRs) in direct care

Clinicians require as complete an information picture as possible, yet relevant information relating to an individual patient is held in a variety of EPRs. In theory this could be addressed by replacing all these EPRs with a single national database that can be used by all clinicians thereby enabling them all to work off the same patient record. However, this is not the preferred strategic direction.

We envisage a clinical portal presenting information to clinicians from a variety of information systems. Once the necessary tools are procured, this should be relatively quick to set up. It will allow progressive improvement in authorised sharing of information, in line with our incremental approach. It also allows us to build experience about what information clinicians find most useful in the patient care setting.

³ See www.elib.scot.nhs.uk/portal/ig/Pages/index.aspx for more details.

5. Technology development, standardisation and convergence

The themes underpinning developing the technology and standards which support eHealth will be:

- focus on ease of use;
- convergence on fewer and more re-usable, cost-effective IT systems;
- integration between systems, internal to the NHS and with partner agencies where appropriate;
- common data standards and terminology across information systems;
- value for money;
- whether a national service or local choice will be considered on a case by case basis.

There will be a need for improving resilience of our IT infrastructure and ease of integration between systems, and replacement of some key national and local systems that are reaching the end of their useful life.

6. Collaborative approach to delivery, drawing on best expertise

As *Better Health Better Care* explains, mutual services are designed to serve their members around a common sense of purpose. This will be the hallmark of how NHS Scotland approaches improvements in eHealth, with national and local organisations working for the common good. This means that no single delivery model will suit each and every initiative. We will seek to ensure that we can draw on the range of skills and expertise from across Scotland. This will require a different way of looking at traditional roles and organisational allegiances, and the need to ensure that roles and responsibilities will be spelt out and governance taken seriously.

6 eHealth contribution to NHS Scotland's strategic aims

The strategic agenda is set by the *Better Health Better Care* Action Plan and its three main sections are adopted below as a framework on which to set out how eHealth will contribute to realising NHS Scotland's clinical and business priorities.

1. Towards a mutual NHS

Delivering together on information confidentiality

Patient confidentiality is a critical theme which runs as a common thread through IT-enabled change and information sharing. We will continue to move forward in a way which maintains the confidence of patients and clinicians.

Key action: The proposed NHS Charter of Mutual Rights will be a clear statement of duties and rights from the perspective of Government, healthcare staff and the public. It is proposed that the handling of personal information relating to patients will be included in the consultation. The kind of questions to be explored, with a view to consensus emerging, include:

- How can NHS Scotland best support a productive partnership between professionals and patients?
- Is it accepted that safe and secure electronic arrangements for records is to the benefit of patients?
- If patients choose to withhold information, what are the implications for them and for healthcare professionals?
- For all parties concerned, what are the rights and obligations?

These discussions will feed into improved policies on information assurance building on the strong track record of NHS Scotland. It will also include new proposals for management of confidentiality arrangements, including a presumption that the public will be represented in scrutiny arrangements.

New developments in how services to patients are delivered will also be taken into account – with patient journeys increasingly crossing between NHS Boards, we need to ensure that information flows are not impeded by arrangements that were set up for intra-Board care.

Performance management and service planning

Information to support performance management plays a key role in the management and planning of services. Work is already being undertaken to align the eHealth Programme and project portfolio with NHS Scotland's HEAT framework and other key corporate objectives. A particular focus is alignment with the national improvement programmes, including patient safety, 18 weeks Referral to Treatment, cancer, long term conditions and mental health.

Whilst much of the focus of eHealth is to support the direct care process, there are significant secondary benefits from being able to derive statistical data for clinical audit, benchmarking, monitoring of services, service planning, and public health activity. Information for such secondary purposes must increasingly become a by-product of clinical recording, as opposed to a parallel process that incurs duplication of effort.

But where eHealth can make a particular difference is through provision of real-time operational information. So in addition to improved statistical services, the key action will be to exploit existing and new IT systems to provide increased real-time operational management data. This will include use of SCI Gateway and SCI Store to support the information and reporting framework for the 18 week programme.

Managed Clinical Networks

eHealth has already provided information systems to support Managed Clinical Networks (MCN), in particular to enable sharing of patient information between clinical professionals to improve the safety, efficiency and effectiveness of care. To date eHealth's focus has been in the area of the common cancers and diabetes. However, in line with the Long Term Conditions (LTC) theme of *Better Health Better Care*, a key action will be to do more to support MCNs in these areas. An associated action will be to ensure appropriate information governance/ confidentiality controls are built in.

2. Helping people to sustain and improve their health, particularly in disadvantaged communities

An enabling health service

Better Health Better Care announced the creation of a National Health Information and Support Service to provide a single shared health information online resource for patients. This will have a key role to play in supporting initiatives which build people's capacity to improve their health and wellbeing, addressing issues such as smoking, drug and alcohol misuse, diet and sexual health. The key action will be to support the option of a web-based channel for this new service, by working with the organisation designated to lead on delivering the initiative.

Mental health

Mental health and wellbeing is a complex area and *Better Health Better Care* identifies a wide range of initiatives for the future agenda. In terms of information systems support, it raises the challenges of input from a wide range of clinical professionals, working across sectors but seeking

to provide integrated care to patients. The key actions will be to exploit existing systems to support the Mental Health Benchmarking initiative and support for Integrated Care Pathways, where possible, plus the procurement of a Patient Management System to replace current PASs and meet wider functionality requirements within the secondary care setting. This will include those for mental health, and provide support for information sharing across teams that work across NHS, local authority, and voluntary settings.

The best possible start

Child health information is important to policies such as Getting It Right For Every Child and existing and new immunisation programmes such as that to combat cervical cancer with the HPV programme. Building on comprehensive work already underway, the key action will be to modernise and develop child health systems in accordance with the general principles of the strategy.

There is in addition the particular challenge of information sharing to support vulnerable children with contributors to care from different agencies. This is of particular significance where child protection is an issue. It is beginning to happen, with for example some partner agencies now using the technology available nationally known as the eCare Framework. Progress will be encouraged and, in addition, there will be a project to define and deliver a child health summary with an initial focus on integrating nationally-held child information.

Tackling health inequalities

Better Health Better Care highlights health inequalities and the importance of targeting support and better enabling people to manage their own conditions. Anticipatory care through screening and health checks is another area where eHealth can make a significant contribution, while supporting the NHS' equality and diversity obligations. Key actions will include:

- The technology which holds the national Community Health Index (CHI) of Scottish patients' identification details will be replaced and modernised. This will include the ability to record the patient's ethnicity details and better capabilities to select sub-sets of the population according to defined criteria for screening;
- An action plan will be designed in collaboration with the Long Term Conditions Alliance and the national improvement programme. This will build on progress already made with electronic records to support diabetes care and trials of home monitoring devices designed to identify deterioration in patients' health status. The action plan will address eHealth support in areas such as education, shared care plans, condition monitoring, self-care, and support for carers;
- The necessary changes to GP IT systems will be commissioned to reflect any contractual changes, in particular to enable targeting and anticipatory care for patients living in deprived settings. This will include building on the work already undertaken to support the identification of patients at risk of hospital admission, and working with Community Health Partnerships that are pursuing programmes with community partners.

3. Ensuring better, local and faster access to health care

Safety and effectiveness

There are a range of eHealth developments of importance to the safety and effectiveness agenda:

a. CHI-based patient record identification

Each NHS Scotland patient has a unique number known as the Community Health Index. Use of this number allows elements of the patient's record to be reliably brought together and viewed by authorised clinicians. Significant progress has been made in promoting the use of this number in

preference to local numbers. The key action now is to shift to full scale use of the CHI number as the primary identifier.

b. Support for direct patient care

The patient's journey of care often crosses between different NHS sectors and indeed other service providers e.g. local authority, voluntary sector. The eHealth Strategy will support improvement in both the care provided within an NHS sector but also assist in passing the baton of care between sectors.

There is already strong investment within primary and community care, with for example support for services such as community pharmacy which include installing broadband telecommunications for pharmacists with follow-on projects to support the minor ailments service and medication services.

Within the secondary care and mental health sectors, patient management systems which support the administration of appointments and inpatient stays are, in some Boards, all but obsolete. Moreover, eHealth support for clinical test ordering and note taking is patchy at best.

The particular needs of patients with long term conditions cared for through Managed Clinical Networks means that specialist patient record systems are needed to ensure co-ordination between the many contributors to care. NHS Scotland has had significant success developing specialist IT systems to support key conditions such as diabetes, and the work of the Scottish Diabetes Group and NHS Tayside is acknowledged here with the SCI Diabetes Collaborative system now live across Scotland. The key action will be to continue this approach while ensuring it is underpinned by common standards so that systems can be re-used in other NHS Boards. The work will be taken forward in conjunction with what was described earlier – direct involvement of patients and their carers in their eHealth.

New key actions will involve procurements for a range of modern IT systems to support direct patient care in all care settings.

The first procurement will be for a Patient Management System (PMS), where a consortium of five NHS Boards is being supported to procure and implement an IT system which enables 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 and maternity. The system selected will be available to all NHS Boards.

The second procurement will be focused on replacing the GPASS (General Practice Administration System Scotland), with a date for ending the GPASS service and a migration plan to be agreed between NHS Boards, Scottish Government and NSS. This will be part of a broader programme of support for improving eHealth in primary and community care which will include:

- a Primary/ Community Care eHealth Development Fund to be allocated to Boards which comprises two elements: funds to enable NHS Boards to have direct contractual relationships with their suppliers of GP systems and in addition support for community NMAHP eHealth developments (see below for more on this);
- plans agreed with NHS Boards on how the fund will support *Shifting the Balance of Care*⁴ including links with partner agencies, with local re-investment of any savings made from changing GP system supplier;
- a national framework contract set up to give NHS Boards with their stakeholders choice of GP systems that comply with national standards;

⁴ Scotland's strategy for the development of community hospitals.

- options for NHS Boards to determine their preferred approach to meeting the needs of community NMAHPs.

The third procurement will be at the heart of our Strategy. It involves the development of a services 'Clinical Portal', which can be described as a single online entry point through which various elements of information related to a single patient can be accessed by authorised users. This will avoid the need for repeated and separate log-ons and searches, which is a major issue for clinicians today. Moreover, there will be improved controls over access to patient information based on the role of the user related to their need to discharge that role.

NHS Tayside, Fife and Greater Glasgow & Clyde have done work in this area, which shows great promise. At a national level the focus will be on the standards and technology to support access control within Clinical Portal, which can then be adopted by selected local IT systems.

Taken together, these new procurements, set alongside current systems such as PACS and Emergency Care Summary, will provide a solid basis to our progress towards shared records between contributors to a patient's care.

c. Medications management

The Scottish Patient Safety Alliance has highlighted that a vital element of patient safety is medication, where there is a known risk of errors both in the act of prescribing (e.g. wrong doses) and in lack of knowledge of the patient's current prescriptions and allergies. While the Emergency Care Summary (ECS) has made a big difference to the latter risk in the unscheduled care setting, it is still an incomplete picture given the range of prescribers. Additionally, mitigation of the first risk – IT-enabled support for prescribing itself – is virtually absent outside of general practice.

The vision is a single medication record, available to authorised prescribers, with intelligent support for prescribing. However, this vision is a long term challenge, not least due to the need to approach it with care so as to avoid introducing fresh risks to patient safety.

The key action will be for the consortium of NHS Boards taking forward the Patient Management System procurement to include Hospitals Electronic Prescribing & Medications Administration (HEPMA) as one of the options when going to the market.

d. eHealth patient safety assurance

eHealth has a significant contribution to make to the safety of care, for example with the Emergency Care Summary. We will focus on the support which eHealth can make to the improvement agenda set out by the Scottish Patient Safety Alliance. However eHealth should not itself introduce risks to patients, so for example if patient information is passed from one electronic patient record to another as part of a referral then what is sent by one clinician must be exactly what is seen by the recipient clinician. Arrangements for assuring eHealth patient safety need to be agreed, and this will be done in collaboration with the Scottish Patient Safety Alliance.

Community health and social care

The Scottish Government sees improvement in this area as key to shifting the balance of care. It involves multi-disciplinary working and information sharing, for which the availability and use of modern information sharing tools is important. NMAHPs work across all health, social care and educational sectors, which emphasises their requirements for integrated information. Staff working more closely at the health/ social care interface may derive clinical communications benefit from using social care systems. Those working mainly in health may benefit from the clinical functionality of the PMS procurement across acute and community sectors. Staff closely aligned to general practice teams may benefit from using the GP system. The ability to appropriately share clinical information and extract summary reports and service information to meet NMAHP management is an essential component of this mixed model.

The process of Single Shared Assessment is essential to the provision of both health and social care, with for example, occupational therapy staff assessing care needs of patients pre-discharge to enable them to live safely and effectively in the community. Although much of this work currently relies on paper-based systems, some partner agencies are beginning to use the eCare Framework technology to do this electronically.

Given this evolving picture, and differences between NHS Boards, the strategy for supporting this area will be flexible and incremental. Key however is the fact that considerable benefit can be achieved through exploiting eHealth services that exist yet are not currently available to all NMAHPs who work in the community.

The strategy will therefore be based on the concept of levels of eHealth maturity, with the expectation that progress up the levels will be sequential rather than all achieved at once. The three levels are:

a. IT enabled services

Actions here will address basic provision of networked PCs and staff trained in their use. Targets will be agreed with each NHS Board and central funds will be made available to support the required investment.

b. Informed and communicating

This level addresses benefit from making available existing NHS Scotland eHealth services, tailored where necessary to the needs of NMAHPs who work in the community. Again based on agreed targets and plans with NHS Boards, including pilots, the services to be introduced may include:

- Secure email suited for patient-related communication, through NHS Mail;
- Sending and receiving referrals, discharge communications transfer or shared care information through SCI Gateway;
- Online access to relevant local information such as clinical letters, test results and the child health summary sourced from SCI Store;
- Online access to clinical knowledge.

These existing services are all available to authorised users via the network-connected devices which form part of the basic infrastructure in Level A. Additional packages will also be available as part of this infrastructure, such as word processing.

A further and specific type of electronic communication relates to exchange of Single Shared Assessments with partner agencies. Consideration will be given to developing the features of SCI Gateway for this.

c. Fully supported

This level of maturity is where NMAHPs who work in the community use a specialist electronic patient record which offers features such as appointment scheduling, information recording and care planning.

The current position on availability of such systems across NHS Scotland is variable. Some NHS Boards have systems or are developing them, although with evolving business needs in this sector, they may not be future proof. Other NHS Boards are exploring the usefulness of using existing Patient Management Systems for community NMAHPs. Finally, while the procurement to replace GPASS must focus on meeting the needs of GP practices, it may be that the selected system will offer useful features for NMAHPs.

The optimum approach for EPR support for NMAHPs who work in the community will become clearer in due course, and to inform that there will be encouragement for small focussed projects which will be evaluated. A key action will be to evaluate current and evolving models of care and use the specification for AHPs, midwives and community nursing and mental health nursing that

has been developed as part of the IPACC (Integrated Primary and Community Care system) and PMS projects to continue to inform the debate.

Patient centred and equitable

Better Health Better Care emphasises that an effective self-management framework requires that patients and their carers receive accessible, plain, clear, appropriate and timely information. The work to establish a National Health Information and Support Service is relevant to this policy aim.

Nevertheless, our commitments to equality and diversity mean that an internet 'channel' to information cannot be the only route, and eHealth will work in collaboration with organisations such as NHS 24, who specialise in telephone-based patient support.

eHealth may also be able to contribute to self-management by giving patients the option to have access to their own records and care plan and the ability to add to the record for example, self monitoring information, via secure internet services. The Emergency Care Summary system is the obvious candidate to base this upon, and options around these areas are currently being studied.

The key action will be to discuss the possibilities for patient and carer access to electronic records with the Long Term Conditions Alliance and other patient interest groups. It is expected that this will result in an evaluated trial to assess benefits, and inform next steps such as offering such a service to all NHS Scotland patients.

eHealth will also have a role to play in supporting sustainable **remote and rural** health services. As described in a recent report⁵, electronic patient records and electronic communications will offer critical support to healthcare professionals in remote areas and centres, and within Extended Community Care Teams (ECCT). Key principles set out are:

- That specialist advice can be provided from a distance by videoconference, telephone or e-mail;
- Travelling to a central point can be avoided by the use of videoconferencing to a rural general hospital (RGH), community hospital, GP practice or indeed in certain circumstances; direct to a patient's home;
- Digital data such as test results can be shared from remote sites with other points, enhancing diagnosis capability. RGHs could therefore supply a network of community hospitals and/or a tertiary centre could likewise give specialist support to the RGH, community hospital and isolated practitioners.

To address these aims, eHealth will continue to support developments in the area of telecare and telehealth through the Scottish Centre for Telehealth to expand the effective application of teleconferencing/ tele-consultation and image transfer to support remote delivery of services. This will also include promoting the application of these technologies to support professional education. eHealth also recognises the importance of telecare in promoting anticipatory approaches to service delivery, and its role in the re-enablement and rehabilitation of patients.

Efficiency and timeliness

eHealth's contribution to efficiency and timeliness can be seen across the board, nevertheless three initiatives can be highlighted:

a. Reduction in waiting times to 18 weeks

Meeting the target will require significant streamlining of patient care administration, as well as new models of clinical management. eHealth will have a major role to play in enabling the achievement of this target. In addition to interim measures based on incorporating new definitions and exploiting SCI Gateway, of direct relevance is the Patient Management System procurement. This will bring in a modern IT system where it is needed to support more efficient management of patient care

⁵ *Delivering for Remote and Rural Healthcare* prepared by the Remote and Rural Steering Group in November 2007.

through facilities such as online referral management and appointment scheduling, efficient management of resources such as theatres, and innovations such as text message reminders.

b. Electronic transfer of records between GP practices

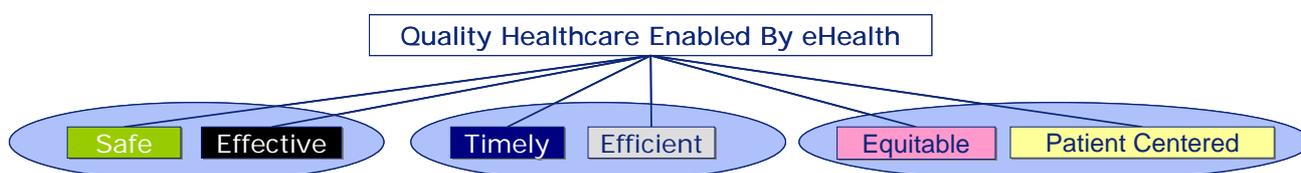
Half a million patients join or leave GP practices every year in Scotland. Each change requires the entire record to be moved, which is a laborious and sometimes slow process. With GP records increasingly being electronic, there is scope for considerable improvement by being able to transfer the records electronically. Decisions on the best way forward are being considered as part of a business case process.

c. Support for workforce planning and human resources

Work has been underway with a view to investment in a common human resource management system. The focus of this work is to improve capability in key areas including the availability of workforce information for planning purposes, understanding of staff competencies and skills, and assessment and management of training requirements. The key action will be to complete the business case which will form the basis for final decisions on the form and scale and timing of investment in this area.

7 The benefits

In common with the *Better Health Better Care* Action Plan, the benefits of eHealth can be described using the Institute of Medicine's six dimensions of quality framework, as depicted below:



Examples can be shown for each area of benefit:

a. Safe and effective

eHealth is recognised internationally as having a very significant contribution to make to the safety and effectiveness agenda, in terms of directly supporting evidence based health care (EBHC).

Bates and colleagues⁶ summarised the contribution that information technology can make to patient safety as:

- make safer, faster diagnoses, based on a better understanding of patient history and current health status
- reduce redundant or unnecessary repeat investigations
- reduce complications due to drug interactions
- create data for audit, improvement, population based studies etc
- support protocols, pathways of care and application of best evidence.

“Investment in, and adoption of, new forms of information technology must be understood to be as vital to good patient care as the adoption of new technological tools for diagnosis and treatment”.
Institute of Medicine

⁶ Institute of Medicine, Committee on Health Care in America. Crossing the quality chasm: a new health system for the 21st Century. Washington (DC): National Academy Press; 2001.

Further examples can be offered:

Effective patient identification will prevent miss-match of elements of records.

Access, with the patient's consent, to essential medical information can be potentially life-saving.

Allan attends A&E having fallen in the street one evening, and cannot remember all the drugs he takes. He gives Staff Nurse George permission to access his Electronic Care Summary. This helps the clinical team to fully assess the patient and consider whether his medication contributed to the fall.

Data quality will be improved and maintained through automatic validation, where possible, and appropriate feedback to clinicians.

Access to accredited knowledge and standards will be improved, to support the clinical decision making process. Guidelines/protocols can be built into care-related processes to encourage appropriate evidence-based care pathways. Under the auspices of NHS National Education for Scotland, a new Clinical Decisions Portal has been launched⁷.

GP Paul records Edith's medication during the consultation. His computer system automatically flags up contra-indications, helping reduce errors.

High quality information will be provided to support clinical governance, in particular clinical audit, patient safety, clinical effectiveness and health outcomes.

During an incident investigation, consultant Gillian demonstrated that her team had followed the correct protocol by analysis of the audit trail which recorded times and date of actions.

Advances in telehealth and telecare will be exploited to support the delivery of care closer to home, to improve chronic disease management and anticipatory care, and to support clinical education.

b. Timely and efficient

eHealth supports improved communication and sharing of information between clinicians, patients and carers within the health sectors and across partner agencies.

Shirley, the speech and language therapist attached to the language development unit in a nursery school, receives a referral in the department's shared mail box from the school. She is able to access relevant past history, linked using the CHI number. This allows Shirley to prioritise her caseload to enable her to plan a visit to the school to see the child, assess her therapeutic needs and agree a joint intervention plan with parents and teachers and educational support workers.

Duplication of effort through repeated data collection and recording will be avoided where possible, to reduce the administration burden and improve information flows. Record once and use often to create more time for patient care.

Janet, a case manager, reviews the care of Simon whose bipolar disorder has recently become worse. By accessing the Integrated Care Pathway she is able to check compliance with the care plan and access assessment tools to review clinical risks and the requirement for a clinical review. As a member of the mental health community team, she is able to access the team's NHS mail shared diaries and make an appointment with Deirdre, Simon's CPN. She puts a note into the patient's Electronic Health Record and texts Simon with the date and time of the appointment.

⁷ www.clinicaldecisions.scot.nhs.uk

Case management will be improved to support the multi-disciplinary and multi-agency teams to reduce delays and waiting times.

More efficient and effective collection, analysis and usability of national statistics through “by product” services from clinical and operational systems will be introduced, facilitated by the development of a secondary uses/ health information service.

Lorna, clinical director of vascular surgery, decides to audit patients with aortic aneurysm who were operated on as an emergency. She accesses anonymised data online to identify all patients who were operated on as an emergency within the last three years, the surgical team who cared for them, the patients' outcome following surgery and their current state of health. She reviews the care of these patients by the surgical teams, taking account of information obtained on the severity of the patients' conditions on admission and other co-existing conditions or complications.

Real-time information will be provided to support operational management.

At 3 a.m. on a busy winter morning, Helen, a bed manager in an acute hospital, checks the computer system to review the availability of unoccupied beds within the hospital. She is able to see that ward 23 is unavailable because of a flu outbreak but there are medical beds free on wards 25 and 26.

Information on patient journeys will be provided with a patient centric rather than disease based approach, to facilitate the care of patients with multiple long-term conditions and/or complex care needs.

Planner, Mary, wants to ensure that the recently established Diabetic Retinopathy Screening Programme is effective. Routine information allows the Board to check how many patients with diabetic retinopathy were detected by the screening programme, whether they were identified at an early stage of their disease, what treatment was provided, the outcome of treatment and what their current vision is. Linked data allows Mary to monitor the impact of the screening programme on hospital (ophthalmology) outpatient and inpatient activity.

C. Equitable and patient-centred

There will be less need for patients to repeat information, thereby improving confidence in service efficiency and demonstrating seamless service.

More clinical time will be created for patients with less time spent searching for information.

Patients will be supported in exercising their rights to access their health records and be involved in verifying and amending if appropriate.

A&E junior doctor, John, is assessing Laura's symptoms. He is able to access the clinical summary information from her recent outpatient and inpatient episodes and the recent investigations that have been requested by her GP. This helps him to make a diagnosis quickly and effectively.

Patients and carers will have improved access to information about their condition or about a procedure they may have to undergo, encouraging greater involvement in maintaining and improving their own health.

Susan has been recently diagnosed with breast cancer. Naturally worried, she wants to know as much as she can about treatment, procedures, aftercare, prognosis etc. in the privacy of her own home. Rather than making random searches on the internet, she accesses assured websites that her GP has recommended.

eHealth will help promote equality and diversity standards.

Mrs Singh has been referred to a cardiology clinic. The referral has automatically highlighted that Mrs Singh requires a Punjabi interpreter and the system has prompted that a longer appointment will therefore be required.

8 Delivering the Strategy

This section covers the arrangements in place or to be developed which will contribute to delivering the strategy. Key principles and elements are described below, and follow-on documents will be prepared with more detail.

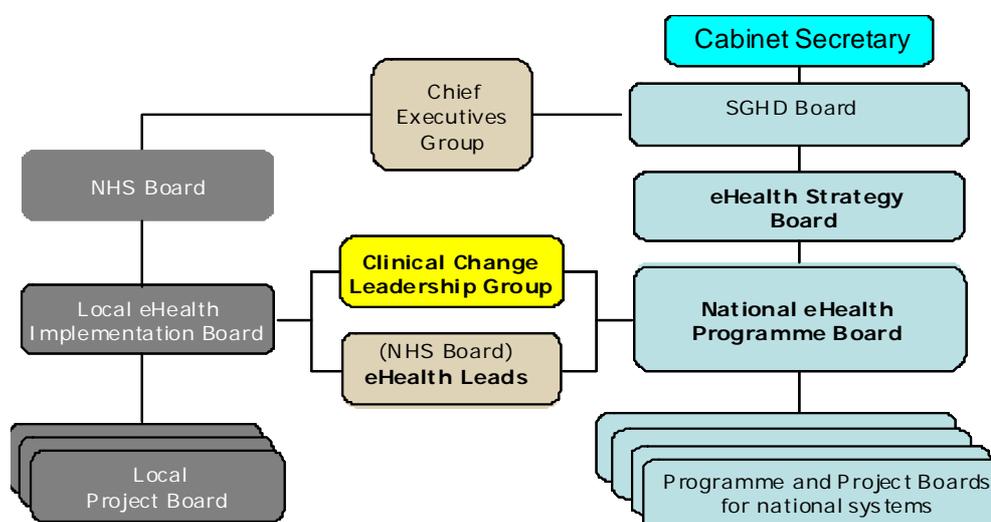
General principles to underpin delivery

The eHealth Programme will adopt a delivery strategy to ensure that different parts of the service understand their roles and what they are accountable for delivering:

- a. eHealth projects are not IT projects. Which is a way of saying that people are at the heart of this strategy, so aspects such as organisational development and training needs must be addressed in any initiative.
- b. There will be three categories of eHealth service or system:
 - National – mandatory implementation across NHS Scotland
All NHS Boards will participate in a nationally defined and agreed roll-out programme
 - National – choice as required
NHS Boards will adopt the software application if and when functionality is required, or when existing alternative licence expires
 - Local - full choice.
- c. While the particular circumstances of each programme and project need to be considered, the general principles are that responsibilities lie with:
 - SGHD for strategy development and commissioning,
 - NHS NSS for contributing specialist expertise, for example in procurement, and
 - NHS Boards for implementation and benefits realisation, or if appropriate to lead procurement or development.
- d. The assignment of a lead organisation to deliver projects and programmes will be critical to ensuring clear lines of accountability. Roles and responsibilities may change over the course of a programme or project, as it moves through initial concept and business case development to procurement/ development, roll-out and benefits realisation. But at each stage responsibilities should be clear and a commission defined.
- e. Certain programmes may be organised at a regional level rather than national, where this makes sense from both a clinical/ business need and to achieve best value for money, but common standards will apply so that information can follow the patient through a journey that crosses regional boundaries, or requires expert input from outwith the region.
- f. While there may be a lead board or consortium of boards on a project, they will be expected to act nationally on behalf of all boards. eHealth Programme implementation and governance approaches will be adopted.

Key governance mechanisms

The overall governance structure is summarised in the diagram below.



Key points are:

- each project and programme will have an appropriate governance board that is accountable for effective delivery of business benefits on time and within budget;
- each board will include representation from key stakeholders and be chaired by a clinical or business lead from a delivery area;
- terms of reference and membership of each project/programme board will be subject to approval by the eHealth Programme Board;
- large programmes may also have local NHS Board project boards, which will link into the national eHealth Programme Board;
- the eHealth Programme Board reports to the Strategy Board and through its chair, the Chief Executive of NHS Scotland, to the Cabinet Secretary for Health & Wellbeing;
- each NHS Board will develop a local delivery plan aligned to implementation of the national strategy. This will be signed off by the NHS Board Chief Executive who will be accountable for delivery in each board area;
- a (professional relationship) reporting line between the eHealth Leads and the SGHD eHealth Programme Director exists to encourage co-ordination between the national and NHS Board level.

Leadership and engagement

Core to this Strategy is the commitment that the eHealth Programme will be patient focused, clinically led, and benefits driven. Leadership and engagement in eHealth will involve all clinical professionals – from identifying the need for eHealth investment to a focus on benefits and their realisation during specification and procurement – and subsequently when the system has been implemented and is in use by the Service.

In acknowledgement that clinical time must be dedicated to taking eHealth forward, within the Scottish Government eHealth Directorate, three clinical representatives will each provide circa 2-3 days input each per week to the eHealth Programme. This will comprise experienced medical input from both primary and secondary care, working closely with the existing NMAHP Clinical Lead for eHealth. Within NHS Boards, local clinical leadership for eHealth will continue to be provided by eHealth Clinical Leads and NMAHP Leads.

There is a single national clinical representation group for the eHealth Programme, chaired by a Deputy Chief Medical Officer. This is known as the Clinical Change Leadership Group (CCLG). Membership is drawn from the eHealth Clinical Leads and is supplemented by other clinicians as appropriate. The CCLG will link to the network of clinical leaders involved in national redesign programmes such as 18 weeks, managed clinical networks, long term conditions and mental health, as well as to other relevant national initiatives such as NHS Quality Improvement Scotland, and the Scottish Patient Safety Alliance.

The CCLG has a variety of functions. Firstly, it has a key role in presenting and consulting on the eHealth Programme with groups such as the Directors of Public Health and the Medical, Nursing and AHP Directors. Secondly, from the perspective of programme governance, it has an important role in commissioning new programmes of work. Thirdly, it will be an important forum to help steer developments in information governance. The group will also advise on the value of anticipated benefits, the capacity of the NHS to realise the benefits and how key challenges may be overcome. Consideration will also be given to the CCLG managing an innovation fund which could support the developmental stages of local initiatives arising from Scottish clinicians which have national potential.

Finally, in setting up eHealth leadership we must ensure that we do not create an eHealth-only 'silo' – links to existing 'mainstream' arrangements will be as important.

eHealth support for improvement collaboratives

Improvement collaboratives are a network approach to quality improvement. Within NHS Scotland, collaboratives have proved to be a successful model to support improvement in areas such as planned and unscheduled care, and diagnostics. Collaboratives provide support for delivery by pooling knowledge, experience and expertise; ensuring local work is undertaken within an effective guidance and evaluation framework.

We aim to contribute eHealth expertise to existing collaboratives, so that benefit gained from existing and new IT systems can help with the overall improvement objectives. Achieving full benefit from eHealth systems requires organisational development and redesign of processes and working practices. Whilst some change will occur organically as users adapt to a new system, significant change requires substantial effort and design on behalf of the service.

To support this, guidance and methods useful to the eHealth perspective will be developed and made available.

Local projects, national benefit

Local eHealth development projects will be supported from national funds where there is clear benefit to all of NHS Scotland. Examples of projects are procurements, development of new policies or promulgation of best practice. Collaborations between NHS Boards will be encouraged and support will be given for dissemination of outputs. Elements of what is known as a 'champion/challenger' process will be adopted where appropriate, for example when assessing the potential for a local innovation to be taken up nationally.

The eHealth workforce

An eHealth function has been established within the Scottish Government, the structure and staffing of which are intended to provide central governance, direction and support for the delivery of the eHealth Strategy.

A resourcing strategy has recently been completed which made recommendations on appropriate staffing to meet current and future eHealth Programme requirements, taking into account skills and competencies required and where best to find them. The recommendation is a mixed economy of

Scottish Government, other Government organisations such as NSS and NHS Boards and some additional external contractual or consultancy resources where required.

In parallel with this, a separate working group led by NHS Ayrshire & Arran has been set up to consider the future skills requirements for the wider eHealth workforce in NHS Boards. This is at an

early stage but the intention is to provide greater definition of the skills required, linked to existing industry standard frameworks and KSF (Knowledge and Skills Framework), and put in place a career development structure to support ongoing development and retention of eHealth staff across NHS Scotland.

9 Summary of actions and outcomes

The various main actions contained in this strategy are summarised below under three headings, showing in addition what can be expected to be achieved. References are made to relevant sections within the document.

Exploit and improve what exists

What

SCI Gateway and SCI Store will be further consolidated and standardised, with priority being support for the 18 week waiting times programme. ([page 9](#))

Definition and delivery of a Child Health Summary will provide the focus for improved integration of nationally-held child health information. ([page 10](#))

Mental health: short term focus on eHealth support for the Mental Health Benchmarking Programme and Integrated Care Pathways. In the longer term it is expected that the Patient Management System (see below) will provide upgraded facilities to further support mental health services. ([page 10](#))

Emergency Care Summary service will be enhanced through additional items of patient information and a wider user base. ([page 12](#))

Programme to deliver eHealth support to community health and social care focused on NMAHPs. ([page 13](#))

For telehealth and telecare, priorities will be to support home based care support for managing long term conditions, delivery of care in remote and rural settings and improved ways of addressing unscheduled care. ([page 14](#))

Continue to develop and deploy 'change and benefits' methods to help ensure that the potential of our new and existing systems is fully reached. ([page 21](#))

By when

Targets and programme of work agreed by September 2008.

Specification and proving work completed by end 2008 and roll-out thereafter.

Short term targets and programme of work agreed by September 2008.

Subject to stakeholder and business case acceptance, progressively introduced over 2008 – 2011.

Progressive improvement targets agreed with each NHS Board, through to 2011.

Throughout period of the Strategy.

Throughout the period of the Strategy.

Significant procurements or developments

Action

Led by NHS National Services Scotland, the technology which delivers the national CHI index for patient identification will be modernised and the service improved. ([page 10](#))

Led by a consortium of NHS Boards, national procurement of a suite of products known as Patient Management System. ([page 11](#))

Led by NHS Tayside, national procurement of products and services for user identity management and Single Sign-on – the Clinical Portal. ([page 12](#))

Plan a managed transition from GPASS based on choice resulting from a national procurement. See also community NMAHP action below. ([page 11](#))

Complete the business case and take decisions around the proposed national HR system. ([page 15](#))

By when

Complete by end 2009.

Contract in place spring 2009, roll-out thereafter, live in three NHS Boards by 2011.

Contract in place spring 2009, roll-out thereafter, live in three NHS Boards by 2011.

Contract in place summer 2009, roll-out thereafter with a date to be agreed for migration of last GPASS practice.

By September 2008.

Further planning

What

Safeguarding information confidentiality: an upgraded information assurance policy and implementation plan developed. ([page 8](#))

Assuring eHealth patient safety: agree action plan for mechanisms. ([page 12](#))

eHealth in support of Long Term Conditions: action plan developed which will include 'patient eHealth'. ([page 14](#))

General: strategies and associated plans developed for IT applications, technical architecture and finance of eHealth. ([page 23](#))

By when

Complete by spring 2009, implementation thereafter.

End 2008

Complete by end 2008, implementation thereafter.

Complete by end 2008.

Support for delivering the strategy

What

Establish eHealth support for improvement collaboratives in each NHS Board, including common support team. Priority focus on support for 18 week waits. ([page 21](#))

By when

By end 2008.

Develop a strategy for improving the professional skills of our eHealth staff. ([page 21](#))

By end 2008.

Develop an eHealth financial strategy in collaboration with NHS Boards. ([page 24](#))

Note that the programmes and projects included above do not represent all eHealth initiatives currently underway - there are many others such as the PACS national roll-out. The focus here is on the new and extended work. Nevertheless the number of current national and local projects is considerable and they need to be co-ordinated as part of the overall eHealth programme to ensure they fit with the strategic direction, effective management of inter-dependencies, and delivery of anticipated benefits to support *Better Health Better Care* as discussed in the previous section.

We will agree with NHS Boards an **applications** (IT systems) **strategy** reflecting the above programmes and projects, but recognising local past investment to support the aims of eHealth. This will set out how we aim to progressively increase standardisation to improve information sharing and reduce costs. It will also describe how flexibility and choice of systems will operate: which systems are national and mandatory for instance.

In addition a **technical strategy** will be developed to underpin the applications strategy. The principles which will underpin the strategy will be:

- support incremental improvements in availability of clinical and non-clinical information and functions
- ensure confidentiality and integrity of information
- improve how systems interoperate so as to safely present integrated patient and health information
- support improvements in data quality and usability
- offer best value
- be receptive to evolving clinical and business requirements
- support variations and innovation in local clinical and business priorities
- support incremental steps towards minimum levels of standardisation

10 Financing the eHealth Programme

NHS Scotland currently invests significant sums on eHealth to support the running of the Health Service. A combination of capital and revenue amounting to some £225m was spent on IM&T in 2006/07 of which 22 per cent was spent on the 1,600 eHealth staff working in the Service and the remainder on computer software, hardware and related services.

The Strategy and the improvements it sets out must be affordable and sustainable. eHealth investment is made at both national and NHS Board level. This reflects the balance of roles and will continue into the future. The Strategy will, however, be underpinned by a finance strategy

which envisages closer engagement of the national and Board budgets to produce an agreed investment plan. It will also be clear at the planning stage what the balance of national and Board funding would be in any new investments. The Strategy is designed to be affordable and reflects the increased investment being made available by the Scottish Government over the spending review period. New mandatory national systems will be funded from the Scottish Government who will also contribute to national systems where choice is operated at Board level.

Whilst there are no specific targets to increase expenditure in this area it is generally recognised that increased investment will be needed to support the delivery of patient care in the future. This theme was highlighted prominently by Audit Scotland. In recognition of this, the Scottish Government committed to fund future growth in eHealth as part of the recent Strategic Spending Review which sees the national eHealth budget progressively increased from under £40m in 2005/6 to a forecast £140m in 2010/11. This increase in funding is to be phased to ensure that change can be implemented and benefits realised as capacity increases.

The eHealth Programme will be supported by an eHealth finance strategy developed and agreed with Directors of Finance.