

## Executive Summary

This strategy describes how the South Devon Health Informatics Service (HIS) will develop electronic Information Communication and Technology (ICT) to improve patient experience of healthcare, user experience of technology and provide a whole healthcare organisation view of health information.

There is overwhelming evidence that excellence in health informatics improves patient care. Modern healthcare is increasingly complex, and ICT is at the heart of this complexity. However many current ICT systems are not integrated, and any “integrated” patient record is paper-based and difficult to share. These inadequacies drive a need for better ICT.

The Joined up Care (JuC) ICT Strategy is key to the ambition of the JuC Cabinet. It derives from proposed clinical models of care, and provides a clear vision for the future. The strategy intends to deliver:

- **Joined-up care** by delivering ICT that supports information sharing across primary, community, acute and social care services and thereby places the patient at the centre of a “web of care”.
- **Safe, effective and high quality care** by providing ICT that recognises the needs of healthcare workers and supports them to deliver care at the right time and in the right place.
- **A sustainable informatics service** by using ICT systems that are value for money and scalable.
- **Well-managed clinical services** by providing information and analytics to support the day-to-day and strategic management of healthcare.
- **Innovation** by enabling new models of care and assisting research and continuous improvement.

For example, a Clinical Portal will provide a central repository and view of all electronic clinical information. This will help information sharing and business analysis across the community including General Practice, Social Care and Ambulance Services. Electronic document management will eliminate the need for bulky paper records. Order communications systems (OCS) reduces form filling by clinicians and automates audit trails from request to result. Electronic prescribing (EPx) will reconcile medicines across healthcare providers, reduce errors and save time re-writing paper drug charts. Links to clinical decision support (CDSS) systems will bring focus to decision-making and guide best practice. CDSS will reduce errors and provide alerts according to defined rules.

The option of a single integrated IT system is no longer available as a centrally funded entity. Instead, our approach has shifted to multiple systems procured according to a “best of breed” approach. A composite electronic patient record will replace the all-in-one solution. Information will be exchanged between systems using interoperability standards. All systems will link through a “clinical portal” which will integrate information and provide a single interface where possible.

This approach is supported by the NHS papers “The Power of Information (2012)” and “Five Year Forward View (2014)”.

Requirements of new ICT systems include:

- Best of Breed
- Interoperability
- Contemporaneous use
- Mobile/agile working
- Transformed business and performance information

The risks of “best of breed” ICT systems include:

- Creating a barrier in having to train for and access multiple separate systems.
- The cost of procuring and maintaining multiple IT systems.
- The failure of interoperability and integration between systems.

In some settings, the use of ICT will take longer than current paper-based methods. The change management process must balance loss in productivity against ‘whole-system’ net benefits.

The upgrade program for existing systems will be reviewed in the context of this strategy and the same requirements will be applied to major upgrades as to new systems. Some upgrades will be completed alongside new deployments; others will have to be held back. This will ensure resources are allocated to deliver an informatics platform according to priorities determined by the JuC.

As with all strategy planning unexpected events may require changes to programme timetables.

# 1. The strategic case for change

The Joined up Health and Care Cabinet (JuC) brings together organisations involved in health and social care as part of a community across South Devon. The ambition of integrating these services is to:

- Improve peoples' experience of health and care.
- Give people a bigger say in managing their health.
- Reduce inequalities in health and care within South Devon and Torbay.
- Continue to support and develop a motivated and flexible workforce.
- Sustain a financially stable health and care system.

This document sets out the health and care community's plans for information and communications technology (ICT) over the period 2015 onward. A clear ICT strategy is essential to ensure the local health and care organisations – Torbay and South Devon NHS Foundation Trust (TSDFT) as the provider organisation, and South Devon and Torbay Clinical Commissioning Group (SD&T CCG) as the commissioner organisation - have high quality, fit-for-purpose ICT to support the delivery of safe, efficient and effective healthcare. Collectively we need an ICT strategy which:

- Is consistent with and flows from service strategies and changes in the wider health and care community, including Pioneer and the Integrated Care Organisation new models of care.
- Sets a strategic direction for ICT against which future investment proposals will be tested.
- Ensures the health and care community achieves maximum benefit from its investment in ICT.
- Results in our having the right ICT to help drive change in health and care services.
- Supports the efficient delivery of services, including optimising ICT costs. ICT costs are significant and they are largely fixed - the strategy should minimise costs where possible.

No strategy is fixed. As service models develop and patient needs change, so the supporting ICT infrastructure will also need to change. This strategy sets out a clear way forward where service needs are clear but we have also designed in flexibility to ensure ICT can adapt as new service delivery models are developed.

Whole-health and social care community strategies are not a new approach in South Devon. Although the JuC has no formal executive role it has the support of Chief Executives of all member organisations. The JuC ICT strategy is one of several of joint strategies, which each organisation is expected to approve separately. Furthermore the strategy has to take account of interfaces with neighbouring and partner organisations including General Practice, Ambulance Service and acute hospitals outside South Devon.

This strategy covers all ICT used by the three organisations, recognising the most pressing needs are within clinical systems.

This ICT strategy makes the case for change and investment by describing:

- Our vision for ICT (section 2)
- The 'where we are now' i.e. the current state of ICT services across the health and care economy (section 3)
- The projects we will undertake to achieve our vision and respond to the case for change (section 5).
- How we will support the implementation of our plans (section 6).

No organisation can stand still in the face of substantial change in its external environment. The ageing population and rising expectations mean people want and need more from their health and care services. This chapter explains how the strategic objectives of the JuC affects the ICT strategy. It discusses the needs of patients and healthcare worker, using the 'webs of care' concept and then the national picture.

## 1.1. Patient centred care

Joined-up care and information sharing is central to the vision of patient centred care. Information technology is seen as a key enabler.

As the population ages the number of people living with chronic long-term conditions will increase. These people are the heaviest users of health and social care services. Traditionally they have to navigate through complex, poorly coordinated services exacerbated by poor information and communication. These people and their carers have the most to gain from the ambitions of the JuC. ICT has a clear role to play in enabling these ambitions.

NHS England and the National Collaboration for Integrated Care and Support commissioned National Voices (a grouping of 130 health and social care charities) to research what matters most to patients and service users. The result was the following definition of “**person centred coordinated care**” - “*I can plan my care with people who work together to understand me and my carer(s), allow me control, and bring together services to achieve the outcomes important to me.*” This resonates in the 2012 paper and 2014 paper “Five Year Forward View.” The aspects of “**person centred coordinated care**” and ICT requirements are summarised in the table below:

Aspect of person centred care	ICT requirements
My goals/outcomes	A care plan summary which can be shared as required
Care planning	A consistent health and care record which can be accessed by all users at the point of care
Communication	Information-sharing platforms which connect patients to their care teams
Information	Patient access to their own record, relevant information about their condition and services which might support them
Decision making including budgets	Patients are able to control information in their record, including their medical condition and how resources (including financial) are managed
Transitions	The care record is fully available to new care teams if the patient moves from one team to another, for example from hospital to community.

In Torbay we are a recognised national leader in the required response i.e. integrated, patient centred care. This is reflected in our national “Pioneer” status. We recognise that we can still be better – this strategy represents part of our response.

## 1.2. The vision, aims and objectives for our health and care system

The CCG and ICO both have clear plans describing their respective strategic objectives and the changes they will make over the next few years. Each plan is entirely consistent with one and other and has the common vision of **delivering excellent joined-up care for everyone**. ICT is integral to achieving this vision.

Delivering the vision means the three organisations and local GPs will work together to provide:

- Services that are consistently **high quality, safe and reliable** as measured by improved outcomes and excellent customer feedback.
- **Person centred services** designed at a macro level with the community and our partners, and at an individual level with the patient, their carer and wider family.
- Services with an **emphasis to prevention, early diagnosis and early intervention** designed to maximise independence.
- Innovative services delivered by a **motivated and skilled workforce** working as part of an **integrated community-wide system** spanning health and social care.
- Services with **no delays** and which **minimise variation**.
- Local services that help to **reduce inequalities**.
- Services that are **clinically and financially sustainable**, delivered in the most appropriate setting.

All three organisations recognise the importance of better joined-up ICT as a key enabler of change. At its most basic, this means that improved ICT systems will deliver health and care records that are complete, which avoid duplication and that are accessible at the point and time of need.

## 1.3. How better ICT will support improvements in priority areas

The CCG has identified eight priority areas; primary care; optimising medication; urgent care; community services; mental health; planned care; learning disabilities and children’s services. This section sets out how ICT can contribute to achieving our aims in each priority area.

We will encourage greater collaboration between **primary care services** and optimise capacity to reduce referrals to secondary care. Better ICT will support collaboration by enabling the sharing of patient information between practices and out of hours' providers. This includes improved access to test results, the summary care record, federated general practice systems and decision support. This is anticipated to reduce secondary care referrals.

Community-wide electronic prescribing will help providers **optimise the use of medication** by reconciling prescriptions and identifying variation in prescribing patterns in both primary and secondary care.

Effective **urgent care** services require 'whole system' integration. Informatics solutions will support the new urgent care model by:

- Encourage self-care by making information more readily available to the public.
- Supporting earlier intervention through proactive clinical decision support.
- Maintaining patients with chronic needs at home (including people living in care homes), thereby minimising unplanned interventions.
- Signpost patients to the most appropriate provider when they do need an urgent response.
- Promoting joined-up care in and out of hours.

Early intervention will require the use of risk stratification tools to support 'case finding'. Technology will bridge services such as GP out of hours, the ambulance service and A&E by providing a full picture of recent contact with health and care services. GPs will know when their patients have been in contact with urgent care services and will use this knowledge to co-create anticipatory care plans. We also foresee a need for decision support software to help clinicians working in urgent care services to diagnose more accurately. Post-hospital admission people will be returned home or 'stepped down' to sub-acute services as soon as their 'acute' needs are met. This will depend on better liaison facilitated by ICT and developments such as the summary care record.

Our ambition for **community services** is seven days a week provision with the goal of fewer unplanned admissions. This will come from a focus on people with long-term conditions and the frail elderly. ICT can support their care at home by a virtual ward-based approach. This requires sharing of appropriate patient level information, but not organisational mergers. We must ensure that each patient has a single care plan which is accessible whenever needed, by the patient, carers and other staff.

Torbay was a pioneer of tele-health and tele-care. We will build upon this and deploy more of these technologies to support people to retain their independence. This extends beyond health and social care to issues such as troubled families and housing. Our ICT offer will need to be cognisant of developments in this area and respond by appropriate information sharing with council, private, voluntary and charitable services.

We will improve remote access to systems through mobile working devices designed to fit around users' patterns of working.

The needs of **mental health** services are very similar to those of community services. Our aims are improved case management and joined-up care resulting in a better patient experience and outcomes. Specific aims include implementing the dementia strategy. This has a particular resonance given the local demographic. Joined-up care will require ICT that shares information with Devon Partnership Trust and third sector organisations, as well as between primary care and the care trust. Equal access initiatives will help to lessen current inequalities. For example early mortality is a particular issue for people with mental health problems and people with **learning disabilities**. Commissioners want ICT to enable inclusive mainstream care for these groups.

We also aim to improve '**planned care**'. "No delays" and early intervention are vital to improving the overall health of people. ICT can support this by streamlining processes such as referrals and bookings. Better ICT also has a role in the efficient delivery of elective surgery and outpatient clinics by contemporaneous access to and recording of information. We will exert a relentless pressure improve safety and drive down variation in access and treatment through clinical decision support at the point of care. We will minimise the need for expensive paper records. Finally, our aim to reduce harm means we will roll out to our wards and clinical teams. We will offer consultations closer to home through telemedicine.

**Children's services** need ICT support to help co-ordination between services including health visitors, school nurses, paediatrics, education and a proactive approach to illness prevention. There will be a particular emphasis on safeguarding. We will encourage young people to take more responsibility for their own health and foresee greater use of social media and smart phone apps in this context.

The Councils plan ICT systems to ensure that:

Young people have a good quality education, good skills and opportunities

Young people can have healthy lifestyles

The Council is able to provide prompt and effective protection from harm

The Council can provide support to families where it is needed most

Young people have the best care and that care leavers have good qualifications and life changes

Young people are empowered to participate and have a greater voice.

This will be delivered by ongoing improvements to existing systems and the continued implementation of rollout of a single and joined up Early Help Assessment system for multiple agencies. Information will continue to be bought together into a shared single children's view.

## 1.4. The need to support business as usual

This strategy gives equal weight to **'business as usual'** needs as business developments. The health and care community uses a multitude of ICT systems some of which will require renewal in the coming years.

Organisational restructuring is likely to create a new larger and more complex trust. We will, therefore need to provide our leaders with access to accurate, timely information with which they can make day-to-day operational and more strategic decisions.

This strategy recognises the needs of service managers to access information to plan the day-to-day flow of patients through the system, develop strategies to support changes in the healthcare communities needs and provide the evidence that we meet necessary standards. Where possible this information should be collected as part of clinical process and be clinically validated, without intruding on the delivery of care.

## 1.5. The CCG ICT Strategy

The CCG and GP strategy recognises that the traditional models of care are changing, with the opportunity to break down barriers between organisations. However this can only happen if supported but appropriate information sharing between care providers. Furthermore the revised GP Contract requires online patient access to their records by April 2015. This is supported by the GP System of Choice (GPSoC) framework, but we need to go further if the local ICT strategy is to scale up from GP working to cover other requirements of the JuC ICT strategy.

The South Devon and Torbay CCG ICT Strategy describes how CCG and GP systems will be developed beyond immediate GP practice needs to enable these models of care (appendix E). Advanced Program Interfaces (APIs) offer suitable technology, provided interoperability is achieved. However there are also clinical process, cultural and governance needs to be addressed in harmonising JuC and CCG ICT Strategies.

## 1.6. The national picture relating to ICT

The Pioneer award confirms Torbay's position as a national leader in Integrated Care. Furthermore, this Strategy reflects guidance and opinion derived from multiple national strategy documents including Lord Darzi's Informatics Review (2009), Liberating the NHS: An Information Revolution (2011), The Power of Information (2012)<sup>1</sup> and The Five Year Forward View (2014). The latest national information strategy directs ICT to:

- Achieving success through effective leadership and developing staff.

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<sup>1</sup> See Appendix C

- Creating confidence in care records through clarity and accountability.
- Delivering interim solutions while awaiting local delivery of national or nationally funded services.
- Empowering staff to use systems effectively.
- Empowering patients to make informed choices.
- Building sound infrastructure for the future through clear leadership and accountability.
- Using information standards to support infrastructure.

Central funding no longer exists through the National Program, but matched funding is available for individual projects. In the future best practice tariffs will be available (2018) and some CQuINS are only realistic through information technology.

## 2. ICT vision

The delivery of this strategy, described in section 3, will be planned according to principles described below:

- “Best of Breed”: the best system for the referenced use case, linked by a clinical portal
- Conforming to recognised interoperability standards to eliminate “information silos”,
- Point of care, contemporaneous use, where beneficial, to support mobile/agile working.
- Avoiding duplication of work.
- An intuitive, responsive interface, which is device agnostic where possible.
- Enhancing patient safety, including clinical decision support.
- Facilitating patient involvement in their care through access to healthcare records.
- Community information sharing.
- Meeting standards for clinical safety.
- Integrating clinical and administrative functions where appropriate.
- Data ownership by health and care providers.
- Information properly recorded and safely shared (information governance).
- NHS number against all records (context management and identity resolution).
- Secure online access (access control).

In 1998 Gartner first set forth a five-stage model describing how electronic healthcare systems would evolve (figure 1, below). The starting point is very simple reporting systems. These are developed into very complex, fully integrated systems that clinicians and managers use to help facilitate the practice of evidence-based medicine.

A great deal has changed since that first report. The Department of Health is moving to incentivise the use of electronic records and globally there is a greater focus on using such systems to reduce costs, while improving the safety, the quality and the effectiveness of care delivered. Electronic systems are critical to implementing collaborative healthcare delivery model.

At best our healthcare organisation sits between generation 1 and 2 of this model. However we have at our disposal systems that comprise the basic building blocks to take us to generation 3, as we use the potential of integrated data to support decision-making at exponentially more junctures. These systems are described in more detail in chapter 3.

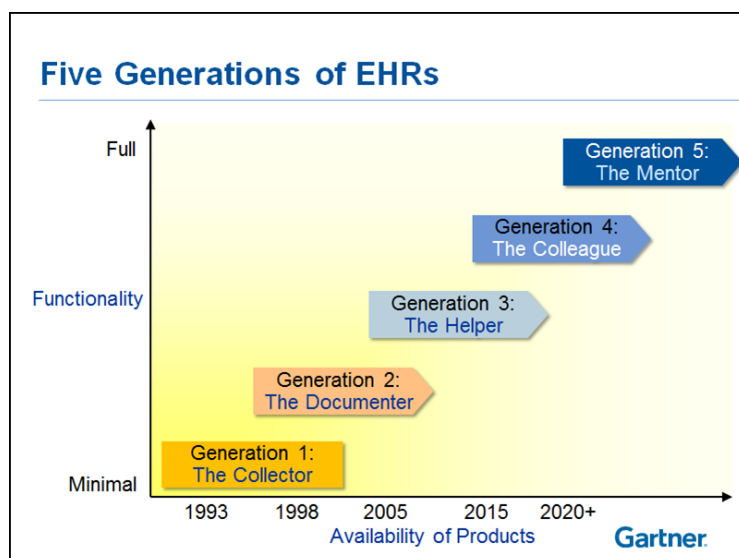


Figure 1 Five Generations of electronic health records<sup>2</sup>

<sup>2</sup> [http://www.gartner.com/it/content/504500/504569/ks\\_hc\\_jun.pdf](http://www.gartner.com/it/content/504500/504569/ks_hc_jun.pdf)

## 2.1. Best of Breed Systems and Clinical Portals

The “Best of Breed” (BoB) approach to deploying software allows the HIS to buy systems that are the best for a particular use. The procurement process is highly competitive. For example, we use PACS from one supplier and pathology results from another. Other advantages are that legacy systems are replaced in turn, reducing the demand on the HIS, and costs may be lower.

The alternative is to replace a majority of systems with a single integrated system. However these are expensive at first and very demanding on HIS resources during the move from old to new systems. Furthermore they will lack some functions and may not offer any solution in some use cases. When the contract for the single system comes to an end, then the change to the replacement system will potentially have to take place in a relatively short timescale, requiring intense project work from both the project team and the wider group of end users to make the transition successful.

Disadvantages of BoB are that the need to access multiple systems creates a barrier between the user and clinical information, the systems need to use common interoperability standards, require multiple logins and training on multiple systems. This HIS has to maintain multiple interfaces and the cost may eventually exceed that of an integrated system.

Clinical portal technology overcomes some of the limitations of BoB. A clinical portal gives the user a single and consistent and seamless view of different types of clinical information. Where the information is not held in the portal, the portal gives the user direct access to native systems. An example of this might be a clinician using the portal to view an x-ray result then dropping into PACS to view the x-ray images themselves. This combines single sign-on (SSO) with context management.

## 2.2. Interoperability and eliminating information silos

Clinical systems need to “speak” or interoperate with each other or through a clinical portal so that we achieve an end user experience similar to that of an integrated system. Several standards in common use allow this to happen. Section 4.2.6 describes these standards in more detail in. Without these standards, the interface between systems becomes very complex, to the extent that the risks exceed the benefits.

Furthermore, the systems risk becoming information silos, where information can only be retrieved from the top of the silo, for example by requesting a report from the system. In the meantime, other systems cannot “see” information held in the silo

## 2.3. Point of care and contemporaneous use

Clinical information is most relevant when used at the point of care and the information systems are integrated into the workflow of the clinician. This is true on two accounts. Firstly the value of clinical decision-making is decided by the information available at the time, whether that is by the bedside, in an office or in a multi-disciplinary meeting. The better the quality of the information the greater the value of the clinical transaction. This means clinical information has to be available not just on desk-top pc’s but also on mobile devices including mobile laptops, tablets and smart-phones. For certain systems the interface has to be device agnostic. Alternatively the system may need to recognise the nature of the device through which the information is being accessed and take account of the environment. The needs of a ward based nurse will be different from those of a community nurse even when some of the information sought is identical.

All four of the locally used GP systems offer mobile versions that do not require N3 connection. However, they are not necessarily device agnostic and have limited functionality. The clinical portal may supplement basic functionality to meet the immediate clinical need.



Secondly we have good evidence that clinical information required for business analysis is most reliable when taken directly from the source. Examples of this include data capture during MDT discussion and codes from electronic operation notes. As we collect more electronic clinical information we will have much richer and more accurate source of information about the functioning of the organisation.

## **2.4. Avoid duplication of work and of information**

There are too many examples of work that has to be recorded on both paper and electronically, sometimes on multiple systems. In other cases work has to be transcribed from paper to electronic, and even from one electronic system to another electronic system.

Where possible information should be entered once, into the native system. Where paper alone is used it should be to record narrative only, and not structured data. The narrative can be incorporated into the record via an electronic document management system (EDMS).

## **2.5. An intuitive interface**

Improving the user experience is vital to secure rapid adoption by users and ensure they benefit from using the systems. Health information is complex, and this may be compounded by the complexity of having to navigate multiple systems. Where possible we will provide a single view of clinical information. The experience should be similar experience to web-browsing or email.

## **2.6. Enhancing safety**

Nationally, as few as 50% of patients receive “recommended” care and a similar proportion of adverse events are deemed “preventable”<sup>3</sup>. Electronic systems enhance safety in several ways. They provide immediate access to relevant information, and are more reliable than (incomplete) paper records. They alert clinicians to critical information such as allergies and safeguarding risks, and can be set to require an acknowledgement. They can help clinicians to link health observations with knowledge and evidence.

Domains in which CDS improves outcomes include:

- Diagnostic accuracy
- Early alerting to clinical deterioration
- Patient-specific reminders on charts
- Reduced prescribing errors

Key requirements of new systems offering electronic CDS are:

- Decision support provided automatically as part of clinician workflow (i.e. contemporaneously)
- Decision support delivered at the time and location of decision making
- Actionable recommendations provided
- Reason for deviations recorded

Systems already in use include VitalPAC, Operation Notes, and the Ophthalmology Imaging System. Systems currently in deployment or procurement include electronic prescribing systems and Order Communication Systems (OCS). The latter will guide clinicians to most appropriate investigation and lower the likelihood of over-investigation. More sophisticated systems can analyse clinical information, account for context and provide proactive support (see also figure 3).

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<sup>3</sup> Kensaku Kawamoto, Caitlin A Houlihan, E Andrew Balas, David F Lobach. Improving clinical practice using clinical decision support systems: a systematic review of trials to identify features critical to success. *BMJ*. 2005 April 2; 330(7494): 765

## 2.7. Facilitating patient involvement

Both The Power of Information and Five Year Forward View articulate a vision of patients empowered to contribute to their healthcare. This requires them to have access to their clinical information, and add to the content of their healthcare record. We will enable this by providing patients with a secure electronic personal health record, hosted on the NHS N3 network and owned by the individual, not the organisation. As well as being a repository for information, it will facilitate communication between carers and patients using features derived from email and social media. Furthermore it will provide patients with a view of their information governance, for example by setting certain access rights and consent for use of information, and audit logs of who has accessed their record.

## 2.8. Community Information Sharing

We will share information between ICT systems used by Devon NHS staff across primary, secondary, community and social care. An example of how systems might connect is given in figure 1. Cross-community information sharing will help realise time, quality and safety benefits for providers and service users. Benefits include consistent, accurate and timely patient information, and more efficient administration processes.

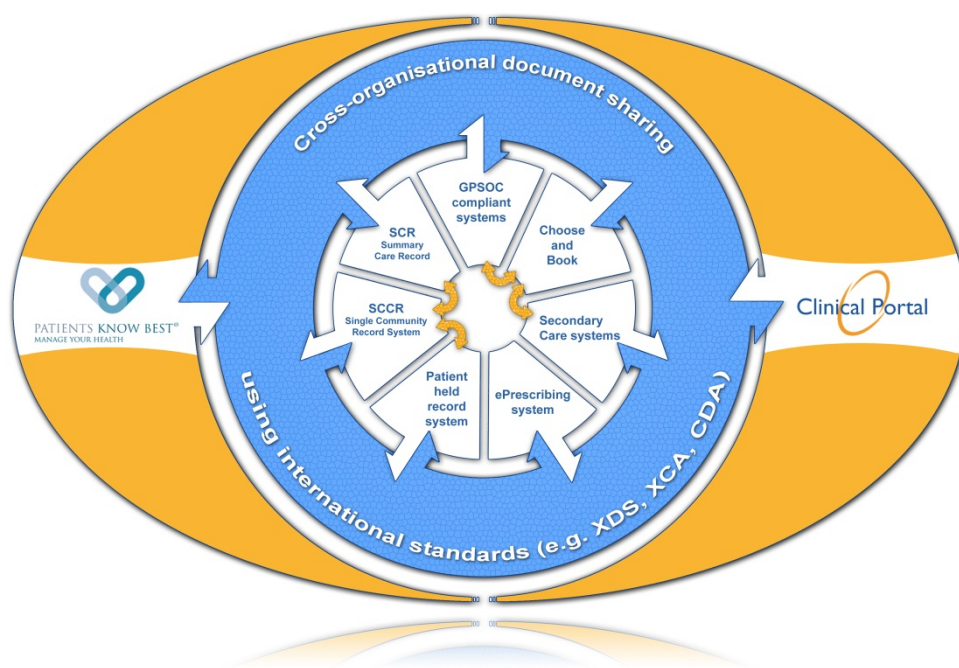


Figure 2 The relationship between primary, community/social and secondary care systems

## 2.9. GP and CCG interface

Ninety per cent of all NHS contacts are with primary care. The foundation of the NHS remains list-based primary care, and General Practice has led the way in the use of electronic consultations to deliver health care. Currently GP systems are the most complete and sometimes only electronic patient record. They contain information collected on

patients in primary care and in the form of correspondence from community, secondary and social care providers. However many patients with multi-morbidity and complex health and care problems interact with other providers. We lack a direct interface between these systems.

This strategy will look to the national General Practice Systems of Choice Contract (GPSoc), Interoperability Toolkit (ITK) and Medical Interoperability Gateway (MIG) to achieve interoperability between systems across all care providers. This will involve the four GP systems in current use interoperating with acute and community systems.

Critical to our success is achieving a community-wide information sharing agreement and ensuring that we work within the legal and ethical framework.

New care delivery models considered include multispecialty community providers and combined primary/acute care systems. This strategy must be flexible to support these requirements as they evolve.

We also plan direct access to GP clinical systems to meet requirements of the GP contract by April 2015, including summary care information, online appointments and managing repeat prescriptions. By 2018 this will extend to direct communication between primary and secondary care records. We will provide a platform for patients to take greater responsibility for their health.

The South Devon CCG has an ICT strategy which is closely aligned with the JuC ICT strategy. The CCG has developed an Information Sharing Toolkit through the Information Sharing Group and Information Sharing Agreements.

## **2.10. Clinical Safety**

As clinicians and care processes become more reliant on IT, new systems must be assessed for risks associated with their use. These risks range from complete system failure to specific instances in which clinical information might be misrepresented, misinterpreted or misused.

All new and significant systems upgrades will conform to Information Standards Board requirements for safe use (*ISB 0129 (DSCN 14/2009) - Application of Patient Safety Risk Management to the Manufacture of Health Software and ISB 0160 (DSCN 18/2009) - Application of Patient Safety Risk Management to the Deployment and Use of Health Software*). This will include the need for risk management systems, clinical hazard logs and safety case reports provided by suppliers and developed in collaboration with the project board.

## **2.11. Integration of clinical and administrative functions**

Current administrative practice often requires manual transcription from clinical workflow into administration. In outpatients the clinical pathway is transcribed from "outcome" forms, or instruction in clinic letters into the patient administration system. A similar process exists for inpatients. Business management requires interpretation and manual transcription of diagnostic and treatment outcomes from the clinical narrative into Health Resource Group (HRG) codes for remuneration.

We will automate the capture of actionable business information by integrating administration process in clinical systems. A requirement is that this should not intrude on clinical process. An example is the use of the theatre operation note system in the Galaxy Theatre System. The surgical team validates the procedure performed at the end of each operation. This creates the actual OPCS code.

In oncology UltraGenda is used to map the clinical pathway for chemotherapy patients. Changes in the clinical schedule of a patient can be automatically updated throughout the pathway as their needs develop.

Future plans include integrating electronic theatre scheduling with clinics and business intelligence tools which can capture SNOMED terms from clinical narrative. Integration of staff rosters with clinical measures of acuity will improve staffing levels. Integration of administration systems with the patient owned record allows secure electronic communication of upcoming clinical appointments.

Best-of-breed may require separation of the patient directory and clinical process functions of a “traditional Patient Administration” System.

## **2.12. Data Ownership**

The ownership of information includes the ability to create, access, modify and remove data, and the right to assign privileges to others. Implicit in this control over data is the ability to share data with or move data to other systems.

There are two important considerations in data ownership.

First is the ability of the owner to use the information without constraints imposed by third parties such as system suppliers.

Second is the requirement of the data owner to meet legal and ethical standards, in particular but not limited to the Data Protection Act, described in section 2.11.

## **2.13. Information Governance**

Information Governance ensures necessary safeguards for, and appropriate use of, patient and personal information. It ensures that information is accurate and that in using this information we do not compromise confidentiality. Staff are expected to adhere to the six general Caldicott Principles when using data:

- Justify the purpose of retaining patient identifiable information.
- Do not use patient identifiable information unless it is absolutely necessary.
- Use the minimum necessary patient identifiable information.
- Only access patient identifiable information on a strict 'need to know' basis.
- Be aware of your responsibilities regarding patient identifiable information.
- Understand and comply with the law.
- The duty to share information can be as important as the duty to protect patient confidentiality

Although health and care staff bears responsibility for safeguarding, our systems must support best practice and help minimise risk.

All systems will follow information sharing protocols and agreements according to the clinical setting. All ICT systems will comply with arrangements to maintain the confidentiality and security of data including; security and password access protection; effective anti-virus and anti-malware software; the use of secure email; secure encryption of all electronic removable media and portable computing devices; computer network resilience and disaster recovery processes. All new systems will provide a full log of user activity, to meet audit requirements.

The Information Sharing Toolkit described in the CCG Information Sharing Strategy (appendix D) will enable healthcare providers across the South Devon area to connect to the information systems they need and share information safely and securely.

## 2.14. NHS number against all records

A requirement for integrating information from multiple systems, and ensuring information governance, is a consistent single identifier for all clinical information. For the purposes of this IT strategy the single identifier will be the NHS number, whether in a Trust system, a GP system or a social care system.

## 2.15. Secure online access

Mobile sharing and use of clinical information community-wide will require access of information through the Internet rather than directly or through the N3 network. Systems that enable mobile working are vital to this strategy but must meet

## 3. ICT projects and strategy delivery plans

This section describes the systems meeting the requirements of the ICT strategy. They include current and legacy systems, systems in procurement and, where necessary describe requirements without an immediate solution. Legacy systems may not meet the specifications outlined in this strategy, and will need replacing in time. Not all solutions are yet fully funded.

It is summarised below:

<p><b>Joined-up care</b></p> <p>We will deliver information and communications technology which <b>supports provision of the right joined-up care</b> to local people</p>	<p><b>Safe, effective and high quality</b></p> <p>We will deploy information and communications technology which supports professionals to deliver <b>safe, effective and high quality care</b> at the right time and in the right place</p>	<p><b>A sustainable health and care system</b></p> <p>Our information and communications technology will support the health and social care community to provide services which are <b>value for money and sustainable</b></p>	<p><b>Well managed services</b></p> <p>Our information and communications technology will support operational and strategic management by providing the information needed to ensure services are <b>high quality, safe, sustainable and value for money</b></p>	<p><b>Innovation</b></p> <p>Our information and communications technology will support <b>innovation and research</b> to help promote the health and wellbeing of individuals and communities</p>
<p><b>Our key objectives are to:</b></p> <ul style="list-style-type: none"> <li>• Develop joined-up patient centred community services</li> <li>• Ensure the information required to support care is available at the point of care delivery</li> <li>• Facilitate the delivery of care as close to home as possible</li> <li>• Enable a shared view of service user's records to facilitate joined-up care</li> <li>• Introduce the single</li> </ul>	<p><b>Our key objectives are to:</b></p> <ul style="list-style-type: none"> <li>• Reduce risk</li> <li>• Reduce variation in treatments and care pathways</li> <li>• Reduce the number of repeat investigations</li> <li>• Improve diagnostic accuracy</li> <li>• Reduce prescribing errors</li> <li>• Improve diagnostic accuracy</li> <li>• Early warning of clinical deterioration</li> <li>• Provide decision</li> </ul>	<p><b>Our key objectives are to:</b></p> <ul style="list-style-type: none"> <li>• Reduce 'non-patient facing' activities</li> <li>• Increase 'time to care' through roll out of time saving technologies</li> <li>• Reduce duplication e.g. reducing duplicate tests</li> <li>• Reduce variation in treatments and care pathways</li> <li>• Enable mobile working</li> <li>• Reduce travel for community staff</li> </ul>	<p><b>Our key objectives are to:</b></p> <ul style="list-style-type: none"> <li>• Improve management decision making</li> <li>• Facilitate production of real time information for managers e.g. customer feedback</li> <li>• Provision of accurate, timely information to managers (quality, finance, activity, workforce etc.)</li> <li>• Provide marketing platform/platform</li> </ul>	<p><b>Our key objectives are to:</b></p> <ul style="list-style-type: none"> <li>• To engage with people to co-create innovative services</li> <li>• Continue to be a leader in integrated care</li> <li>• Be a leader in the adoption of Telehealth and Telecare technologies</li> <li>• Promote self-care, prevention and personal responsibility</li> <li>• Capture data for use</li> </ul>

<p>community care record</p> <ul style="list-style-type: none"> <li>• Use risk stratification tools to identify at risk groups</li> <li>• Facilitate the operation of virtual teams</li> <li>• Facilitate the provision of specialist advice/consultation between professionals</li> <li>• Encourage self-care</li> </ul>	<p>support as part of clinician workflow</p> <ul style="list-style-type: none"> <li>• Enable patient to ‘tell their story only once’</li> <li>• Improve communication between professionals</li> <li>• Provide a quick and responsive service</li> <li>• Provide more timely data sharing</li> <li>• Improve data quality</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce need for specialists to travel to patient</li> <li>• Reduce travel for virtual teams</li> <li>• Reduce waiting times</li> <li>• Reduce time spent on data collection and entry</li> <li>• Data collection once mainly at the point of care</li> <li>• Reduce double bookings e.g. community contact and outpatient appointment</li> </ul>	<p>for providers to engage with the community</p> <ul style="list-style-type: none"> <li>• Maintain/gain IG level 2 and where appropriate achieve level 3</li> </ul>	<p>in research projects</p>
<p><b>We will do this by:</b></p> <ul style="list-style-type: none"> <li>• The portal</li> <li>• Single community care record (SCCR)</li> <li>• SCCR link to acute hospital PAS</li> <li>• E-prescribing</li> <li>• Medical Interoperability Gateway (MIG)</li> <li>• Letter replacement project</li> <li>• Operations notes</li> <li>• Extending WinDIP document archiving linked to the portal</li> <li>• New ICU system linked to the portal</li> <li>• PACs and RIS linked to the portal</li> <li>• Telehealth</li> <li>• Telemedicine</li> <li>• Primary care network with hospital</li> <li>• Locality single system</li> <li>• PatientsKnowBest (PKB)</li> <li>• Primary Care Audit tool</li> </ul>	<p><b>We will do this by:</b></p> <ul style="list-style-type: none"> <li>• The portal</li> <li>• Vital signs monitoring and decision support (VitalPAC)</li> <li>• SCCR</li> <li>• knowledge management systems e.g. Map of Medicine</li> <li>• New ED combined admin and clinical system</li> <li>• Telehealth</li> <li>• Telemedicine</li> <li>• Ophthalmology imaging</li> <li>• PACs and RIS</li> <li>• Decision support tools</li> <li>• Dual monitors in primary care clinical settings</li> <li>• Electronic Prescribing Services between GPs and Pharmacies</li> <li>• Mobile access for GPs to their clinical systems</li> </ul>	<p><b>We will do this by:</b></p> <ul style="list-style-type: none"> <li>• SCCR including patients self-booking into clinics; patient self-assessments</li> <li>• SCCR mobile working functionality</li> <li>• SCCR link to acute hospital PAS</li> <li>• E-prescribing</li> <li>• Order communications system</li> <li>• Extending WinDIP document archiving</li> <li>• Telehealth</li> <li>• Telemedicine</li> <li>• Theatre scheduling</li> <li>• Ophthalmology imaging</li> <li>• Infrastructure upgrades e.g. wireless; ‘follow-me’</li> <li>• Intranet</li> </ul>	<p><b>We will do this by:</b></p> <ul style="list-style-type: none"> <li>• Order communications system</li> <li>• Order Plus</li> <li>• Improved website</li> <li>• Intranet project</li> <li>• Combined admin and clinical systems e.g. ED system</li> <li>• WiFi in primary care</li> </ul>	<p><b>We will do this by:</b></p> <ul style="list-style-type: none"> <li>• Collecting more data on outcomes</li> <li>• Embrace Telehealth, telemedicine and Telecare technology</li> <li>• Enabling patients to use GP systems to order prescriptions, make appointments and obtain patient information</li> <li>• Use of apps and social media</li> <li>• Patient owned records such as PatientsKnowBest</li> </ul>

### 3.1. Clinical Portal

The clinical portal (InterSystems HealthShare) is a web-based solution to integrate new and legacy clinical systems. Each portal user has a single login that allows all electronic clinical information to be viewed through one “front end”. The portal is usable on various devices including tablets and PCs without loss of clinical meaning. This consolidation of electronic information will, in time build into a complete electronic patient record. The Clinical Portal manages:



- Access – defining who is able to view different types of information on an individual patient basis.
- Context - ensuring the clinician is only one or two “clicks” away from any type of clinical information.

For the Portal to function the systems and information therein must meet common interoperability standards.

A pilot of the clinical portal has integrated PAS, pathology and radiology reports, and operation notes from disparate systems. It is based on existing (“Ensemble”) technology. It demonstrates that the approach is feasible with current technology. The next steps are to:

- Demonstrate greater depth of integration (the ability to open directly into clinical systems such as PACS).
- Increase the number of systems viewed through the portal.
- Make key elements available across the community and to patients, directly or through Patients Know Best.

### **3.2. Inpatient Task Management**

The clinical portal provides a single interface to view clinical information, but it does not meet the need to manage clinical workflow in the inpatient setting. This workflow includes documenting findings and decisions on ward rounds, nursing care pathways and transitions of care, for example between shifts.

Furthermore the pager system for communication fails to meet requirements for modern team working, and enhanced communication systems are needed.

The HIS successfully bid for matched funding for a task management system to complement the functionality of HealthShare in the inpatient setting. A system has been procured and is in the process of being deployed. The first phase is to support the work of junior doctors, but the next phase will cover the nursing activity.

### **3.3. Single Community Care Record (SCCR)**

The PARIS system used across the Torbay and South Devon community is being redesigned and upgraded from version 4 to version 5. This will provide a health and social care summary record and will include remote access and offline working for staff that visit patients in their homes. It will also help community services currently reliant upon spreadsheets and paper records. This is important as the reporting requirements for community services are becoming steadily more stringent.

For the system to be fully effective in sharing information it will need to integrate with GP systems and with HealthShare.

### **3.4. Clinical Documentation**

Clinical Documentation was one of the five component systems described in the National Program for Information Technology (NPfIT). However, it is now clear that electronic clinical documentation will be a composite archive of a number of systems. HealthShare offers a single viewing interface for this archive.

Currently InfoFlex is in use for Care Plan (discharge) Summaries and underpins the Letter Replacement Project (LRP, 3.7). Operation notes are produced in the Galaxy theatre system. WinDIP is the acute trust’s clinical document management system (CDMS) for scanned documents and is a repository for other electronic documents. It offers an alternative interface to HealthShare.

Other clinical documentation systems are in development, including the Emergency Department system. The ward task management system could find a role for clinical inpatient notes. However there are several clinical documents that require electronic solutions to meet the “paperless” target including:

- Inpatient clerking and care pathways
- Ward rounds
- Nursing notes

A short-term solution is to develop eforms. These are electronic versions of current paper documents. Although they work well in capturing narrative, the structured information is mostly limited to that which can be captured in the metadata for the eform itself.

### 3.5. Patient Administration/Scheduling; FY 2016+

The existing Patient Administration System (PAS) was supplied to a number of trusts in the South West. It is a legacy system with limited ability to meet current needs. We and other sites are looking to replace it, either through the SLCS procurements or through independent procurements. The supplier has made clear that as sites leave the system, the support costs will be split across the residual sites. We could end up paying five times the current tariff.

There are two options for replacing the PAS:

1. Replace like for like – procure a new PAS to meet current needs
2. Replace PAS with multiple systems - patient index, advanced scheduling, appointment letter production, data warehouse for reporting, case note tracing system etc.

The local health community is pursuing the second option, building on a pilot of UltraGenda in Chemotherapy to build a network of systems which enable complex scheduling. The business case for this work is being drafted.

### 3.6. ePrescribing and Pharmacy Stock Control System

The approach to electronic prescribing taken by the local community differs from that of other national procurements. It attempts to reconcile medicines between primary and secondary care, and share information between hospital and community pharmacies.

Secondary care will get full functionality to support prescribing and medicines administration (including full audit trail on who requested, approved and administered the medication), the aim is that any clinician who is treating a patient in Devon will have access to the full range of prescribing and medication information across the different care settings.

This procurement has received national funding for the supplier costs, but initial tenders failed to meet specifications for medicines reconciliation. The procurement has been restarted and we have had a number of strong responses which after assessment have enabled the Preferred Bidder to be identified.

### 3.7. Order Communications System

Order communications system (OCS, 'Order Comms') enables cross-community electronic requesting of clinical tests including biochemistry, haematology, cytology, histopathology and radiology. Benefits<sup>4</sup> include

- Minimal use of paper.
- Decision support; better patient safety;
- Real-time service line reporting; better control over service costs and pathology reporting on orders placed.
- Audit trail; traceability of who placed and approved the orders/requests, and up to date listings of requested tests.
- Integration with PAS and RIS; reduction of dual entry of patient information.

The current system is an extension of Cyberlab. It has undergone a successful pilot and is being deployed community-wide. It is in the process of full integration with HealthShare.

### 3.8. Letter Replacement Project

InfoFlex has been configured to allow:

- Episode-specific patient correspondence (e.g. clinic outcome letters, letters following an inpatient stay etc.);
- General patient correspondence (e.g. correspondence about patients who are not currently under the care of SDHFT);
- Clinical documentation of communication outside clinics (e.g. a telephone call);
- Patient address labels;
- Oncology annotations, which can be viewed electronically.

Output from the LRP is integrated into WinDIP and Clinical Portal. Integration with clinical workflow enables tracking of tasks such as collating and communicating results of outpatient investigations. The deployment of LRP is now more than half way through the number of specialties, with the remaining to be completed by the end of 16/17.

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<sup>4</sup> See Appendix B – OCS Benefits Profile



### 3.9. Emergency Department and Minor Injuries Unit system

The existing A&E system is mainly administrative, and data is entered after the event. The clinical record is mainly handwritten. A new ED system has been procured from Ascribe to support clinical workflow with an integrated electronic administrative and clinical system. The working environment will be paperless. The new system includes the necessary functionality to support the MIUs throughout the Torbay and South Devon community.

### 3.10. Electronic Operation Note Project

This has been developed in the theatres workflow system, Galaxy. It enables contemporaneous capture and clinical validation of surgical procedure codes. The electronic operating note can be viewed in the Clinical Portal (3.1). Future developments include integration with InfoFlex to populate information fields in the discharge summary (CPS) and improve follow-up planning.

### 3.11. Microtest Summary Care Record

The MicroTest primary care system has lagged behind other primary care systems in its support for the Summary Care Record (SCR). This is expected to be available in 2015/16 and a programme to implement the SCR-supporting version as soon as it becomes available will deliver this.

### 3.12. Extended CDMS

WinDIP/Cito is the ICO's CDMS. Electronic documents from a number of systems, including InfoFlex, are captured automatically, with no need for paper. Scanning and electronic storage/retrieval of older paper records will save clerical time and storage space. The system has also been piloted for the contemporaneous archiving of:

- video clips
- ED records, Electronic forms in the Orthoptists' school clinics
- Endoscopy reports
- DEXA scans

Access to these records will be simplified by the clinical portal and an iPad version has been developed for mobile working and eforms. It will allow integration of the historic paper record with contemporary electronic records. Over time the deployment of the CDMS will replace the physical paper case notes, by enabling near time scanning of the information. This means that the case note will be available wherever the patient is seen and the staff presently handling the physical notes can be released for other duties.

### 3.13. Direct Patient Contact/ Patient Owned Records

Patients' expectations include direct access to clinicians and online access their medical notes before, during and after their treatment. The HIS solution, which would work across the healthcare community, is 'Patients Know Best'<sup>5</sup>. This offers patients the opportunity to

- Message clinicians and care workers.
- View laboratory and other results.
- View discharge summaries.
- Manage appointments.

PKB enables secure communication between hospital and patients. Administrative correspondence, results and copy letters can be sent electronically, eliminating the need for paper and postage costs. Furthermore, receipt requests would help reduce "did not attend" (DNA) rates.

The PKB interface between patient and clinicians reduces the need for face-to-face clinic appointments, and provides a record of contacts.

Integration with GP systems through HealthShare has the potential to offer patients:

- Access to their primary care data in GP systems through integration to PatientOnline services, avoiding patients having to manage multiple log-ons.
- The ability to book GP appointments.

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<sup>5</sup> See Appendix F – Direct Patient Communication (Patients Know Best)

The Internet is also important in marketing what the hospital offers. The Internet Website will be further developed to support clinical services, for example by podcasts/videos for patients coming in for surgery via Hiblio, Facebook pages etc.

Direct patient contact requires that the health and social care organisations involved understand how service users access the Internet. The Cabinet Office's Digital Landscape Report<sup>6</sup> finds that 77% of all UK adults access the Internet daily. More than 50% of Internet access is achieved using smartphones we must be device-agnostic where possible. This is relevant in informing this strategy with regard to patient-facing technologies such as Patients Know Best as these must work with the technology used by patients/service users. Part of our response will be the development of apps to allow patients to easily access information about our services.

### **3.14. Clinical Pathway Management System**

The supply of systems to support the clinical pathway is immature, with few systems able to provide the information we require. Although we did have national funding in 14/15 for a project to implement a pathway system, we could not do so at that point, and had to negotiate to move the funding to another project. However, it still remains our aim to deploy a system that will support the full clinical pathway, crossing care settings, and we will continue to investigate possibilities and either procure an existing system or work with a development partner to create one.

### **3.15. Supporting the ICO**

The ICO has driven the requirement to have a combined Finance system and a combined risk reporting system. It was agreed that Agresso (the system previously used by the Foundation Trust) be deployed for the whole ICO for the financial management, and there is to be a procurement for the risk management system (currently Safeguard and Datix are used).

### **3.16. Directory of Service/Resource Matching System**

There is a requirement for staff who are treating patients and clients to see what services are available for ongoing care, and to also be able to see availability of the service. For example, in order to discharge a patient with dementia who needs intermediate care before returning home, the staff may need to identify a nursing home who can care for a patient with these care needs, but also has a bed available.

### **3.17. Critical Care Unit System**

2015/16 will see the procurement of a new system to support the CCU redevelopment. This system will need to integrate with critical care hardware and other trust electronic systems including pathology and HealthShare. The new system will also enable the department to go paperless, and to monitor patients more easily from a central point, making the care safer.

### **3.18. Infrastructure upgrades; PCs, wireless & 'follow-me' pilot**

Reliance on electronic technology for critical communication and information technology demands resilient systems. ICT failure severely increases clinical risk and at the very least compromises the productivity of the organisation. We need world-class infrastructure to meet expectations of system reliability and performance. The HIS provides the operational support for this and has invested in hardware to ensure hospital and GP systems are reliable, performing and supported in line with the healthcare services they support (i.e. 24 x 7 x 365). Clinician confidence in this infrastructure is paramount to enabling this strategy to be delivered.

#### **Communication:**

The majority of clinicians carry "pagers" for clinical contact. These are expensive to run and give limited functionality. A communication and task management system using smart phone technology will combine direct telephone communication with automatic alerts and access to clinical information via portal technology. This will be more efficient and will manage workflow between clinical teams and shifts.

#### **Wireless:**

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<sup>6</sup> <http://publications.cabinetoffice.gov.uk/digital/research/digital-landscape-research.pdf>

The Wireless network and mobile technology equipment (through other projects) has been rolled out to all acute hospital wards and several additional clinical areas. During 2013/2014 the remaining areas will have the wireless networking installed. Community hospitals and GP practices will all have wireless installed during 2013. In addition to providing secure access for staff use, we will provide free to use wireless internet access for patients.

**PCs:**  
The health and care community delivers a 4-year PC refresh programme to keep up with system developments and performance requirements. This is driven by the changing needs of the business. As PCs age the costs for management and technical repair of the hardware increases. To gain the best value from our PCs and laptops the TCO (Total Cost of Ownership) model dictates a 3-4 year replacement programme.

**Bring Your Own Device (BYOD):**  
Consumer technology has become ubiquitous and is often seen as the gold standard for portability and ease of use. There is a benefit to organisations in allowing staff to use their personally owned devices as part of doing their jobs. MobileIron provides a secure interface between staff-owned devices and hospital electronic systems, allowing staff to manage work and personal activities with a single device if they choose to do so.

### **3.19. GP Federation**

There have been significant benefits in recent years from GP practices federating. There are indications that this will further continue and need common primary care systems to enable this. Projects to support these will be fully supported.

### **3.20. Intranets (Contact/iCare/iKnow)**

The HIS has deployed new, more dynamic intranets to several organisations. Due to the ICO the Contact and iCare intranets will be combined to one to support the new organisation.

### **3.21. Telemedicine and Telehealth**

Several pilots have tested the efficacy of various technologies, but none as yet have supported a business case for operational implementation. The successful Northern Ireland Dermatology implementation will be reviewed with the aim of creating a business case for a local implementation. Our implementation of assistive technologies will:

- Reduce unnecessary face-to-face contact.
- Empower patients to take control of their own healthcare needs and encourage them to self-care.
- Be joined-up, with patient information available across the health and social care community.
- Be sustainable, easy-to-use and flexible in its approach – we will not adopt a “one size fits all” approach.
- Provide clear evidence of the impact of assistive technologies across our local health and social care system.

### **3.22. Remote Access**

Remote Access gives staff access to systems while away from their normal base. Currently this is achieved by staff using remote access tokens and ‘remote desktop’ (terminal services). Laptop computer users are able to utilise the Direct Access capability that removes the need for these tokens. This approach of a virtual secure network on demand will be applied in 2016/17 to the iPad devices. These include supporting remote clinical portal access and Paris 5 in the community.

### **3.23. Summary**

We have ambitious plans to transform the ICT we use over the next five years. Each individual project has been discussed above. In the next chapter we set out how delivery of these projects will be assured. Appendix G summarises our projects together with their timing and estimated costs.